

Anniversary Essays
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CHAPTER 21

PRODUCING ‘DECENT GIRLS’: GOVERNMENTALITY AND THE MORAL GEOGRAPHIES OF SEXUAL CONDUCT IN IRELAND (1922–1937)

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Introduction

In this article we undertake a Foucaultian analysis of the changing sexual landscape of Ireland in the period between independence (1922) and the ratification of the Constitution (1937). This period was a time of formative nation building as the newly independent Ireland, free of British intervention, sought to define Irishness and the national moral character. Several commissions examined the moral conduct of the nation and reported on how Irish social behaviour should be disciplined and a number of new pieces of legislation were enacted, designed to give the state and its various bodies the power to intervene into the sexual lives of its citizens (see Table 1). Following Foucault, we would argue that during this period there was a ‘political, economic, and technical incitement to talk about sex’ – an explosion of discussion about sex (including both social and criminal acts) accompanied by tactics to regulate sexual conduct.

Whilst sexual conduct was the focus of regulation prior to independence, during this period we would contend there was an intensification and deepening of the disciplining regime as the state built for itself new institutionalised power, at the same time bolstering the power of the Catholic Church and heads of family to regulate subjects. The Catholic Church had increasingly sought to shape sexual morality from the mid-eighteenth century through the pulpit and schooling, ‘using discourses of sin, shame, guilt and familism as a means of disciplining, enacted through the confessional, penance, censorship and marriage’ (Kitchin and Lysaght 2004, 196). In the face of political disillusion after the civil war and perceived social and moral decay, it joined forces with the newly formed Cosgrave¹ government to produce ‘a mutually reinforcing political and episcopal vision’ underpinned by a commitment to Catholic moral values (Howell 2003, 339; Fanning 1983), despite the 1922 Constitution defining the state as officially secular.²

¹ William T. Cosgrave became the first leader of Cumann na nGaedheal, the first party to hold power in the Irish Free State after the granting of independence. The party was officially constituted in March 1923 and remained in power until 1932.

² The only reference to religion in the 1922 Constitution was one that guaranteed religious freedom and equality to all the citizens of the Free State.

Table 1. Key reports and government acts concerning the regulation of sexuality

1923	Local Government (Temporary Provisions) Act 1922	Provided a framework for dealing with unmarried mothers, proposing various methods for reforming ‘first offenders’ and punishing ‘recidivists’ and those who could not or would not be reformed.
1923	Censorship of Films Act	Established a film censor (moral editor) with power to cut or refuse a licence to films which in his opinion were subversive of public morality, indecent, obscene or blasphemous.
1925	Civil Service Amendment Act	Gave the government the power to bar women from certain civil service exams.
1925	1925 Poor Law Reform Commission and the Workhouses	Proposed methods for reforming ‘fallen women’ and punishing those who could not or would not be reformed.
1926	Inter-Departmental Committee of Inquiry regarding Venereal Disease	Set up to ‘make inquiries as to the steps, if any, which are desirable to secure that the extent of Venereal disease may be diminished’.
1926	Report of the Committee on Evil Literature	Apart from reporting on ‘indecent literature’, also reported on levels of illegitimacy and contraception.
1924, 1927	Intoxicating Liquor Act	1924 Act limited opening hours and an amendment in 1927 reduced the number of licensed premises – both were driven, in part, by concerns over the effects of alcohol on sexual conduct.
1924, 1927	Juries Bills	Denied women the right to sit on juries.
1927	1927 Report of the Commission on the Sick and Destitute Poor	Focused on the issue of illegitimacy and unmarried mothers. The Report delineated two classes of mother – ‘those who may be amenable to reform’ and the ‘less hopeful cases’. It advocated different treatment for each category. Commission proposed a period of detention or ranging from ‘moral upbringing’ to segregation to forced detention.
1929	Censorship of Publications Act	Section 16, 17 banned the advertising of contraception or abortion. Prohibited the sale and distribution of ‘indecent or obscene’ books.
1930	Illegitimate Children (Affiliation Orders) Act	Ordered fathers to pay maintenance
1930-34	Report of the Department of Local Government and Public Health	Emphasised the importance of specialised homes for ‘fallen women’.
1931	Legitimacy Act	Provided for legitimation by subsequent

		marriage of parents.
1931	Committee on the Criminal Law Amendment Acts (1880–1885) and Juvenile Prostitution	This report dealt with age of consent, contraception and prostitution. It found an ‘alarming amount of sexual crime’, illegitimacy, prostitution sexual immorality. Recommendations included raising the age of consent from 16 to 18, a ban on contraceptives ‘except in exceptional circumstances’, increased penalties for brothel owners and the establishment of a female police force. This report was never published.
1934	Maternity Homes Act	Registration of private maternity homes – brought in after grave concerns about the high rate of infant mortality (particularly amongst illegitimate babies) and ‘baby farming’.
1935	The Conditions of Employment Act	Extended the marriage bar of the Civil Service Amendment Act to the entire civil service (except for workers in the lower grades such as cleaners) and gave the government power to limit the number of women employed in any given industry.
1935	Dance Halls Act	Clamped down on illicit behaviour – covering licensing, suitability of premises, parking of motorcars, age of admission, police supervision and hours of proposed dancing.
1935	Criminal Law Amendment Act	The Act raised the age of consent from 16 to 17 years and raised from 13 to 15 the age at which carnal knowledge would be classed a felony. Section 16, ‘suppression of prostitution’, increased the penalties for prostitution. Section 17 banned the sale and importation of contraception. Section 18 related to public indecency – inhibiting sexual behaviour in public.
1937	Bunreacht na hEíreann (Irish Constitution)	Articles defined the family as the basic social unit of society and the position of woman as ‘mother’, made contraception and divorce illegal and reconfirmed the illegality of abortion and homosexuality (as enshrined in the Offences Against the Person Act 1861 and Criminal Law Amendment Act 1885).

Nationalist and religious leaders could for the first time shape the moral landscape in their own vision through their new abilities to formulate, control and deliver legal reform and welfare, health and education. This was reinforced by a strong social homogeneity (in the 1926 census, 92.6% classified themselves as Catholic, 61% lived outside towns and villages). As a consequence, Inglis (1987, 165) argues that during this time ‘secular civility became synonymous with Catholic morality’.

Hug (2001, 25) thus argues that from ‘the beginning ... the Catholic hierarchy, a number of lay groups, and the government together imposed a Catholic construction of sexuality and worked to regulate it. Anything

that threatened the family was seen to threaten the stability of society, and of the nation as a whole'. Consequently, at this time 'there was installed ... an apparatus for producing an ever greater quantity of discourse about sex, capable of functioning and taking effect in its very economy' (Foucault 1978, 23). And while the 1937 Constitution was certainly not the end point of the state's attempts to actively shape the sexual conduct of its citizens, it brought this period to a close by pulling together many of the discourses and practices developed over the previous 15 years, making contraception and divorce illegal, reconfirming the illegality of abortion and homosexuality (as enshrined in the Offences Against the Person Act 1861 and Criminal Law Amendment Act 1885 that were continued after independence), making the family the cornerstone of Irish society, and outlining a very circumscribed view of women's role in society.

Several other studies have started the process of analysing the recently released reports that have been suppressed since the period and legislation enacted at the time. For example, Kennedy (2000, 2001), McAvoy (1999), Finnane (2001) and Smith (2004) have explored the 1931 *Report of the Committee on the Criminal Law Amendment Acts (1880–1885)*³ and Howell (2003) has examined the 1927 *Report of the Committee on Venereal Disease*. Gray and Ryan (1998), Gray (1999), Ryan (1999, 2002), Valiulis (1995a) and Daly (1995) have explored the connections between control of women's sexuality, gender, identity and nation building, and Luddy (2001) and Earner-Bryne (2004) have examined issues concerning illegitimacy, unmarried mothers and emigration. These studies, however, tend to focus on one particular report, piece of legislation or form of sexual practice (such as prostitution or illegitimate births), rather than construct a genealogy of how these various reports and Acts worked together to produce a particular moral terrain. Moreover, with the exception of Howell (2003), these studies frame their analysis within a feminist framework that casts the regulation of sexuality as a highly gendered project aimed predominately at regulating the lives of women. This is undoubtedly the case (indeed, almost without exception, discourses and legislation were targeted at women), but crucially we would argue that it was a gendered project that was thoroughly *spatial* in its conceptualisation, with the practices of regulation designed to produce particular moral geographies within the home, work and public spaces, and which led to a network of new interlinked institutional spaces designed to reform and discipline 'sexual deviants' and act as a deterrent to the 'weak-willed' (for example, Magdalene Asylums, County Homes, Mother and Baby Homes, reformatories and industrial schools, some of

³ This Report is often referred to as the Carrigan Report after James Carrigan its chairman.

which persisted to near the end of the twentieth century⁴).

In contrast to these other studies, in this article we draw on Foucault's ideas to detail how the various reports and legislation worked together to spatially regulate sexual conduct in different spheres to create a new moral terrain post-independence. Our examination is based on primary archival research conducted between 2003 and 2005⁵ that analysed all of the reports and legislation in Table 1, conducted a reading of all editions of the *Irish Times* from 1921 to 1945 and the *Irish Independent* 1924–1937⁶ for stories concerning sexuality and its regulation, examined official and unofficial correspondence between government departments, officials, religious and lay organisations and members of the general public (stored at the National Archives, Dublin), and analysed contemporaneous literature and the Dáil (parliamentary) minutes for the period.

New moral geographies of sexuality in post-independence Ireland

In Volume 1 of the *History of Sexuality*, Foucault (1978) produced an account of how power in its various guises is brought to bear on sexuality, setting out how relatively open attitudes towards sexuality in seventeenth-century Europe were reconfigured so that by the end of the nineteenth century sexuality was largely repressed. Sexuality became carefully regulated through moral and legal disciplining, confined to the realm of the legitimate and procreative couple. This regulation was enforced through interlocking mechanisms of state and institutional policing, accompanied by societal, familial and self-regulation.

While Foucault (1978) concentrates his analysis on the construction of discursive regimes concerning sexuality at different periods of history and how such regimes produced new modes of governance and shaped sexual identities, he did so in large part by charting the various spaces through which sexual disciplining was articulated (e.g., hospitals, schools, courts, churches, homes). As such, he recognised the inherent spatiality of sexual governance and subject formation; that there were a diverse collection of

⁴ These institutions helped maintain and sustain each other. For example, many of the children born in County Homes (the old workhouses and subject to Poor Law regulation) and Magdalene Asylums were generally fostered out, adopted abroad or eventually sent to an Industrial School. Girls brought up in Industrial Schools frequently ended up working in the laundries attached to the Magdalene Asylums. Those admitted to the religious run, state-funded, Mother and Baby Homes were for the most part 'first offenders' from families who could afford to pay a fee and in a position to keep the 'secret' intact. Their children, however, often suffered the same fate as those born in the County Homes and Magdalene Asylums. The last Magdalene Asylum closed in 1996 (Culliton 1996).

⁵ The project is funded by the Irish Research Council for Humanities and Social Sciences (IRCHSS) through their postdoctoral fellowship scheme (Project title: A Genealogy of Sexual Standards and Practices in Ireland: 1880–2003).

⁶ During this period, the *Irish Independent* was viewed as a nationalist and Catholic national newspaper which gave its allegiance to Cumann na nGaedheal. The *Irish Times* was viewed as a liberal, Protestant national newspaper.

sites of power/knowledge wherein certain people (e.g., medical professionals, teachers, priests, parents) sought to use spatialised practices to encourage and enforce regulatory regimes designed to shape sexual behaviour. As Foucault notes, these sites and practices do not simply work as locations of discipline but, in conjunction with the predominate discursive regime, instil modes of self-discipline wherein subjects monitor and adapt their sexual behaviour with regard to their own moral values and those of others. These sites and their spatialities then are key loci in the production of particular sexual subject positions; they are ‘places of formation’ (Markus 1993).

The various commission reports and legislation identified in Table 1 worked, as Foucault suggested, to create a series of places of formation in the newly independent Ireland – places that both reflected and sought to produce a new moral landscape as desired by the state and church. In the remainder of this section we highlight how Ireland’s new legislative order worked to have a profound effect on the discursive and material practices of sexual regulation in post-independence Ireland, radically reshaping the production of various social spheres.

Home places

The primacy of the family as the cornerstone of Irish society, and thus the home as the key social and political sexual site, was well established by the early twentieth century. This position was further strengthened post-independence through proscription (legislation) and prescription (church pastorals, Dáil Debates, elite discourse) so that the sexual conduct of individuals within the home was increasingly inundated by new rules and regulations that positioned it as a woman’s place and the site of procreational sexual conduct, with no state or religiously sanctioned alternative. Women were pushed toward home life through a disciplinary grid that ensured that they became married before or once sexually active, maintained their procreative role throughout their twenties and thirties (through the denial of contraceptives) and their mothering and family duties throughout their lives, denied them the ability to divorce, limited their access to public and work space, and punished moral infractions.

Illegitimate births were demonised by the state and Catholic Church as gross moral infractions. Women who became pregnant prior to marriage sought wedlock to give the relationship and child a legitimate family status in order to avoid stigmatisation by family, community, and to avoid places of discipline and reformation such as Mother and Baby Homes, emigration abroad or giving the child up for adoption. The *Committee on the Criminal Law (Amendment) Acts 1880–1885* (Carrigan Report) noted with grave concern the perceived increase in sexual immorality, stating that the percentage of illegitimacy per total births for

1929 was the highest recorded and ‘that since 1925 illegitimacy is increasing throughout the country at an unprecedented rate’ (Carrigan 1931, 8). It was noted that 3.1 per cent of total births registered in 1929 were illegitimate – including births in county homes (Poor Law institutions) and public hospitals – and that the problem of illegitimacy and unmarried mothers ‘has strained the accommodation of the County Homes beyond their capacity’ (Carrigan 1931, 9). It also commented that ‘the number of illegitimate births unregistered considerably exceeds the number of such births registered ... that the total number is much in excess of official figures we have no doubt’ (Carrigan 1931, 9).

Fifty-four doctors working in public and private practice stated ‘emphatically that in their experience official statistics of illegitimacy did not adequately represent that actual condition of the country regarding it’ (Carrigan 1931, 6). The same opinion was expressed by British rescue organisations who sought to assist unmarried Irish mothers who had travelled to Britain ‘in shame’, for example, the Liverpool and Catholic Aid Society, Police Court Missionary in Manchester, Leeds Diocesan Rescue, and the Crusade of Rescue in London. The Liverpool Society for the Prevention of International Traffic in Women and Children reported a total of 1947 Irish cases for the period 1926–1930. In Ireland, charitable organisations such as the Catholic Protection and Rescue Society provided accommodation to unmarried mothers. For the three years, 1923–1925, it dealt with 1351 applications, between 1926 and 1928 2707 applications, in 1929 with 950 applications and in 1930 with 1026 applications. St Patrick’s Guild dealt with 834 cases for the years 1923–1925, 1126 between 1926 and 1928, 495 cases in 1929, and 452 cases in 1930. Other illegitimate births were not registered due to concealment, emigration and forced marriage.

Once married, the state sought to maintain a woman’s place in the marital home by removing the means of divorce. Before 1922 a divorce could be obtained by means of a Private Members’ Bill in parliament and although there was no specific mention of divorce in the 1922 Constitution, the Attorney General favoured allowing divorce for those who wanted it. Three Private Members’ Bills were presented in Ireland in 1924. However, in 1925 standing orders were suspended making it impossible for such Bills to be introduced in the future. Archbishop Gilmartin of Tuam warned that family ties were weakened in countries where facilities for divorce were available, arguing that in these places ‘the family hardly existed’ (Irish Catholic Directory 1927, 583, cited in Keogh 1995, 29). J.J. Byrne (TD⁷) contributed to the debate by stating: ‘This country, I believe, stands for the sanctity of marriage ... To the vast

⁷ TD stands for Teachta Dála, meaning Member of Parliament.

majority of people the limitation, the control of births, or the infliction of race suicide upon this nation is one which is bitterly resisted' (Dáil Debates, vol. 26, 18 October 1928, col. 686).

Despite some opposition (mainly from Anglo-Irish activists like William Butler Yeats), this remained the situation until divorce was made unconstitutional in 1937 (Keogh 1995; Kennedy 2001). The 1937 Constitution cemented the family as the key social unit in society, marriage as the key social act, and explicitly stated that a woman's place in society was as home-maker. Article 41.1.1 stated that, 'The State recognises the Family as the natural primary and fundamental unit group of Society, and as a moral institution possessing inalienable and imprescriptible rights, antecedent and superior to all positive law'. In Section 3.1 of the article: 'the State pledges itself to guard with special care the institution of marriage, on which the Family is founded, and to protect it against attack'. Section 3.2 declared: 'no law shall be enacted providing for the grant of a dissolution of marriage'. In other words, divorce became illegal, only being repealed in 1995 through a constitutional referendum (and then only being passed by a narrow margin of 1%; Ferriter 2004, 718).

The illegality of divorce was not the only legal impediment to women leaving the family home if they so desired. Under the Women's Property Act, 1882–1893, women could keep property they owned prior to marriage (which would account for only a minority of women in Ireland) but had no legal right to the marital home or to any of the proceeds should it be sold. This Act was not repealed until 1957 under the Married Women's Status Act. A married woman could not claim a domicile independent of her husband until 1986⁸ or be officially registered as unemployed⁹ until the enactment of the Social Welfare Act 1986 and it was not until 1964, under the Guardianship of Infants Act, that mothers were given the same legal status as fathers in the care of their children.

Prior to and once confined in the marital home, the state and other organisations such as the Church sought to limit citizen's access to literature on birth control and access to contraceptives. *The Report of the Committee on Evil Literature* (1926) revealed that many Irish citizens were aware of the availability of commercial contraception and/or advice on how to procure contraception and 'abortifacients'. Commercial

⁸ A woman could only claim independent domicile after 1986. Before 1986, a married woman had the domicile of her husband and could not acquire a domicile independently of him so long as the marriage subsisted. The effect of the Domicile Act was to give married women the same capacity as anyone else of having an independent domicile.

⁹ Prior to the enactment of the Social Welfare (No. 2) Act 1985, married women were not allowed to claim unemployment assistance unless their husbands were incapable of self-support.

contraceptives (referred to as birth control propaganda and race suicide by the Report), including condoms, cervical caps, creams, and spermicides, were available to people in the Free State through mail order from Britain. Advice was also freely available on home-made methods of contraception for those unable to afford the commercial variety. Over 23 files (National Archives, Jus 7/2) of 'evidence' for the report, much of it from concerned citizens, contain documents, journals, and newspaper cuttings advertising contraception or offering advice on sexual matters. The Report concluded that easy access to birth control, or knowledge concerning birth control, would lead to sexual relations between unmarried citizens and offend the moral majority.

The evidence gathered by the Committee provided the foundation for the 1929 Censorship of Publications Act which banned all literature advocating or giving information on contraception and abortion. In order to shore up a series of loopholes in the 1889 Indecent Advertisements Act, which permitted the advertisement of medicines and appliances for procuring abortions, promoting miscarriage or preventing conception in newspapers, this Act banned the printing, publishing, distribution or sale of 'any book or periodical publication ... which advocates the unnatural prevention of conception or the procurement of abortion or miscarriage or any method, treatment, or appliance to be used for the purpose of such prevention or such treatment', unless the reader had a permit in writing granted to him/her by the Minister for Justice (sections 16, 1 a, b, c). Advertisements which dealt with 'any disease affecting the generative organs of either sex, or to any complaint or infirmity arising from or relating to sexual intercourse, or to the prevention or removal of irregularities in menstruation' were liable to the board's control. Infractions carried the possible penalty of up to £100 in fines or imprisonment of up to three months (sections 17, 10, 2). In 1935, section 17 of the Criminal Law (Amendment) Act imposed a complete ban on the importation and sale of artificial contraceptives.

Literature providing information on the dangers of contraception was, however, allowed to circulate freely. In his book on *Lawful Birth Control*, John A. O'Brien (1934, 81) quotes the following eminent gynaecologists, Dr Guchteneere:

...this noxious character (the frustration of an essential function of the organism) is inherent *in every contraceptive method without exception*, although certain of the methods are particularly dangerous – for example, *coitus interruptus*, the most widespread and most harmful of all.

O'Brien goes on to quote from the Opening Address to the Congress of German Gynaecologists in 1929:

... almost all preventative methods present a danger – and frequently no negligible one – to the health of the woman especially. Nature cannot be hoodwinked. Continual and fruitless stimulation of the genital organs leads to more or less serious chronic pelvis disorders and very frequently sterility. (O'Brien 1934, 82–3)

In addition to the Censorship of Publications Act (1929), the December 1930 Papal Encyclical *Casti Connubi* cemented social policy on birth control and condemned the use of contraceptives, sterilisation, or abortion in any circumstances – even where the life of the woman was threatened through pregnancy (including tuberculosis, heart and kidney disease). Such policy worked to condemn women to the marital home.

Workplaces

In a Christian State women should be excluded even by law from occupations unbecoming or dangerous to female modesty. The employment of wives or mothers in factories or outside their own household should be strictly limited by legislation. (Cahill 1924, cited in Valiulis 1995b, 171)

Women's confinement within the home was aided by a series of legislative reforms that severely curtailed their ability to undertake paid employment or civic duties. The Civil Service Amendment Act (1925) gave government the power to bar women from certain civil service exams (based purely on sex) and in 1933 female teachers were required to resign upon marriage. The Conditions of Employment Act (1935) extended the marriage bar to the entire civil service (except for workers in the lower grades such as cleaners) and gave the government power to limit the number of women employed in any given industry (apart from this clause it was a progressive piece of legislation guaranteeing holidays with pay, regulating work hours, overtime, and so on; the marriage bar was finally repealed in 1973). Companies who hired men rather than women were given additional tariff protection.

Legal and official discourse was reinforced with repeated references in the media and from the pulpit to women's 'former dignity' (Ferriter 2004). It was claimed women had forgotten their true identity, the true meaning of their lives, and had strayed from the home to the detriment of themselves, the family, and the nation. Women who worked outside the home discredited the institution of marriage. Women had but one vocation:

... the one for which nature had admirably suited her ... that of wife and mother. The woman's duties in this regard especially that of bringing up children, are of such far-reaching importance for the nation and the race, that the need of safeguarding them must outweigh almost every other consideration. (*Irish Monthly*, vol. 53, 1925, 28–9 cited in Valiulis 1995a, 127)

One priest in Kerry opined that 'it was a sure sign of the break-up of the planet when women took to leaving their homes and talking in public' (cited in Kiberd 1995, 397). Even the supposedly liberal and Protestant *Irish Times* (22 February 1937) expressed criticism of married women working: 'Some day, please Heaven! The nation will be so organised that work will be available for every man, so that he may marry and assume the burdens of a home and for every woman until she embarks upon her proper profession – which is marriage'. Further, in 1924 and 1927 the Cosgrave government enacted the Juries Bills which virtually ensured that there would be no women jurors (for half a century after independence only three women served on a jury; Kiberd 1995). Church leaders argued that women carrying out jury duties 'is manifestly inconsistent with their home duties; and that any women be eligible to act as jurors in certain types of criminal cases is contrary to the Christian ideal of female modesty. Hence it is desirable that women be exempted from duty' (Cahill 1925, cited in Valiulis 1995b, 171).

This process of excluding women from workplaces ran in stark contrast to the Sex Disqualification (Removal) Act (1919) which ruled that neither sex nor marriage should disqualify a person from 'exercising any public function or for any civil office or post' (cited in Fitzpatrick 1998, 235). Moreover, somewhat paradoxically, in the first decades of the twentieth century only three countries in Europe – England, Wales, and Norway – had a higher percentage of girls in secondary school education, and only two countries – Finland and the Netherlands – had a higher percentage of women in primary teacher training colleges. Finland was the only country that had a higher percentage of women in university; a state of affairs that was maintained right through to the 1930s (Daly 1995, 107). And yet, within a few short years, the fate of women within society was sealed with the enactment of the new Irish Constitution in 1937 which ensured that 'mothers shall not be obliged by economic necessity to engage in labour to the neglect of their duties in the home' (article 41.2.2). Inevitably, many women were squeezed out of the workplace and into the marital home, denied a means of independent income, becoming reliant on the husband to provide for her and her family.

Public space

The cult of sex is everywhere. Sex is blazoned on our fashion places, palpitates in our novels, revels in our ballrooms ... (Irish Monthly, March 1926, cited in Valiulis 1995b: 172)

In the early 1920s new ideas on sexual liberation, drawn largely from overseas, began to articulate themselves through cinema, art, literature, fashion and pastimes in Ireland. In response, the Catholic Church argued there was a national crisis with regard to sexual immorality, condemning what it saw as a growing obsession with pleasure, a slackening of parental control, and a decline in sexual morality. New legislation quickly followed. *The Censorship of Films Act* (1923) established the creation of a film censor (moral editor) with power to cut or refuse a licence to films which in his opinion were 'subversive of public morality' (sections 7(2)). His duties were to ban any film that he felt:

Unfit for general exhibition in public by reason of its being indecent, obscene or blasphemous; or because the exhibition thereof in public would tend to inculcate principles contrary to public morality or would be otherwise subversive of public morals.

This was shortly followed by the *Intoxicating Liquor Act* (1924) that limited opening hours, and an amendment in 1927 that attempted to reduce the number of licensed premises, both driven by concerns over the effects of alcohol on sexual conduct. However, it was the craze for jazz and dancing that upset the clergy the most. According to Lee (1989, 158), 'A morbid preoccupation with occasions of sin in dance halls would dominate pastoral pronouncements throughout the twenties and thirties'. Of course it was not only the dance halls themselves that concerned the Bishops but what went on during breaks from the hall and on the way home. Far from DeValera's much quoted St Patrick Day (1943) broadcast¹⁰ about 'happy maidens' and dancing at the crossroads, Bryan MacMahon recalls a campaign led by priests in the 1930s against crossroads dancing. 'Wooden roadside platforms were set on fire by curates ... priests drove their motorcars backward and forward over the timber platforms ... and those who played music at dances were branded as outcasts' (cited in Whyte 1971, 28). The church was in favour, however, of modest céilí dances¹¹ as 'Irish dances do not make degenerates' (Cardinal Logue 1925 cited in Breathnach 1983, 44). These concerns of the clergy were echoed in the *Report of the Committee on the Criminal Law Amendment Acts* (1880–1885) that concluded: 'The 'commercialised' Dance Halls, Picture Houses of sorts, and the

¹⁰ Available on http://www.rte.ie/laweb/11/11_t09b.html/

¹¹ The Irish céilí is a form of group dancing to traditional Irish music

opportunities afforded by the misuse of motor cars for luring girls, are the chief causes alleged for the present looseness of morals' (Carrigan 1931, 12).

While men were to be foiled in their attempts to lure women, it was women who were most often the targets of reproach and discipline from the church. For example, the Catholic Truth Society, employing nationalistic tones, stated:

The women of Ireland, heretofore, renowned for their virtue and honour, go about furnished with the paint-pot, the lip-stick ... and many of them have acquired the habit of intemperance, perhaps one of the sequels to their lately adopted vogue of smoking. A so-called dress performance or dance today showed some of our Irish girls in such scanty drapery as could only be exceeded in the slave market of pagan countries. (*Irish Independent*, 13 October 1926)

Bishop O'Doherty of Galway, who forbade his flock from attending dances on Saturday nights, advised fathers: 'If your girls do not obey you, if they are not in at the hours appointed, lay the lash upon their backs. That was the good old system, and that should be the system to-day' (Irish Catholic Directory 1925, 568; see also *Irish Independent*, 9 April 1924). The outcome of these protests was the *Dance Halls Act* (1935) that was passed without debate in the Dáil. Owners of dance halls and organisers of public dances were obliged to obtain licences (which restricted times and dates) before dances could be held.

In tandem there were attempts to limit women's participation in athletic pursuits (married women were 'discouraged' by priests) and a teacher training college for women in Limerick (Mary Immaculate College) started the 'Mary Immaculate Modest Dress and Deportment Crusade in 1927', in response to Catholic Bishops' appeal for women to dress modestly. Women were instructed not to wear dresses less than four inches below the knee. Instruction also covered behaviour and disapproved of smoking, alcohol, immodest dancing, and so on (Ferriter 2004, 329).

While the moral panic concerning sexual liaisons arising from encounters in public space was largely driven by concerns over improper relations and illegitimate births, the spectre of venereal disease also played a part. In 1925, the Committee on Venereal Disease was established to investigate the prevalence of venereal disease in the Free State and to suggest solutions to the problem. Reporting in 1927 the Committee stated that the disease was widespread and that there was 'no

considerable area entirely free from the disease' (p. 5). The Commission felt that it was so prevalent (in both rural and urban areas, and affecting men, women and children) that it constituted 'a menace to the maintenance and advancement of the physical and intellectual standards of the race'; it was 'a serious menace to the health of the nation' (p. 13). Controversially the Committee concluded that both syphilis and gonorrhoea 'appears to be conveyed by apparently decent girls throughout the country' (p. 18) with even women of the rural West of Ireland, a source of purity in the national narrative, not free from moral and physical contagion (Howell 2003). In a statement that went against the grain of established discourses on the 'social disease', the Report concluded it was 'disseminated largely by a class of girl who could not be regarded as a prostitute' (p. 3).

Indeed, the Report noted that the problem of the open brothel no longer existed in Dublin (p. 10). Up until the 1920s, brothels in Dublin's red light district, Monto,¹² had operated openly and 'without much let or hindrance on the part of the police authorities' (Suppression of Prostitution 1947, sections 4, 5). However, in 1924 the newly formed Catholic fundamentalist Legion of Mary joined forces with Jesuit Richard Devane (Pro-Cathedral in Malborough St) and Dublin Metropolitan Police and began patrolling the area, picketing brothels and placing prostitutes in rescue homes. Within six months the majority of brothels were closed down.

The problem was, then, not one of prostitution but of girls not acting as decently as they sought to portray themselves, with the Committee concluding that if it 'was possible to get rid of the prostitute the eradication of Venereal Disease would not be effected' (p. 5). The solution was to limit women's public role and access to public space and therefore the opportunities to act as indecent women.

Places of discipline and reformation

Accompanying the movement to regulate women's participation in paid employment, public service and public life, and to effectively constrain their lives to the marital home, was the creation of a set of sites designed to discipline and reform 'fallen' women, act as a deterrent to others, and to address a number of related issues, such as the strain on accommodation and finances of the County Homes (in the 1920s these former workhouses dealt with the majority of unmarried mothers); the perceived failure of County Homes to instil a sense of respectability and

12 Michael McCarthy, author of *Priests and People in Ireland* (1908: 282–3) designated Monto 'the greatest blot upon the social life of Dublin and Ireland' where 'the trade in immorality is carried out as openly as any branch of legitimate business' and 'the principal houses are as attractively painted and fitted up on the outside as private hotels which are legitimately licensed for the sale of drink in the principle streets of the city'.

responsibility amongst its citizens; 'soupperism' or girls fleeing to Protestant refuges; unsafe and unregulated maternity homes where infant mortality was extremely high; pregnant single girls emigrating to England in large numbers; and the threat to the 'much cherished ideal of the traditional family by bypassing convention and creating unorthodox units' (Earner-Byrne 2004, 172). County Homes, Mother and Baby Homes, Industrial and Reformatory Schools, and Magdalene Asylums formed a network of independent institutions that incarcerated women who transgressed society's sexual norms as defined by Church and state, and the offspring of such a transgression, by physically removing them from their communities and placing them in supposed sites of reform. As a result, unmarried mothers and their children were sent to these sites to be remade as women society deemed appropriate. The legitimacy for their containment and surveillance was dependent, to a large degree, on a rationale of defending the wider social body from dangerous or potentially dangerous moral forces.

As Smith (2004, 227) notes, the move towards the creation of such sites 'coincided, almost precisely, with the foundation of the Irish Free State'. Indeed, within the first five years of independence a nationally organised and politically directed programme to protect the social body was already in place. The *Local Government Temporary Provisions Act* (1923) and the Report of the Commission on the Relief of the Sick and Destitute Poor, including the Insane Poor (1927) advocated a series of recommendations that effectively conferred criminal status on single women with children born out of wedlock (Powell 1992; Smith 2004). The 1927 Report of the Commission stated:

in dealing with the problem of accommodation for unmarried mothers it must be recognised that there are two classes to be provided for, namely:
(1) those who may be amenable to reform and
(2) those who for one reason or another are regarded as less hopeful cases. (1927, para. 228)

The latter class were deemed to be lacking any possibility for self-improvement and thus liable to a range of sovereign and disciplinary interventions. Included in this class were deserted wives, 'who subsequent to desertion had children not the offspring of their husbands' (Powell 1992). Similar divisions were presented in the Dáil:

You might divide the mothers into two classes. You have the middle-class mothers with whom the social workers and nuns in cities come into contact. In the other case, you have the mothers who go to county homes and who comprise the vast majority of mothers of illegitimate children in the Free State. Amongst the latter type you

have a small percentage of mothers who themselves are illegitimate, who come of illegitimate stock, and who observe no moral code whatever. (M. J. Kennedy, Dáil Debates, vol. 33, 13 February 1930)

The Report of the Commission proposed two modes of treatment, which was intended to differentiate and segregate the two classes of offenders. First offenders were to be sent to Mother and Baby Homes and repeat offenders to County Homes and Magdalene Asylums.

First offenders, it was felt, required moral ‘upbuilding’, ‘firmness’ and ‘discipline’ but also, depending on the character of the offender, ‘charity’ and ‘sympathy’. These women were to be dealt with in the same institution as children. In parallel, such institutions were created to fulfil these needs modelled on a prototype institution run by the Sacred Heart Nuns in Bessborough, County Cork, set up ‘primarily for young mothers who have fallen for the first time and who are likely to be influenced towards useful and respectable life’ (Annual Report of the Department of Local Government and Public Health 1928, 113). Unmarried, pregnant women sent to these homes generally came from families who could afford to pay a fee to the home (Rafferty and O’Sullivan 1999, 74). The Order set up another Mother and Baby home in Sean Ross Abbey, Roscrea in 1930, and the Sisters of the Sacred Heart of Jesus and Mary set up another in Castlepollard in 1935.¹³ The state itself ran similar institutions, operated by the Poor Law Authorities (but staffed by nuns), at Pelletstown, County Dublin, Tuam, County Galway, and Kilrush, County Clare (Powell 1992; Garrett 2000).

Unmarried mothers were generally (and illegally) held in these homes for up to two years as it was felt ‘a number of the girls [were] very weak-willed and [had] to be maintained in the Home for a long period to safeguard them against a second lapse’ (Department of Local Government and Public Health 1930–31, 130). During their stay women were trained in domestic duties like cooking, sewing, knitting and religious instruction (Department of Local Government and Public Health 1928–29, 114, cited in Powell 1992, 191). Children of first offenders were very often quickly separated from their mothers – checked for any problems (mental or physical) and usually informally adopted if found to be healthy and ‘normal’ (Rafferty and O’Sullivan 1999). Although, in theory, women and their children were free to leave at any time, many stayed because they were unaware of their civil and legal rights or because in many cases poor law authorities refused to

¹³ In 1930, 60 of the 120 children born in Sean Ross Abbey died (Department of Local Government and Public Health, 1938).

allow them to take their children with them. Not only was this illegal, it was also understood in official circles. In her Annual Report for 1931–1932, the Inspector of Boarded-Out Children, Alice Lister wrote: ‘A grave wrong is done to their children by retaining them in the Co. Homes, but retention of the children is the only means of securing the mothers from the danger which freedom spells for them’ (cited in *Irish Times*, 1 May 1999).

For repeat offenders or ‘less hopeful cases ... residue composed probably of those who are the least open to good influences’, the Report proposed a period of detention (Department of Local Government and Public Health Annual Report 1927, 69), not only to protect the social order but because their children ‘could be infected with the deviant genes and perpetuate the threat’ (Rafferty and O’Sullivan 1999, 74). These sentiments were backed up by politicians. For example, in the Dáil, Dr Ward spoke of ‘the difficulty of the unmarried mother’ and of ‘setting up separate institutions for that particular class ... with compulsory powers to keep the mother there for a year or so’ (Dáil Debates, vol. 23, 23 May 1928). The Commission’s proposals regarding single women with more than one child were quickly put into effect, with mother and children separated and confined to different institutions. Mothers were generally incarcerated in County Homes and for the most part children remained under poor law regulation and were either sent to industrial schools or were fostered.¹⁴ County Homes were supplemented by an arrangement between local authorities and the Sisters-in-Charge of Magdalene Asylums in 1932 for the containment of unmarried mothers (Annual Report of the Department of Local Government and Public Health 1931–32, 129 cited in Powell 1992, 181).

Magdalene Asylums (named after the prostitute Mary Magdalene) provided ‘special provision’ for repeat offenders. These institutions were originally created by social purity movements in the nineteenth century to rehabilitate and provide refuge to prostitutes and destitute women. They were quickly appropriated by the Catholic Church and by the 1920s were almost exclusively used to reform unmarried mothers, female sexual deviants, and those who transgressed sexual social norms. The Good Shepherd Sisters ran asylums in Limerick, Wexford, Waterford, Cork and Belfast. The Sisters of Mercy ran asylums in Limerick and Galway, and the Sisters of Our Lady of Charity ran asylums in Limerick and two in Dublin. Once temporary places of refuge and asylum providing respite

¹⁴ In orphanages catering for illegitimate children, the infant mortality rate in the mid-1920s ranged between 29% and 34% at a time when infant mortality rate in the rest of society was 5% or 6% (Annual Reports of the Registrar General of Births, Marriages and Deaths, 1923–1928).

from abuse, disease, and so on, they became increasingly distanced from the original ideals of the social purity movement and instead turned into long-term, punitive institutions, driven by a quest for retribution and repentance. ‘Inmates’ and ‘penitents’ were obliged to surrender their infants and work primarily in laundries attached to the asylums. Unlike other businesses, these profit making laundries were not subject to the Factory Act (1895) that protected workers’ rights.

Penitents were referred to as ‘children’ and subject to enforced silences for long periods of the day. Under constant surveillance, close friendships were discouraged (Rafferty 1999; Finnegan 2004) and individual identity was suppressed and rebuilt (ostensibly carried out to protect anonymity). Women were often given new names and prohibited from talking of their past. Beds in the dormitories were open to the gaze (even trips to the toilet were carefully monitored and surveyed). Finnegan (2004, 29–30) quotes from ‘Rules for the Direction of the Classes’ (1898, 138); rules that were observed in the Good Shepherd Asylums until at least the 1960s:

We should not, at recreation nor elsewhere, allow two children to be alone ... there should be no corners in which some could hide from the eyes of the Mistress. It is in such places the demon lies in wait for the children, to tempt them to do wrong ... Then redouble your vigilance ... Watch them in the chapel; watch them at work; watch them particularly during the hours of recreation. Let your surveillance extend to everything.

Shunned by their families, these women and girls largely ceased to exist in the outside world. ‘Escapees’ were often returned by their families or members of the Garda. Denied civil and constitutional rights, many stayed for life. No one knows how many women and girls were sent to the laundries. The religious orders continue to refuse to make these records available, but estimates range into tens of thousands (Finnegan 2004; Ferriter 2004).

Producing ‘decent girls’

The real power – the real success of this whole new apparatus of sexuality – was that men, women, girls and boys inculcated sexuality in themselves. The key to the deployment of this sexuality was a continuous, rigorous examination of the self using the rules, regulations, principles and practices of the Catholic Church. (Inglis 1997, 13)

Protection of Ireland's distinctiveness (and fictive ethnicity) and recently won independence was the primary concern for many post-independence political activists, and Ireland's appointed (and self-appointed) moral crusaders were determined to control dissident elements and cultural values in order to build a 'pure and unsullied society' (Kenny 2000, 117). As we have illustrated, the new Irish state very quickly became a site of applied bio-politics, and governmental practices began to focus explicitly on (visible) sexual morality as a key target of social intervention and organisation. Following reports on the morality of the population there was a proliferation of policy documents and legislation concerned with the administration of life (issues relating to, for example, contraception, abortion, divorce, venereal disease, health, hygiene) as policy makers and other state actors set about the task of reforming, regulating, dominating and controlling the politics and practices of the Irish population. As such, various official and unofficial government agents (through proscription and prescription) sought to shape the conduct, aspirations, needs, desires and capacities of individuals within difference spheres.

The disciplinary regime that was constructed was highly gendered, focusing almost exclusively on the regulation and self-regulation of women. They worked to form a dense *spatialised* grid of discipline, reform and self-regulation, seeking to produce 'decent' women inhabiting virtuous spaces by limiting access to work and public spaces, confining women to an unsullied (marital) home, with the ever-present threat of new sites of reformation, and convincing citizens that such material and discursive practices were in their own and the nation's best interests (and thus to self-discipline their own sexual behaviour). With regard to the latter, governmental strategies not only aimed to constrain, coerce, discipline and normalise but also to produce a certain kind of regulated, civilised subject (Foucault 1978) – decent men, but more particularly, women. The dividing practices employed not only helped to define who was in and out of the social body, but thus what constituted a desirable social body. The result was that by the early 1930s a systematic framework for the regulation and surveillance of sexual practices and segregating problem elements of the population was in place.

As we have noted, however, what occurred in this period (1922–1937) was not a replacement of earlier discourses on sexual purity and morality. For example, discourses on the immorality of prostitution, contraception, sexual perniciousness, obscene literature, and so on, had been laid down in the previous decades by social purity movements, the legal and medical professions, and religious institutions. As such, there was nothing new about attempts to regulate and reform morality through place (institutions for the punishment, reform and regulation of 'sexual deviants' were already well established and there had been sporadic attempts to regulate red light districts throughout the nineteenth

century). There was, however, a transformation in the scale and continuity of the exercise of power, a shift in emphasis and objective, an increasing obsession amongst political and religious elites with the *visibility* of sex, and the development of a much more systematic and connected disciplinary regime. Concurrent with this, there was a diffusion of what might be termed ‘containment culture’ (Smith 2004) – where Irish citizens are implicitly held to be without maturity and the attributes of responsibility and autonomy, and where unwanted discourses and threats to the national narrative were suppressed and statistics concealed under the pretext that revelations of high levels of immorality and sexual crime would ‘offend the sensibilities of the Irish people’ and ‘rejoice its enemies’ (for example, official reports were not openly published). In both cases, women were the central foci.

The pressure to produce ‘decent girls’ – honest, chaste, virtuous, homely – meant that women became particular targets and a calculated administration of feelings of shame and guilt about the body and sexuality, designed to link the ethical capacities of women to the ends of government, were set in train (Inglis 1997; Rose 1993). In tandem with nationalist and Catholic discourse, legislative measures were implemented that sought not only to constrain women, but to work positively (and oppressively) to create a particular subjectivity so that women would be seen to ‘conform to the prescribed national paradigm’ (Smith 2004, 210–11; Valiulis 1995b; McAvoy 1999).

It is perhaps no surprise then to note that it was women, having been persuaded to the logic of the governmentality advocated, who were the strongest supporters and effective objects and vehicles of new regimes regulating sexual conduct; the most ardent creators of new moral geographies. For example, in 1925 it was for the most part women who were involved in the closing of the Dublin’s red light district, Monto (although directed by Frank Duff, founder of the Legion of Mary). Women also formed voluntary groups to monitor cinemas, theatres and women’s dress code (Kenny 2000). In 1929, a report from the Galway Board of Health ‘indicated that some women refused to use the facilities of Galway Maternity Hospital because they would be forced to associate with unmarried mothers’ (cited in Carrigan 1931, 9–10). ‘Concerned citizens’ and lay organisations like the Irish Vigilance Association and Legion of Mary alerted the censors to ‘immoral’ literature and sought increased penalties. It was, for the most part, families, relatives and the local clergy who sent ‘promiscuous’ or potentially promiscuous girls and deviant women to Magdalene Asylums, and public representatives (e.g. elected councillors) openly recommended incarceration, categorisation and segregation of ‘fallen women’ (see for example Shaw 1926 and Ward 1928). And it was nuns who scrutinised, supervised and enforced the

strict disciplinary regimes within these institutions.

In turn, the suspension of the law when it came to the treatment of unmarried mothers and their children served to heighten the discretionary powers of those (for example, nuns, local authorities, families) 'who are asked to rely on their own judgement to decide fundamental matters of justice, life and freedom' (Butler 2004: 55). By constructing any form of sexuality outside that of marriage as a moral problem and an issue of social responsibility it legitimated what was essentially a police action – the spatial confinement of the 'deviant'. Confinement in these circumstances was not seen to infringe on the women's rights as citizens and as such was viewed as a legitimate form of government.

These pressures clearly had a profound effect on the moral landscape of Ireland shaping sexual conduct and the lives of women in numerous ways. This said, it is clear from the record that Irish adults were far from 'innocents', unaware of their sexuality, sexual conduct, or the punishments meted out to transgressors in their name. After all, the disciplining regime was seen to be addressing a set of real concerns. During the first decades of the foundation of the new state, many women and men were exploring their sexuality and having sex prior to marriage. The use of contraception and birth control was relatively common in both rural and urban areas as was the availability of information. It is also clear that many men and women were having sexual relations outside marriage. Venereal disease was widespread, levels of illegitimacy were rising steadily, and there is strong evidence of pregnant women emigrating to Britain in large numbers to have their babies in a less puritanical and more anonymous environment (Earner-Byrne 2004). As such, it is a mistake to assume that all subjects bowed to the disciplining regime. Instead, there were ways of resistance (having relationships, affairs, attending dances, and so on), and challenges to the changes taking place. For example, Ryan (2002, 61) quotes a piece from the *Irish Independent* (15 December 1936: 7) where a social worker describes the situation of unmarried mothers: 'These girls are the scapegoats of a tradition of Puritanism that will not admit that things are as they are'.

At the same time, the obsession with immoral foreign literature, contraception, working women, divorce, and dance halls deflected attention away from the reality of high levels of sexual crime and abuse and 'the social scars which disfigured Ireland' (Lee 1989) and which recent public inquiries are only now starting to address such as sexual abuse by clergy and others in positions of power. The reluctance of successive governments to prepare a regular report on sexual crime speaks volumes. In 1937, the Department of Justice prepared a minute

for the Executive Council arguing for the need of a regular report: 'The present practice is so very unusual in a modern state and would be so difficult to explain or justify, if and when public attention is drawn to it, that it is proper to have a government decision on the matter' (June 1937, cited in Finnane 2001, 531). The minute was later withdrawn from the cabinet agenda. There was no public evaluation of the scale of sexual crime and no discussion on the impact on individuals (as in pre-Free State *Irish Citizen* articles) (Smith 2004). This denial was evident even amongst the judiciary. Sentencing a soldier for an assault on a young girl a district court judge stated he 'was glad to say that cases of indecent assault were uncommon in this country, and this was attributable to the manhood of the country. It had rightly been said that Irishmen had greater respect for women than the men in any other country in Europe' (*Irish Times*, 6 August 1928). Ironically, in 1927 and 1928 the rates of sexual assault on women were the highest recorded since 1909 according to the evidence presented by the Garda Commissioner, Eoin O'Duffy, to the Carrigan Committee in 1931 (cited in Finnane 2001, 535). Moreover, the 'culture of containment' worked to free Irish society from polluting elements while simultaneously rendering the 'contaminated' less visible (in a psychological, social and material sense). Incarcerating sexualised women and children in religious institutions rendered the compromising reality of their existence invisible while paradoxically confirming society's high standards. It sustained the new 'imagined community' concealing any visible signs of sexual crime, incidence of rape, incest, paedophilia and ignorance, and in return the nation secured its identity as a Catholic and morally pure society' (Smith 2004, 233).

The disciplining regime and the ideologies of respectability and superior sexual morality thus worked to produce a refuge in which to evade analysis and allow people to 'practise innocence'. It would appear that a significant proportion of the population assumed this role, creating an intimate symbiosis between government and civil society, through the adoption of new modes of self-regulation. As a consequence ideas on sexual conduct, and the role and place of women in society more generally, and how these should be maintained through new legislation, censorship, retribution and incarceration, were taken for granted, and came to be seen as desirable and commonsense, even though they had negative consequences for many in society, thus producing new moral geographies. Most Irish people seemingly accepted a role (if at the unconscious level) as accomplices in the new vision of Irishness and Ireland and its governmentality. As Lee (1989, 652) states: 'The ultimate perfection of the design had been achieved when it could be conceived not only by its architects but also by its victims, for all their inner sense of deprivation, as a divine dispensation'. The consequence of the new doxa was that within one generation women's political, economic and

reproductive rights had been so severely curtailed that they were ‘explicitly barred from claiming for themselves a public identity’ (Valiulis 1995a, 120). The discursive formation was so deep-seated that it was not until the 1970s through to the 1990s that legislation and the constitution were subject to sustained critique and campaign, and a reconfiguring of the immediate post-independence, moral landscape was undertaken.¹⁵

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¹⁵ The marriage bar was removed in 1973. Divorce became legal again in 1996. Contraception could be imported for personal use from 1973, from 1979 they could be sold in Ireland to married couples upon receipt of a medical prescription, from 1985, they could be bought by anyone over 18, from 1993, they could be sold via a vending machine, and from 1995 sterilisation became a legal means of contraception and contraception became free to the economically disadvantaged (Hug 2001). Homosexuality was decriminalised in 1993. Abortion remains illegal in all but exceptional circumstances (e.g., threat to the life of the mother, rape).

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CHAPTER 22

TOWARDS A GEOGRAPHY OF NAMA

SINÉAD KELLY

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<http://irelandafternama.wordpress.com/>, December 7, 2009.

Introduction

A striking feature of the official documentation of the National Assets Management Agency (NAMA) and subsequent commentary is its lack of attention to geographic or spatial considerations. Indeed, this tendency of ‘aspatial’ analysis has also been a key feature of banking and financial operations, where property assets, which exist in physical space and have a specific geographic location, are presented in numerical form (often aggregated) on loan books, on balance sheets and indeed as part of complex asset bundles, such as CDOs (collateralised debt obligations). Such an understanding and presentation of data serves very much to conceal the geography of those assets.

During the boom, financial institutions massively expanded their total lending and, as we know, what characterises the Irish banking system (and crisis), is that much of the lending went into property, which has a very particular geography. And, given the general tendency of property developers and investors to engage in developments in increasingly riskier locations the longer the boom goes on, and the considerable property price inflation that occurred in every region in Ireland, it was the overlooking of geographical considerations that facilitated further inflation of the asset bubble.

That push to boost lending and increase the profitability of banks seemed to pay little attention to broader indicators in the Irish economy but also failed to pay due cognisance to locational considerations. In an industry in which the three rubric for success have long been recognised as “location, location and location”, such overlooking of spatial considerations is nothing short of amazing.

The very viability of NAMA as a financial project is highly dependent on the geography of those property assets which underpin the loans which NAMA is purchasing. While certain well-located assets may indeed provide for a secure yield in the medium term, others, such as large sites lacking any urban zoning status located at the edge of small Irish towns and villages for which enormous prices were paid per hectare, are unlikely even in the very long term to prove to possess much value above that of farmland.

Approaching the ‘details’ of NAMA and applying sectoral and geographical scenarios

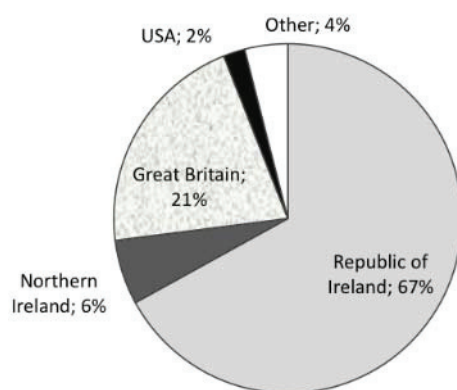
From the draft NAMA business plan released in October 2009, one can ascertain the broad composition of the loans. Of the total amount of €77bn of loans being transferred to NAMA from banks’ asset sheets:

- €27.8bn (36%) relates to ‘land’
- €21.8bn (28%) relates to ‘development loans’
- €27.7bn (36%) relates to ‘associated loans’

Beyond that broad breakdown, there is little information on when the loans were granted, on the type of property to which the loans relate (residential, office, retail, industrial, etc.) and on the geography of the assets.

To date, the total extent of our knowledge of the ‘geography’ of those loans is provided only by a very broad break-down between international locations (see Figure 1). But in a sector in which a matter of 40 or 50 metres distance between sites might mean the difference between success and failure in the case of urban redevelopment projects, particularly in office development markets, such crude delimitation is almost entirely unhelpful. Unfortunately, we know too little about the location of NAMA-related property for an accurate assessment to be made as to their likely real value.

Figure 1. The Geographical Breakdown of NAMA’s Portfolio



Source: Draft NAMA Business Plan (2009)

Some €33.13bn of those loans relate to properties located in the Republic of Ireland. However, an appraisal of the real value of the underlying assets requires, in the case of loans against land, a review of the *geographical location*, *zoning characteristics* and *planning status*. For development loans, an evaluation needs to be undertaken of the *sectoral status* (residential, industrial, office, retail and other commercial) of schemes within a *local context* in which the current level of provision of such

property is taken into account, together with considerations of *existing vacancy rates*, the projected *scale* and *stage* of development (completions, currently on-site or due to be undertaken), and the prevailing and projected *scales of demand* for such space.

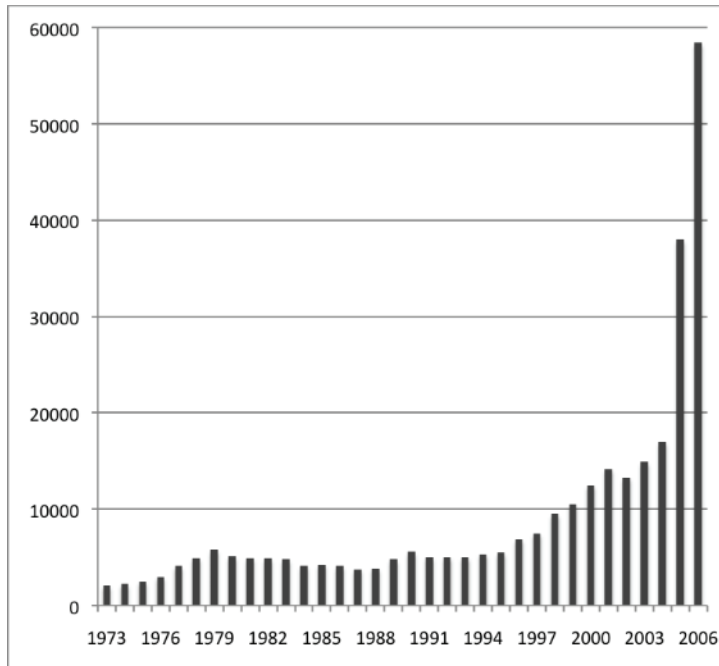
As laid out in the draft NAMA business plan (NAMA, 2009), NAMA will pay €54bn for loans with a book value of €77bn, representing a 30 percent “haircut” on the original loans’ value. While NAMA will pay 15 percent above the estimated current market value for the assets, it does so on the basis that the total reduction in average property prices in the boom-slump cycle is 47 percent (the peak having occurred in early 2007 and the trough estimated to have occurred in September 2009) and that the 15 percent premium can be recouped over the lifetime of NAMA through a rising property market.

While we do not have specific information on the geographical location of the assets that are to be transferred to NAMA, we can examine some recent trends in the property market and compare them to the assumptions underpinning NAMA.

The Agricultural Land-Price Spiral

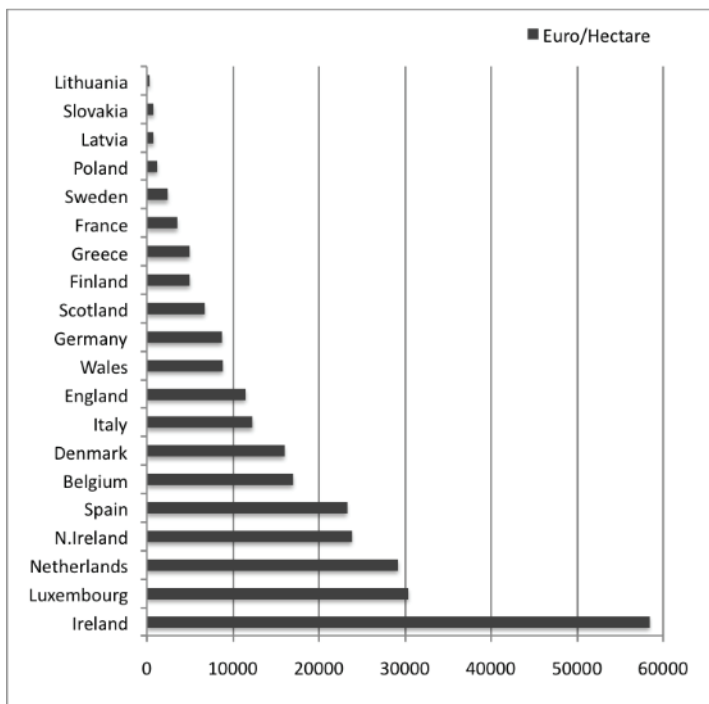
What became clear during the boom years was that a very sharp increase in land prices was occurring, not just in and near urban areas but also in rural areas – agricultural land. According to Savills-HOK’s *Irish Agricultural Land Research* report in May 2007, Irish land values jumped from just under €10,000 per hectare (€3,850 per acre) in 1998 to over €58,400 per hectare (€23,600 per acre) in 2006, by far the highest price per hectare in Europe (see Figures 2 and 3). This jump in part reflected the tendency for farmers to sell small plots of land for development purposes (one-off housing) and an increasing trend of wealthy individuals buying small farms for lifestyle purposes, particularly within commuting distance of Dublin. In many cases, the proceeds from land sales was re-invested in farmland, where farmers with land at the edge of towns sold them off during the boom times and bought farms elsewhere pushing up land prices even further and becoming even more out-of-kilter with the day-to-day economics of farming. With the onset of the property crash, agricultural land prices have and will continue to fall back sharply, with those greenfield sites at the edge of towns bought with redevelopment in mind, open to devaluations in the region of 90-95 percent.

Figure 2. Irish Land Values 1973-2006 (€ per hectare)



Source: Savills HOK (2007) CSO, Eurostat, Farmers Journal

Figure 3. European Land Values by Country 2005/6 (€ per hectare)



Source: Savills HOK (2007) CSO, Eurostat, Farmers Journal

Record Site Prices

If we examine some of the record prices paid for redevelopment sites in urban areas at the height of the boom, and compare them to revaluations on other similar sites during the slump, it should give us some indication as to the real extent of price falls.

In late 2005, a number of significant site sales in the prestigious area of Ballsbridge in Dublin 4 attracted considerable attention. During this period, the developer Sean Dunne bought two sites, the former Jury's Hotel and the former Berkeley Court Hotel. The sites comprised seven acres and were purchased for *ca.* €379M, averaging a then unprecedented €54.1M per acre (MacDonald and Sheridan, 2008; Brawn, 2009). Another developer, Ray Grehan of Glenkerrin Homes bought a nearby 2.05 acre site, the former UCD Veterinary College, for *ca.* €171.5M, an incredible €83.7M per acre. In 2006, a small site of just over a third of an acre went for almost €40M (€95M per acre). These were purchases that were made close to the height of the boom for potential redevelopment sites which had no planning permission. Even if the subsequently proposed mixed-use developments had been given planning permission and had they been completed at the height of the property boom, the margins for profitability were already stretched. So what scale of price devaluations could we expect in the property crash for these sites?

Take the example of a nearby 0.5 acre site on Herbert Road, Ballsbridge; this former Cablelink office-building was offered for sale in autumn 2007, just after the peak of the property boom, for €30M. Two years later, the asking price stood at €9.5M representing a 68 percent decrease, and that was the asking price – by no means an accurate indicator of how low market prices could fall.

As has been well-documented on the *Ireland After Nama* blog (see Kitchin, 2009; Moore, 2009), the case of the Irish Glass Bottle site in Ringsend in Dublin 4 is instructive. This 24.9 acre site, purchased in early 2007 for *ca.* €413M (€16.6M per acre) by a consortium involving companies of Bernard McNamara and Derek Quinlan and the Dublin Docklands Development Authority (DDDA), was revalued in October 2009 at €60M. This represents a whopping 85 percent price devaluation, which is significantly above the “haircut” of 30 percent or the 47 percent average property price fall upon which NAMA's calculations are based. In the case of the Irish Glass Bottle site, we are talking about a large centrally-located brownfield site with special planning status for mixed use (residential and enterprise) functions under the DDDA's Master Plan, with reasonably good prospects of redevelopment in the medium-to-longer term. Yet, in spite of the existence of an overarching planning framework, this site has retained only 15 percent of its market-peak value. This begs the question that if such well-located sites are experiencing such colossal price falls, then what are the prospects for

greenfield sites at the edge of cities or at the edge of towns throughout Ireland.

Investigating Development Loans – The changing geography of Dublin’s office stock

Many of the *Development Loans* and *Associated Loans* set out in the NAMA business plan (NAMA, 2009) relate to loans for commercial property in Ireland. It is to an examination of recent trends and indicators for the different commercial property sectors that this discussion now turns. Taking the Dublin office market as an example, research from the Centre for Urban and Regional Studies (CURS), TCD and Savills-HOK (MacLaran & O’Connell, 2007) has traced the changing volume and geography of office space in Dublin since 1995. Over the past 15 years, the volume of modern office stock expanded enormously. However, the geography of office development has also changed significantly, where proportionately, there has been a fall in the dominance of the prime office locations of Dublin 2 and 4, while suburban office locations have grown substantially (see Table 1). While in 1995, suburban office developments accounted for 14.6 percent of the total stock, by 2008, that figure had leapt to over 35 percent.

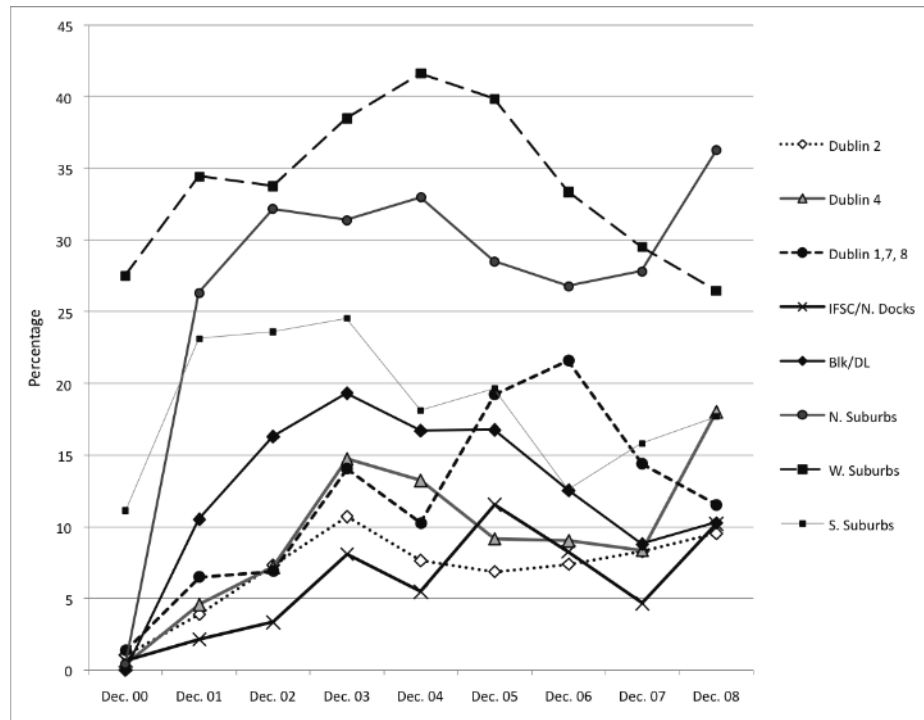
Table 1. The Changing Geography of the Modern Office Stock in Dublin, 1995-2008

	<i>1995</i>	<i>2008</i>
Dublin 2	54.5 %	32.0 %
Dublin 4	14.1 %	12.4 %
Dublin 1, 7, 8	16.8 %	14.9 %
IFSC / North Docks	n.a.	5.6 %
Blackrock / Dun Laoghaire	4.4 %	3.3 %
North Suburbs	0.7 %	6.4 %
West Suburbs	1.9 %	10.1 %
Other South Suburbs	7.6 %	15.4 %

Source: CURS/SavillsHOK Office Database

Rates of vacancy in the modern office stock vary considerably geographically and are particularly high in certain suburbs, having been especially high in west Dublin (see Figure 4). The research indicates that since 2007, there have been high levels of activity in office construction in suburban areas, office space that has yet to reach the market. It is likely that some loans associated with office space in suburban areas will be transferred to NAMA, areas that even during the boom were experiencing relatively high vacancy levels.

Figure 4. Vacancy Rates in Dublin's office stock, December 2000 to December 2008



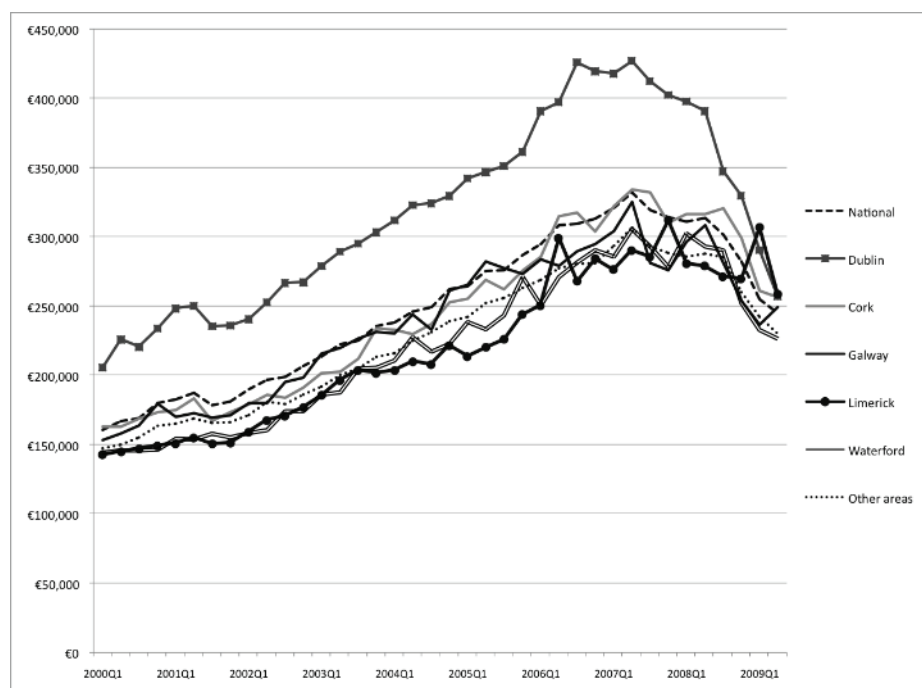
Source: CURS/SavillsHOK Office Database

Moreover, with the then Minister for Justice Dermot Ahern proposing in later 2009 to ban the use of upward-only rent reviews for all new leases in commercial property, this would likely have a downward effect on the capital values that new office buildings would achieve. While, this proposed ban could be seen as a positive step for some business sectors (new tenants especially), it may have serious implications for NAMA (and simultaneously for Irish society) as NAMA's business model is tied to a rising property market. More specifically, many of NAMA's underpinning calculations drew heavily on trends and expectations in commercial property sectors, which at that time were based on a system of upward-only rent reviews.

Residential Loans

It is likely that a good deal of the Development and Associated Loans relate to residential developments at various stages of construction. And, while it is clear that substantial reductions have occurred in house prices generally, it is difficult to gauge the likely level of devaluation on residential loans that will transfer to NAMA. Where loans transferred to NAMA are found to involve housing developments that are at a stage of completion, we can draw on new house prices as an indicator.

Figure 5. New house prices – National, Dublin and Regional, 2000-2009Q2



Source: DoEHLG, Housing Statistics Bulletins, various years

Based on the DoEHLG's Housing Statistics Bulletins, Figure 5 indicates that new house prices nationally fell by 26 percent from the peak of the boom (2007Q2) to July 2009. For Cork and Galway, the figure was 23 percent, for Limerick, 11 percent, with Waterford and other areas experiencing 26 percent and 25 percent price drops respectively. Notably, the fall was sharpest in Dublin where new house prices fell by 40 percent and there is little to indicate that the downward trend halted in September 2009, the date that the draft NAMA business plan (NAMA, 2009) has taken to represent the price-floor of the market. Unsurprisingly, sales activity was much reduced.

Notably, the type of 'assets' that will be transferred to NAMA will likely include some of those unfinished housing estates and apartment complexes that have become a very visible feature of the Irish landscape – in city suburbs, in inner-city neighbourhoods and at the edge of towns and villages countrywide. In these cases, the ratio of market value to loan value will have fallen dramatically, with the management and disposal of these 'assets' likely to prove difficult and expensive.

The property crash beyond NAMA

While this discussion has sought to develop further a geography of NAMA's portfolio, raising some serious questions about the calculations and underpinning assumptions of NAMA in the process, it must also be

remembered that there are other major elements of the property crash that will not be addressed by NAMA. The NAMA portfolio involves loans relating to *ca.*1,600 borrowers, with just 100 borrowers accounting for 50 percent of the portfolio. Land, Development and Associated Loans of less than €5M are excluded from NAMA (except those with EBS and Irish Nationwide). The number of these loans is unknown but their geography is likely to be predominantly rural in nature or rather, at the fringe of towns and villages throughout Ireland. Then, of course, there is that far more immediate concern for tens-of-thousands of households of mortgage repayment difficulties, negative equity and the threat of housing foreclosures in the not-too-distant future. In NAMA and the Special Purpose Vehicle (SPV), these households will find little comfort.

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CHAPTER 23

BORDER THINKING: ROSSPORT, SHELL AND THE POLITICAL GEOGRAPHIES OF A GAS PIPELINE

MARY GILMARTIN

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Introduction

On June 29, 2005, Philip McGrath, Brendan Philbin, Vincent McGrath, Micheál O Seighin and Willie Corduff were jailed by the High Court in Dublin for contempt of court. The five – all from the Erris peninsula in Mayo, in the west of Ireland – had refused, despite a court order, to stop obstructing the construction of a gas pipeline through some of their lands. The Rosspport Five, as they became known, remained in jail until September 30, 2005, for 94 days (see Fig. 1). Despite their release, the campaign against the construction of the gas pipeline – known as Shell chun Sáile or Shell to Sea – continues. Despite these protests, the construction of the gas pipeline also continues.

This paper focuses on the lead up to and the aftermath of the imprisonment and release of the Rosspport Five, and raises broader questions about why and how political geographers should engage with this story, unfolding in a remote part of Ireland. The question of why may be quite obvious. Rosspport matters, because it is a dispute about ownership and use of natural resources; because it illustrates the threats posed to local communities by a powerful coalition of state and capital; and because, as a consequence, it raises questions of scalar politics and power. In this way, Rosspport is part of a longer tradition in geography that focuses on place-based conflicts and struggles (for some recent examples, see Davies, 2005, 2006; Perreault, 2003; Watts, 2004a; Zaup, 2008). The question of how political geographers should engage with this story is, perhaps, more difficult to answer. In this paper, I suggest that the story of Rosspport offers the possibility for a redeployment of postcolonial thought within political geography. While political geographers engage with the postcolonial, their analyses most often focus on the postcolonial as a bounded temporal and spatial state (see, for example, Christopher, 2009; Power, 2001; Ramutsindela, 2001; Sidaway, 2003; Tan, 2007), or apply postcolonial analyses to the new imperialism of the US (see, for example, Slater, 2004; Sparke, 2005).¹ The potential for an expanded understanding of postcolonial theory in political geography and geopolitics has been articulated by Robinson (2003), but

¹ Though rarely explicitly framed as political geography, there is a growing body of work on the relationship between postcolonial theory and development (see, for example, Power, Mohan, & Mercer, 2006; Raghuram & Madge, 2006; Raghuram, Madge, & Noxolo, 2009).

her powerful argument has yet to make a significant impact on the discipline. In this paper, I suggest that a broader engagement with postcolonial thought offers new insights into the epistemologies of political geography, and new directions for the practise of political geography. The work of Walter D. Mignolo, a professor of literature and a key writer on Latin America, provides one such set of possibilities. In particular, Mignolo's attention to the geo-politics of knowledge – the spaces where knowledge is created, and the means by which knowledge is legitimated – offers a provocative challenge to political geography. Mignolo's strategies for unveiling the geo-politics of knowledge are varied, but two are of particular relevance here. The first is 'decoloniality', which makes the place of knowledge production explicit. The second is 'border thinking', which explicitly works to link together those spaces and places that have been marginalised through the twin processes of colonialism and modernity. By applying these strategies to Rossport, we can move beyond the restricted uses of postcolonial theory in political geography, and identify new 'horizons of expectation' for the discipline.

The place of Rossport

Rossport is located in the Erris peninsula, a harsh and beautiful place (see Fig. 2). It is exposed to the Atlantic Ocean, and endures strong winds, heavy rainfall, and long dark winter nights. It has suffered from depopulation, high levels of emigration, and marginalisation throughout the decades, from famine times to the current day.

Robert Lloyd Praeger, writing in 1937, described Erris as 'the wildest, loneliness stretch of country to be found in all Ireland' (1997: 195–196). Despite its position as a Gaeltacht region in the current day, mythologised west of Ireland, Erris has not been part of the Irish national imaginary in the way of Connemara or the Aran Islands.

Rather, it has appeared from time to time in public discourses as a signifier of poverty, a pattern that was well established in the colonial era: witness, for example, the words of journalist Thomas Campbell Foster who, in despair at what he had experienced in Erris, wrote that:

It is a singular fact that the further you travel westward in Ireland, the more bountiful does nature appear to have been in heaping upon the country natural resources, and the less has been done by the hand of man to use and improve them (Foster, 1846: 218).

Like many other parts of Ireland, Erris and its population suffered in the colonial period. This continued after independence. In Irish parliamentary debates since 1921, for example, the portrayal of Erris is generally as a place of struggle: where food is scarce, where subsistence activities such as fishing, turf-cutting and the sale of seaweed are under threat, and where state services are poorly supplied. The current picture

of the Mayo Gaeltacht, from the 2006 Census, is not very different: it shows a region with an older age profile, higher levels of unemployment and lower levels of education than the national average (CSO, 2006).

Fig. 1. The Rossport Five on their release from prison, from left Philip McGrath, Brendan Philbin, Vincent McGrath, Micheál O Seighin and Willie Corduff (Goldman Environmental Prize, 2007c).

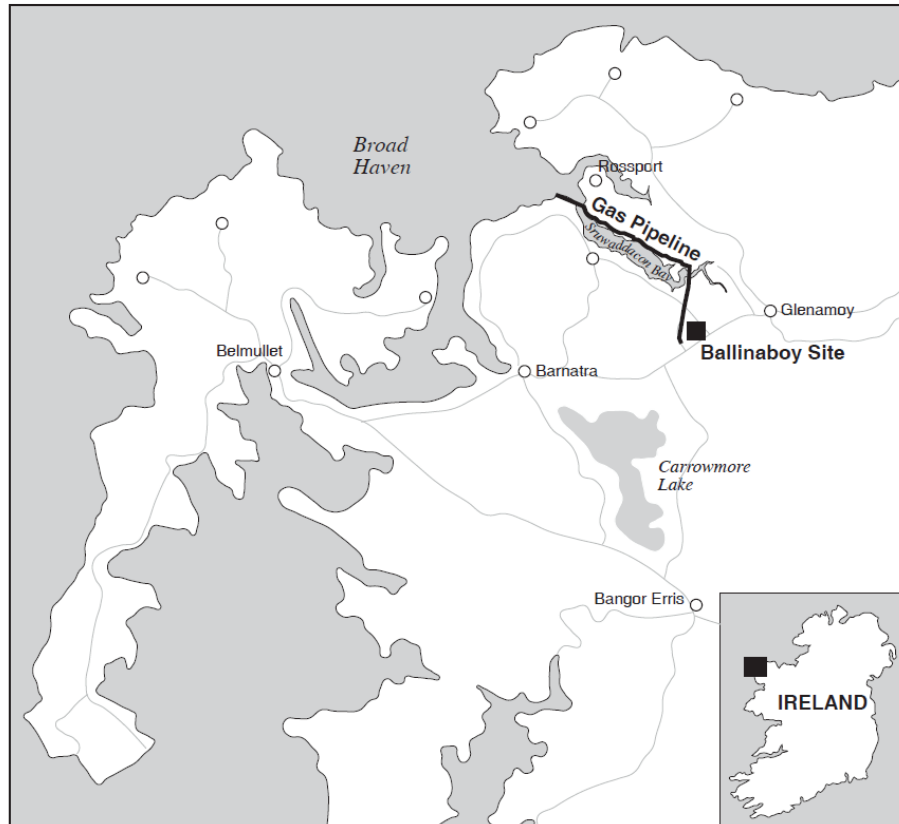


Yet Erris is also beautiful, with breathtaking scenery and a strong sense of community, underpinned by a deep attachment to place (Vincent McGrath, in Garavan et al., 2006: 157). Census statistics and official debates do not capture its beauty and hold over many of the people who live there. From time to time, this sense of community and place becomes apparent, even to outsiders. A telling parliamentary exchange occurred in 1978, when the Minister of Agriculture, in response to a question about the division and allocation of 1600 acres of commonage in Rossport, Mayo, said:

A preliminary investigation as to the feasibility of dividing this commonage was carried out a few years ago. The matter was not, however, proceeded with as it transpired that the majority of the co-owners were not in fact interested in division (Dáil Eireann, 1978).

And many of those directly involved in the current division in Erris, over the building of a gas pipeline, frame their involvement in terms of ‘the love of the land and the love of the place’ (Garavan et al., 2006: 27).

Fig. 2. Rossport, the Erris peninsula and the proposed new route of the pipeline.



Anatomy of a dispute

Beginning in the late 1990s, Erris began to appear more regularly in parliamentary debates and national media reports. This was linked to the discovery, in 1996, of gas in the offshore Corrib field by Enterprise Oil. The Corrib field is located in the Slyne Basin, one of the four sedimentary basins to the west of Ireland that are a focus of exploration activity (Shannon, Corcoran, & Haughton, 2001). In 1996, the Irish Department of Communications, Energy and Natural Resources had over 20 offshore exploration licences in place, to companies that included Marathon, Chevron, Mobil and Bula, as well as Enterprise Oil (DCENR, 2008).² In early 2001, the Corrib gas find was publicly declared as commercially viable by Enterprise Energy Ireland (EEI), the company set up to develop the find. However, EEI had already been working behind the scenes for a number of months (CPI, 2005). They had identified a site for an onshore gas processing plant; and they had identified a route for the pipeline from landfall to the plant by late 2000 (CPI, 2005). By August 2001, EEI had been granted planning permission for the

² At the end of 2007, the Department also had over 20 offshore exploration licenses in place, to companies that included Statoil, Providence Resources, Island Oil and Gas, Enterprise Oil and Marathon (DCENR, 2008).

processing plant, and by November 2001, they received a petroleum lease for the gas field (Garavan et al., 2006: 7). Planning permission for the pipelines associated with the project was granted in February and April 2002 (Shell, 2008). In April 2002, Shell purchased Enterprise Oil, and took over its controlling stake in the project. There are now three core partners: Shell (45%), Statoil (36.5%) and Marathon (18.5%) – of these, only Statoil has been involved from the very beginning (Shell, 2008). Planning permission for the processing plant was appealed on a number of occasions, before finally being granted in October 2004. Following a number of reports and recommendations, a new onshore pipeline route has been proposed, and SEPIL has just applied for planning permission for the new route (see Fig. 2). Locals opposed to the development frame their opposition in terms of safety and health. They claim that the pressure of unprocessed gas in the pipeline will be too high, that the pipeline will be too close to people's homes, and that the environmental effects of gas transportation and processing will be devastating to the place, people and wildlife. They want the gas to be processed offshore.

On the surface, these dates and events seem relatively straightforward. Yet, they mask the structures and networks of exploitation and solidarity and the threads of memory that underpin the many Rossport stories. The first is the alliance between state and capital. In the case of oil and gas exploration and production, 'Ireland has had the best fiscal terms in the world for exploration and production' (Indecon, 2007: 76). In Ireland, the tax rate on profits from oil and gas is currently 25%, with no requirement for royalties or production bonuses, and with full write off of capital expenditure. In addition, corporations can sell oil and gas to the state at full market value (Allen, 2007; CPI, 2005; Indecon, 2007).³ Beyond these general fiscal conditions, the current government has brought its weight to bear to ensure that this specific development continues: it facilitated the compulsory acquisition of land for the pipeline by introducing new legislation; it enabled meetings between the developers, the Taoiseach,⁴ and the planning authority (CPI, 2005:14; Garavan et al., 2006: 8); and it regularly took the side of the developers, branding the protestors as trouble-makers. Less directly, a government minister – Michael McDowell, the Minister for Justice – spearheaded a smear campaign against the Centre for Public Inquiry and its chief executive, Frank Connolly, who had published a highly critical report in November 2005, entitled *The Great Corrib Gas Controversy*.⁵ The Centre for Public Inquiry was set up in 2005 and received significant funding from Atlantic Philanthropies. Its aim was to investigate corruption in

³ The current Minister for Communications, Energy and Natural Resources, Eamon Ryan of the Green Party, has changed these terms for licenses issued from January 1, 2007. Changes include a profit resource rent tax of up to an additional 15%.

⁴ The Irish Prime Minister, at the time Bertie Ahern of Fianna Fáil.

⁵ McDowell alleged that Connolly had travelled to Colombia using a false Irish passport, in the company of his brother Niall. Niall Connolly is one of the 'Colombia Three', found guilty of training FARC members in bomb-making by a Colombian appeal court

Irish public life, but its funding was withdrawn after Michael McDowell alleged in the Irish parliament that Frank Connolly was an active member of the IRA. Connolly suggested that the allegations were ‘patently a considered and timed response to the publication of the Report on the Corrib Gas controversy from those seeking to protect vested interests’ (Connolly, 2005). More recently, the Garda Síochána – the police force of the Irish state – have been highly active in protecting the construction site and in preventing protests, and the Irish Naval Service has provided protection for a ship laying the pipeline in Broadhaven Bay. The alliance between state and capital has not always been seamless. A senior planning official refused permission for the processing plant in 2003 (McCaughan, 2008: 29–31, 36–40); some Irish TDs (MPs) have been highly critical of the treatment of the Rosspoint Five and the local community⁶; and the Ministers involved in the provision of generous incentives to the oil and gas exploration industries have been forced to resign and are under investigation for corruption in relation to other events. However, it is clear that the Irish state has significantly facilitated the development of the Corrib Gas field, and it continues to do so despite some local opposition.

The second is the types of networks of solidarity, support and resistance that have coalesced around the issue of the pipeline. The main opposition group, Shell to Sea, runs a very active website and campaign, and they have support groups in Germany and Norway, as well as throughout Ireland. The campaigners regularly draw comparisons between their situation and that of the Ogoni in Nigeria: so much so that a nickname for the protestors in Mayo is the Bogoni. A documentary on the Corrib Gas pipeline, called *Those Who Dance*, makes this connection explicit, intercutting footage from Ireland and Nigeria. Ogoni campaigners, such as Owens Saro-Wiwa, have been regular visitors to Ireland and to Mayo. In this way, Shell to Sea has become part of an international coalition of groups opposed to the activities of resource exploitation companies, particularly Shell. However, Shell to Sea has also targeted Statoil, and activists have travelled to Norway, met with politicians and trade union activists, and attempted to influence public opinion in that country. The story of the Corrib Gas pipeline has also attracted interest and attention from international environmental groups, such as Global Community Monitor and the Goldman Environmental Prize, which was awarded to Willie Corduff in 2007. ‘I didn’t realise’, Corduff said in his acceptance speech, ‘that somewhere in the world people were watching what I was doing and actually appreciated it’ (Goldman Environmental Prize, 2007a). The extent of the international links of the Shell to Sea campaign is in contrast to earlier assessments of environmental campaigns in Ireland as generally ‘limited both in time and space [and] not networked into professionalised or national campaigning frameworks’ (Davies, 2006:

⁶ Two of the most publicly critical TDs, Mayo-based Jerry Cowley (Independent) and Dublin-based Joe Higgins (Socialist Party), lost their parliamentary seats in the 2007 General Election

721). Within Ireland, a coalition of environmental and left-wing campaigners has been central to the campaign against the pipeline. Indymedia Ireland, a radical media collective, continues to provide comprehensive coverage of the struggle. The Rosspport Solidarity Camp, established in Rosspport in 2005, provided practical support to the local community, and became involved in direct action campaigns. In addition, Rosspport is often discursively connected to other environmental campaigns in Ireland, such as the attempt to prevent the building of the M3 motorway through Tara, the ancient capital of Ireland and a UNESCO World Heritage site. Micheál O Seighin commented that the aim of the Shell to Sea campaign 'was not to get it into the national media. It was to get it into the unofficial network that is there, where real people live, but not the sheltered establishment' (in Garavan et al., 2006: 78). However, the extent of the support has created its own difficulties, with Shell to Sea pejoratively linked, in various media and other reports, to Sinn Féin and to violent protesting tactics. In April 2008, another protest group, including some of the Rosspport Five, was established. This group, Pobal Chill Chomáin in, has proposed an alternative onshore site for the refinery, a compromise from the Shell to Sea position that gas processing should take place offshore. Similarly, local residents who support the pipeline are often marginalised, and their voices are often obscured, particularly in the creation of transnational alliances.

The third is 'the sound of the past' (Robinson, 2006: 1). The events in Erris, particularly since the jailing of the Rosspport Five, have raised the spectre of Michael Davitt and the Land League. In 1879 Davitt, a Mayo native, was one of the founders of the Land League, a peasant rights organisation, and his legacy is still strong in Mayo. The act of jailing also made audible the sound of other, more recent injustices. The five men who were jailed became, on imprisonment, the Rosspport Five, evoking memories of the Birmingham Six or the Guilford Four. Yet, the 'sound of the past' is not only linked to conflict and injustice, but it is also part of the emotional attachment to place. As Willie Corduff said, 'it's memories that are making us do what we're doing' (in Garavan et al., 2006: 15). Those memories are materialised in a range of local initiatives concerned with preserving and keeping alive the stories of Erris,⁷ and in the stories that people tell about the pipeline that draw on the past. As Caitlín Uí Sheighin recounts, 'there is a local prophesy in a story that says a wave will rise at Glengad and sweep up the estuary. Now we believe that refers to gas' (in Garavan et al., 2006: 96). This is taken up by Micheál O Seighin, who says:

people will still tell you locally that the last battle from some prophesy or other will be the battle of Ballinaboy. To me this is an echo of the awareness of people back to the

⁷ See, for example, the interactive CD produced by Comhar Dún Chaocháin Teoranta in 2000, with images, songs, stories and placenames of the local area.

Bronze Age time. An awareness that having a grip on a place is tenuous and can be destroyed. You can have an evil god like Balor who can destroy the thing and a Lugh Airgeadlámh isn't always at hand (in Garavan et al., 2006: 96).⁸

The past does not only become audible through the memories of the community. The other actors in this dispute – the state and the oil and gas exploration and development companies, in particular – also have memories of past conflicts, past resolutions, and past successes (see, for example, Bradshaw, 2007; Davies, 2008; Wheeler, Rechtman, Fabig, & Boele, 2001). These memories also shape the events in Erris, though they are, perhaps, less audible than the sounds of the past for the protestors.

Border thinking and decoloniality: putting Mignolo to work in Rossport

Why Rossport should matter to political geography and political geographers is quite clear. The question of *how* Rossport should matter is more troublesome, but of more strategic importance. In approaching this question, the work of Walter Mignolo raises some interesting possibilities and directions. Mignolo is a professor of literature and a key writer on Latin America, yet his insights into the geo-politics of knowledge raise highly relevant questions: for Rossport and for political geography and geographers. By introducing the concepts of border thinking and decoloniality, therefore, I'd like to put Mignolo to work in Rossport.

For Mignolo, and for a growing number of Latin American theorists, the idea of modernity should never be delinked from coloniality. The modern world system is also and always the colonial world system, Mignolo argues, and coloniality is the 'darker' side of modernity. There is, he says, 'no modernity without coloniality' (Mignolo, 2007: 466). For Mignolo, this raises significant questions about epistemologies, in particular the ways in which the tenets of modernity – variously described in terms of progress, development, emancipation and, especially, rationality – assume the rhetoric of universality. Mignolo challenges such universality through the introduction of his conceptualisation of *body-politics* and *geo-politics*. By body-politics, he refers to the embodied construction of specific forms of allegedly universal knowledge; while by geo-politics he refers to the importance of locating the construction of knowledge. All histories, and indeed all geographies, are local, Mignolo argues. What differentiates these local histories and geographies is that some – like modernity or coloniality – have global designs. And global designs, as Mignolo points out, 'are always controlled by certain types of local histories' (Mignolo, 2000: 66), despite the attempts to mask the specific

⁸ In Irish mythology, Balor (of the Evil Eye) was a king of the Fomorians, a race of giants. He had just one eye, and could kill people by looking at them. Lugh Airgeadlámh, a hero of the Tuatha de Danann, was Balor's grandson, and was responsible for killing him

geopolitical location of their formulation (Mignolo, 2007: 463). Anibal Quijano describes this as the ‘provincial pretence to universality’ (in Mignolo, 2007: 493). This disruption of the global/local binary does not serve to reinstate the local as a privileged locus of knowledge. Rather, its aim is to recognise the particular power relations and spatial imaginaries of specific local histories and geographies.

Decoloniality makes the place of knowledge production explicit. In arguing for the decolonisation of knowledge, Mignolo envisions a constant double movement, of ‘unveiling the geo-political location of theology, secular philosophy and scientific reason and simultaneously affirming the modes and principles of knowledge that have been denied by the rhetoric of Christianisation, civilisation, progress, development, market democracy’ (Mignolo, 2007: 463). The stories that the Rosspport Five tell of their struggle and their imprisonment capture this double movement. They tell of a local community forced to educate itself about gas pipelines and pipeline pressure, water pollution and the practises of multinational corporations. They describe a clash of views – about the importance of place and community, about definitions of progress and development. And they also demonstrate the rhetoric of modernity: how their opposition was narrated as the stance of people opposed to progress and development. Underpinning these stories is the sense of a dominant world view that is itself highly localised. ‘They all went to the same school of training’, Philip McGrath observed of the Shell personnel who visited his house, trying to get him to sign over his land for the building of the pipeline (in Garavan et al., 2006: 103).

The Rosspport Five and their families and supporters reiterate that this is not a struggle about money and individual gain, a perspective that is difficult for multinational companies, and indeed many in contemporary Ireland, to understand. These very different approaches to the value of resources came into regular conflict. For Mary Corduff, the Shell world view is that:

money is the answer. Profit is all. People or environment doesn’t come into the equation. Money for them is all and they’d nearly think how could it not be money (in Garavan et al., 2006: 36).

In a statement to the court, Micheál O Seighin said ‘the farms form the basis of the identity of the people. Monetary compensation cannot compensate for undermining the social identity of the people’ (in McCaughan, 2008: 77). And when Willie Corduff accepted the Goldman prize in 2007, he stated that Shell ‘have never understood what our place and our community means to us’ (Goldman Environmental Prize, 2007a). The short description of Rosspport residents as not wishing to divide commonage may well be anaethema to the property owing obsession of contemporary Ireland (Dáil Eireann, 1978). However, the exchange in the Irish parliament gave an insight into a way of life based on co-

operation and mutual aid, rather than individualisation and private profit.

Yet, to argue that Rosspport needs to be seen as a struggle to protect a traditional way of life falls into precisely the trap that Mignolo outlines. 'Tradition', he argues, 'is not a way of life that predated 'modernity' but an invention of the rhetoric of modernity' (Mignolo, 2007: 472). The practise of difference, of fundamental importance to the rhetoric of modernity, was spatialised, first placing modernity in opposition to located 'barbarians', and next placing modernity in opposition to located 'tradition'. The 'barbarians' of Rosspport, the people 'holding up the gas, holding up progress' (Philip McGrath, in Garavan et al., 2006: 106), even when redefined as the keepers of tradition, are always articulated in terms of the rhetoric of modernity. In this way, modernity – in the form of modern rationality – is 'engulfing and at the same time defensive and exclusionary' (Mignolo, 2007: 451). Thus, the High Court judge – according to Philip McGrath – told the Rosspport Five that 'he could take everything off them' (in Garavan et al., 2006: 114). The maps that SEPIL produced for planning applications, environmental impact statements and information campaigns made few attempts to show homes. The environmental impact statement section dealing with community and socio-economics states that 'it is a fact that the Study Area is very peripheral even within County Mayo and this presents significant development problems' (SEPIL, 2008: 6-17), while pointing out that opposition to this kind of initiative often occurs despite the goal of modernisation through the spread of an industrial wealth base through the country (SEPIL, 2008: 6-1). Writing of oil companies in the Niger Delta, Michael Watts commented that they 'had little understanding of community politics and simply interacted with local elites (or families within elite groups), lacked transparency in their determination of oil spill severity and compensation rates ... and used cash payments as a way of attempting to purchase consent' (Watts, 2004b: 22). Modernity at work, in Nigeria and in Ireland, is exclusionary, defensive, and engulfing, and it can only exist and be maintained because of the domination of others (Escobar, 2007: 184).

Where decoloniality refers to making explicit the body- and the geopolitics of knowledge, border thinking offers a way to move beyond mere identification. Mignolo comments that one of the key problems with the rhetoric of modernity is its effect on those 'who are not lucky enough to be in the space where time and history move forward' (Mignolo, 2007: 467). Border thinking links together those marginalised spaces. In doing so, it is both epistemological and ethical (Mignolo, 2000: 68–69). It is epistemological because it highlights the limits to modernity and the obscured body- and geopolitics of global designs. It also allows the connections between different experiences of exploitation to be explored (Mignolo, 2007: 498). As Mignolo comments:

what each diverse local history has in common with others is the fact that they all have to deal with the unavoidable presence of the modern/colonial world and its power differentials (Mignolo, 2007: 497).

It is ethical because it is not concerned with imposing – by implicit or explicit force – one vision of society over others that differ. Rather, border thinking connects these common experiences and uses them to create a new, pluri-versal basis for knowing (Mignolo, 2007: 497).

How might the story of Rossport illustrate decoloniality and border thinking? The first relates to the ways in which the protestors used knowledge as a weapon, seeking out the rhetoric of modernity in the gas development project.⁹ Micheál O Seighin was sceptical of the original plans, yet uncertain of his own position. ‘I did see as a geographer that what they were doing was wrong, utterly stupid’, he said, ‘but maybe they knew more than I did’ (in Garavan et al., 2006: 66). Following from this, members and supporters of Shell to Sea made it their business to learn – about pipelines and about gas processing, but also about the ways in which they could create ruptures in the alliance between state and capital. Through their exposure of the ways in which state and EU policies and legislation had been breached, most recently in an appeal to the European Parliament’s Committee on Petitions, Shell to Sea continues to call both state and capital to account. Yet this is not without significant costs. ‘That bloody company has forced me to learn more about pipeline safety than I ever wanted to know’, Micheál O Seighin said (in Allen, 2007: xv), while his wife Caitlín said that for six years ‘he worked from morning until night on all sorts of documents and research work [while] I’d get very angry about things’ (in Garavan et al., 2006: 77). For others of the Rossport Five, their time in jail placed huge burdens on their families: the demands of farm work in the summer months, the stress of dealing with media and public appearances, and the strain of weekly trips to prison that meant leaving home at five in the morning, and not getting back until late. The second relates to the ways in which protestors against the pipeline understand place. Vincent McGrath expressed it in this way:

My ancestors have lived here in Rossport for many generations, at least six generations, in the same spot along the shore on the northern side of Sruth Fada Conn ... The homeplace down by the shore is called Rinn na Rón,¹⁰ where the seals used to congregate and sometimes come ashore. That’s where I was born and reared. So we’ve been here a long time and as you’d expect we have a strong sense

⁹This provides an interesting counterpoint to the ways in which capital employs knowledge geographically (see Bridge & Wood, 2005 for a discussion of geographies of knowledge in the oil industry).

¹⁰Rinn na Rón translates as ‘the place of the seals’.

of attachment to the land and a deep sense of belonging to the place (in Garavan et al., 2006: 157).

Place, in this way, is tied to memory, to belonging, and to emotion. The logic of capital and profit does not necessarily dominate here, despite the sense of the area as economically marginal. This understanding of place is present in the work of other writers on Ireland: in that of Nuala Ní Dhomhnaill, for example, and her articulation of *dinnsheanchas* – the knowledge of place that is also a lived dimension of life (Ní Dhomhnaill, 2005: 25–42); or in that of Tim Robinson, who poetically excavates the landscape of his home in Connemara (see, for example, Robinson, 2001, 2006). These are not romanticised portrayals of place, but they are emotional, and that recognition of the emotion of place is of particular importance. The third relates to the ways in which the protestors actively drew parallels and created alliances with others, often using connections to place as a point of common reference. From members of the Rossport Solidarity Camp to Ogoni activists, Shell to Sea sought connections that would help them make sense of the situation and give them insights into successful struggle. So, they welcomed the ‘eco warriors’ at the camp, despite being told ‘they’ll rob every one of your houses’ (Willie Corduff, in McCaughan, 2008: 78). They developed relationships with activists in Nigeria, helped in many instances by Irish missionary nuns and priests who had worked in that country. Kevin O’Hara, an Irish priest who set up the Centre for Social and Corporate Responsibility in Port Harcourt, Nigeria, said of his visit to Erris that ‘I was very saddened to see all the mistakes, a repeat of what I saw in Nigeria and it was happening in County Mayo, Ireland’ (in McCaughan, 2008: 107). Describing themselves as ‘an international non-violent campaign’, Shell to Sea cite Gandhi, Martin Luther King and Michael Davitt as inspirations for their actions, and link their actions to national and international protest groups, while remaining locally based (Shell to Sea, 2008), displaying a form of open localism (Castree, 2004) or the ‘convergence spaces’ of global justice movements that are place-based though not place-bound (Cumbers, Routledge, & Nativel, 2008: 192). In these various ways, the protestors work to unveil the rhetoric of modernity. In the process, they create the conditions for the kind of border thinking suggested by Mignolo – a way of recognising the distinct ‘spaces of experience’ of places around the world, marked by their distinct experiences of modernity and coloniality, and linked by their desire to build a different world.

Putting Rossport to work in political geography

In their recent editorial, the editors of *Political Geography* wrote of the need to kick political geography further towards a ‘global perspective’ (O’Loughlin, Raento, & Sidaway, 2008: 2). My concern is with their idea of a global perspective. While I appreciate its underlying sentiment, following Mignolo and Khatibi I wish to suggest that a global perspective may not be the most appropriate aspiration. Instead, I propose that

political geography aims for ‘an other perspective’ (Mignolo, 2000), and I argue that the story of Rosspport offers one such perspective.

I want to start with the epistemologies of Rosspport within the context of political geography. How might we place Rosspport? Is it a resource conflict? Is it an environmental movement? Is it an uplifting account of transnational advocacy? In many ways, Rosspport could be used to illustrate all of these approaches. As a resource conflict, it provides an interesting illustration of critical resource geographies that centres such an analysis in the European Union, albeit at the western periphery of the EU (Hayter, Barnes, & Bradshaw, 2003). It has been analysed as an environmental movement by a variety of sociologists, interested in understanding Rosspport as yet another iteration of protests fuelled primarily by environmental concerns (Leonard, 2007, 2008). Within the discipline of geography, it was used for building networks of transnational advocacy when a number of IBG speciality groups signed a letter of protest against Shell’s involvement in the development. In this way, Rosspport became yet another site of protest against Shell sponsorship of the RGS. In all of these instances, Rosspport has the potential to be an intriguing case study, particularly if such a case study highlights the layers and levels of connections and complexities – what Gearóid Ó Tuathail has described as ‘thick geographical knowledge’ (Ó Tuathail, 2003: 654). However, the case study as currently constituted in human geography serves a different purpose. While in a small number of instances, particular cases ‘have become the focus of so much research they’ve become iconic’ (Castree, 2005: 541), those cases are most often ‘global’ cities, home to global geographers. Most often, cases are used to illustrate theory at work, by providing the ‘case study from another place’ (Simonsen, 2004: 526). In this way, there is an obvious conflict between the complex ways in which human geographers theorise place, and the ways in which they put those places to work. If Rosspport is to be a case study, then it needs to be understood not as an exemplar of a particular theoretical position, but rather as a complicated and entangled place with its own ‘spaces of experience’ and ‘horizons of expectations’. Rather than forcing the Shell to Sea campaign into universalist theoretical frameworks that fail to take account of either their body-or geo-politics, this approach highlights the local geographies of theory-production. In this way, Rosspport becomes a study of the scalar geographies of politics and political action – this inversion, for political geography, represents a form of border thinking.

In Rosspport, everyday life has been drawn into practical politics (Smith, 2005: 37). Yet, the catalyst for activist politics is a potent combination of fear and anger, underpinned by a desire for justice. The stories of the Rosspport Five are suffused with fear: fear of a loss of livelihood, and fear of a destruction of a community and a way of life, particularly through some kind of potential environmental catastrophe. They also narrate the ways in which fear becomes transformed into anger, and how anger itself

is transformed into action. This anger is palpable. Caitlín Uí Sheighin comments on the ‘contemptuous manner’ that the judge used (in Garavan et al., 2006: 84), while Philip McGrath spoke of how locals, following the compulsory acquisition orders, ‘probably had more temper against them then. A bit of anger was getting up then’ (in Garavan et al., 2006: 105). Brendan Philbin, meanwhile, said of Shell that: ‘they have instilled an anger in families that won’t be forgotten for long a many day’ (Goldman Environmental Prize, 2007b) – that sense of anger was intensified following the imprisonment of the Rosspoint Five. Geographers are again beginning to flirt with emotion – with fear and angst, with awe and love, with worry and loss (Davidson, Bondi, & Smith, 2005: 2–3). Many of these emotions, particularly love and fear, are present in the narrations of place that form the basis of the Rosspoint struggle, and make sense within a longer geographic tradition that attempts to understand the relationship between people and the places they inhabit. Yet, in the nascent recognition of the place of emotions within geography, anger still struggles for recognition. Anger ‘is still, more often than not, evaluated negatively in western thought’ (West-Newman, 2004: 191). This is clear within geography, and within political geography, where anger is suspiciously missing from the narratives and the analyses that make it into print.¹¹ Despite calls for angry writing (Keith, 1992) and for a ‘critical geography animated by both anger and hope’ (Blomley, 2007: 62), a broader engagement with the geographies and politics of anger is still absent. Yet, anger is central to the protests at Rosspoint; and requires ethical and epistemological attention. In another context, West-Newman comments that anger ‘enunciates and justifies demands for justice and restitution; it confronts threats to survival and well-being’ (West-Newman, 2004: 204).

‘An other’ thinking, within political geography, recognises the validity and importance of anger, and sees anger as a collective experience and expression, rather than as an individual failure. It also sees anger as crucial to social transformation, rather than only about individual self-awareness. Taking the anger of Rosspoint seriously requires political geographers to engage, more directly, with emotional geographies, particularly those related to conflicts and disagreements over place and over resources.

¹¹ There is a body of work on hate within political geography (see Flint, 2004), but not on anger.

Fig. 3. Land through which the pipeline, as originally proposed, would have passed (Goldman Environmental Prize, 2007d).



Anger has been identified as important to ‘dialogues of indigenous rights’ (West-Newman, 2004: 190), and this also suggests another direction that Rosspport offers for political geography. In another work, Lawrence Berg and I have argued that geography needs to engage with anti-colonial as well as postcolonial thought (Gilmartin & Berg, 2007), while others have argued for the need for a dialogue about ‘indigenous geographies’ (Johnson, Cant, Howitt, & Peters, 2007; Shaw, Herman, & Dobbs, 2006). Anti-colonial and indigenous geographies come together in Rosspport, where Micheál O Seighin weaves together Balor and Lugh Airgeadlámh with an analysis of the pipeline protest that says ‘our establishment may be postcolonial but we are not’ (in Garavan et al., 2006: 62).¹² Yet, the concept of indigeneity may well be stretched by Rosspport. For example, Shaw et al. describe indigenous peoples as:

groups with ancestral and often spiritual ties to particular land, and whose ancestors held that land prior to colonisation by outside powers, and whose nations remain submerged within the states created by those powers (Shaw et al., 2006: 268).

While it is clear that many people in Erris have a strong tie to the land and the place, it is more difficult to prove an ancestral link, and almost

¹² For Ó Seighin, the marker of a postcolonial state is that power rests with elites – with the civil service and the politicians – rather than with the people (Garavan et al., 2006: 62).

impossible to assert the people of Erris as a submerged nation within the Irish state. In other words, many people in Erris and many of the protestors against the pipeline understand themselves as Irish, rather than as Irish-, and their understanding of what it means to be Irish was central to their protest. As Vincent McGrath said, ‘going to jail was an act of faith in the Irish people and I was proven right because once the people had the facts about what was going on they supported us’ (in Garavan et al., 2006: 177). If indigeneity is further understood as racialised, then this creates additional difficulties in Erris, where the population is racially homogenous: in the Mayo Gaeltacht, for example, 98.8% of respondents identified as White in the 2006 Census (CSO, 2006).

More broadly, Erris is located within the European Union, governed by EU legislation, in one of the world’s wealthiest countries. Yet, the search for collective rights and sovereignty, the insistence on the importance and meaning of place, and the shared experience of past colonialisms highlight the ways in which the struggles of Rosspport may well resonate with the struggles of many indigenous groups. The events in and around Erris demonstrate a common experience – the ways in which people who ‘have other ideas of how economy and society should be organised ... become subject to all kinds of direct and indirect violence’ (Mignolo, 2007: 450).¹³ For the Rosspport Five, the land they fought for could not have a monetary value – its value was measured in memories and attachments, and fear and anger was the motivation for its preservation. ‘[I]t wasn’t about money. we weren’t used to money. We managed without money’, Willie Corduff insisted (in Garavan et al., 2006: 44). ‘I might as well die here with Shell as to go. Because I would die anyway if I had to leave with the memories I have of here’ (in Garavan et al., 2006: 18). Border thinking – an other thinking – seeks these links between places that are fundamentally, albeit differently, marked and scarred by their experiences of coloniality through modernity. Rosspport, as a location for anti-colonial activity, as a site of common ground with Indigenous geographers, as an entangled case study, and as a place of emotions, creates the possibility for new ‘horizons of expectation’ within political geography (see Fig. 3).

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¹³ In 2009, this became more explicit. Willie Corduff was severely assaulted while protesting against the pipeline in April 2009. In addition, media reports suggested that private security guards who had worked in Erris were also connected to an alleged plot to kill Evo Morales, the President of Bolivia. These issues are explored in a Guardian article and video from June 2009 (Grant & Domokos, 2009).

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Those Who Dance: <http://www.youtube.com/>.

The price of gas:

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CHAPTER 24

SPACE AND PLACE IN THE NATIONAL SPATIAL STRATEGY FOR THE REPUBLIC OF IRELAND

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Introduction

The publication of *The National Spatial Strategy 2002 – 2020* (NSS) in December 2002 with the subtitle *People, Places and Potential* was a significant milestone in the history of planning in Ireland. Just over fifteen years previously the Minister for the Environment had abolished the National Institute for Physical Planning and Construction Research (An Foras Forbartha) and also the nine Regional Development Organisations that had since the early 1970s been responsible for the preparation of regional development strategies. Even more remarkable is the fact that just four years after the publication of the NSS it became a cornerstone for the *National Development Plan 2007-2013* with the subtitle *Transforming Ireland A Better Quality of Life for All* (Government of Ireland 2007). In his Foreword to the National Development Plan the Minister for Finance provides an unequivocal endorsement of the NSS: “our spatial strategy ...is crucial to managing the challenges of the future and the potential for growth and development... spatial objectives are integrated within the goals of economic, social and environmental sustainability and our national and international responsibilities under these headings” (GoI 2007: 13).

The NSS was formulated against a background of unprecedented economic transformation in the Republic of Ireland. Over a relatively short period the country had moved from a position of very low levels of economic development compared to the core regions of western Europe, to becoming the state with the second highest level of per capita Gross Domestic Products (GDP). The experience of economic convergence was, however, accompanied by increasing tendencies towards regional divergence within Ireland (Walsh 2000). The reality of unbalanced regional development in the context of increasing national prosperity was a major catalyst for producing the National Spatial Strategy. The goal of balanced regional development was itself problematic in definition and brought to the fore some deeply ingrained conceptions of the distinctiveness and expectations of the residents of certain places in Ireland.

The National Spatial Strategy was also prepared against the background of the changed political landscape following the 1998 Good Friday Agreement in Northern Ireland (see Chapter Five in this volume) which

opened up the prospect of closer economic links over the longer term between the North and South of Ireland. Chapter Five in this volume provides an account of the initiative that was already underway to develop a regional development strategy for Northern Ireland. It was timely for the government in the Republic to consider the spatial dimension of economic development and how the emerging opportunities associated with a more stable political climate throughout the island might be utilized to the mutual benefit of both the North and the South.

A further influence on establishing a receptive political climate for a National Spatial Strategy was the on-going European debate that culminated with the publication of the *European Spatial Development Perspective* (ESDP) in 1999. Officials from the Department of the Environment in Ireland participated in the ESDP process unlike their counterparts in Northern Ireland and Wales, through which they had become aware of the new spatial planning concepts and the vocabulary adopted for the ESDP.

Taken together, the primary concern with balanced regional development, the emerging all-island dimension, and the awareness of the territorial planning discourse at the European level, provided a powerful synergy of pressures to prepare a Spatial Strategy for a new Ireland coming to grips with managing the fruits of success ‘while ensuring a high quality of life for all our people’ (DELG 2002:3).

This chapter analyses the process of preparing the National Spatial Strategy using the conceptual frameworks relating to space and place presented in Chapter One. The next section commences with a more detailed discussion of the context for the strategy which is then followed by analyses of the strategy making process and the content of the NSS before some general conclusions are identified in the final section. As there are linkages between context, process and content the sub-themes identified in Chapter One are interwoven across the sections. For example, the context includes a discussion of both the empirical socio-economic realities and also of initiatives by a number of government departments and others that helped to create a supportive institutional environment for launching the NSS preparation process. Within the process there was a constant interplay between knowledge creation through research and the various modes of consultation.

The approach adopted here is to examine the concepts of space and place as they are used in the National Spatial Strategy, the extent to which there is a shared understanding of the concepts, and to consider the methodologies used by planners and others in the preparation of the Strategy. The conceptualisation of space has changed very much over recent decades. It includes the more traditional absolutist perspective that treats geographic space as a container of fixed or mobile objects and

dynamic behavioural flows which are susceptible to analysis within the frameworks of positivism (Harvey 1969). More recently greater emphasis has been placed on structuralism and a relational perspective that space is continuously produced and reproduced through socio-spatial relations that include cultural, social, political and economic relations (Smith 1984; Sheppard 1995). The conceptualisation of place has been extensively developed in a relational sense by Massey (1995, 1997) and by others such as Soja (1989) from a post-modern perspective that emphasizes the importance of the personal sense of place, that places are relational and contingent, and are understood differently by different people. These varying conceptions of space and place are relevant to understanding how strategic spatial planning is approached and how that influences the content of the strategy. They are also important for understanding the range of methodologies and tools that are used by planners and others in the preparation of strategic spatial plans. Of particular interest is the extent to which alternative methodologies have been relied upon, including the rational comprehensive planning approach in which many planners were trained under the influence of Faludi (1973) and the more recent transactive planning practices involving participation, communication, abstract visualisation, negotiation, collaboration and institutional capacity building that are advocated by Innes (1996), Albrechts (2001), Allmendinger (2002) and Healey (1997, 1998 and 2006).

The outcome from this review of the NSS process is an interpretation which identifies the coexistence of processes that are typically discussed within the traditions of positivist, structuralist or post-modern approaches to planning. The Irish experience is that processes and practices from each of the different planning traditions were necessary to ensure that a National Spatial Strategy could be produced which was sensitive to the needs of many different stakeholders such as the citizens, the business community, professional planners, senior officials across many departments of the civil service, and the elected political leaders. Reconciling the divergent conceptions of space and place, and the associated planning methodologies, held by influential stakeholders from different disciplinary backgrounds was a significant challenge for all involved in the NSS process.

The context for the national spatial strategy

The spatial context for economic and social development in Ireland is still strongly influenced by a settlement pattern and transport networks that were initially put in place to assist in the territorial organization and administration of a former colony. That legacy, which was historically guided by a relational spatial perspective coupled with a highly centralised public administrative system and an electoral model that encourages a strong sense of localism, continues to influence spatial development patterns even though the contemporary conditions are very different. Superimposed on the historical legacy are the locational imperatives of

foreign direct investment which is a key aspect of Ireland's engagement with globalization and has become the main driver of economic development over recent decades; a labour market catering for a highly educated and mobile workforce including many immigrants; and a more discriminating consumerist, but less cohesive, society that is increasingly attaching a higher premium to quality of life and broader environmental issues (Bartley and Kitchin 2007).

Previous Responses to Uneven Regional Development

The history of government engagement with the issue of uneven regional development in Ireland originates with the Undeveloped Areas Act of 1952 and can be broadly subdivided into three phases over the past fifty years (Boylan 2005). The first, which lasted until the late 1960s, was mainly characterised by an association between development, industrialisation and urbanisation. For Ireland, given the very weak indigenous manufacturing base and also the imbalances in the urban system, this meant a strong reorientation of industrial policy towards the attraction of inward investment and a strong preference among influential policy advisors for an urban-oriented strategy which was most explicitly expressed in proposals for a regional development strategy based on growth centres (Buchanan and Partners 1968). However, this first phase also highlighted a tension, which has persisted, between the objectives for national economic growth, and other objectives in relation to the regional and rural dimensions of development.

The rational theoretical underpinnings of the growth centre model did not find sufficient political support and it was abandoned by the government in 1969. The perceived risks to the 'efficiency' of national development policies from a proactive approach to championing regional 'equity', along with the political challenges of promoting an urban-led approach to an electorate comprising a very large rural component, resulted in a move towards a regional strategy that became heavily reliant on the dispersal of inward investment in manufacturing, coupled with a restriction on supports for Dublin (Walsh 1989). The Buchanan strategy was a classic managerial or control type intervention that was well grounded on a positivist analytical process but very weak on consultation, consensus building and customisation to meet the particularities of the Irish spatial context. The failure to have the Buchanan strategy adopted as government policy left a long shadow over any future attempts to promote a new spatial development strategy. Indeed, one of the challenges faced by those preparing the NSS was to find ways of differentiating it from its failed predecessor, a challenge that was compounded by a lingering reluctance among some economic analysts to recognise that planning paradigms and the conceptualisations of space and place had changed significantly over the intervening years (see for example O'Leary 2001).

The second phase covered the period from the early 1970s to the late 1980s. Government policy statements in 1969 and 1972 effectively identified the regional industrial strategy of the Industrial Development Authority (IDA) as the main instrument for achieving the goals of regional development. The 1970s was also a period of considerable expansion and improvements in farm incomes during the period of transition to full Common Agricultural Policy's guaranteed prices. The redistribution of employment in manufacturing along with the new prosperity in the more commercially oriented farming regions resulted in a major demographic turn around, where net in-migration, coupled with a high birth rate, resulted in a population increase of 465,200 (15.6 per cent) between 1971 and 1981. Most importantly the demographic change was experienced throughout most of the State (Horner *et al* 1987).

However, throughout this period there were also significant weaknesses in the government strategy for regional development. The effects of industrial restructuring in Dublin and other old industrial centres were largely ignored; elsewhere there was an overemphasis on inward investment without sufficient support for indigenous firms, and there was a policy vacuum in relation to the emerging services sector (Walsh 1989). More importantly, the spatial focus shifted to improving the position of the Republic of Ireland as a single region (without explicit reference to intra-regional imbalances) within the framework of the EU regions. Furthermore the political divisions and the ongoing conflicts in Northern Ireland were not conducive to any consideration of an island of Ireland perspective on spatial development.

A critical review of industrial policy in 1982 led to a revision of the role of manufacturing industry in regional development. This was followed by a government White Paper on Industrial Policy in 1984 that proposed a move to a policy of supporting targeted manufacturing sectors where they could make the greatest progress, which was generally regarded as the larger urban centres. The shift in the focus of industrial policy was further supported by the National Economic and Social Council in 1985 when it recommended that in future the designation of areas for industrial support should be based on criteria related to the potential rather than the needs of regions. This was the beginning of a return to a more urban focussed regional development strategy and a move away from the traditional needs or 'regional equity' approach.

In addition to the reorientation of industrial policy, the general stagnation of the Irish economy in the 1980s resulted in a significant reduction in the volume of inward investment and a greatly diminished capacity by the Industrial Development Authority (IDA) to influence the location of new investments, especially towards the weaker regions. Widespread losses in manufacturing employment, a faltering agricultural sector, a weak producer services sector, and increasing unemployment, all combined to bring about a return to high levels of net emigration from both rural and

urban areas (Walsh 1991). These trends resulted in a mobilisation of local interests with powerful champions in the weaker rural areas (McDonagh 2001) that lead to intensive lobbying of government for a renewed approach to securing balanced regional development.

The foundations for a new era of economic development were laid in the mid-to-late 1980s (NESC 1986) resulting in very rapid economic growth in the 1990s during which the third phase in strategic spatial planning emerged. The transformation of the economy and society of Ireland since the early 1990s has been influenced by many factors including strategic repositioning by government and economic development agencies of Ireland as a space or investment territory in the broader context of the international economy (Breathnach 1998) which has resulted in the Irish economy becoming one of the most open in the world. Crucially, the transformation has been mediated through an unbalanced urban system that is dominated by the Dublin city region (McCafferty, 2007).

The complexity and dynamic nature of the recent geography of socio-economic development has been described by Horner (1993, 2000) who noted the emergence of city regions, while McHugh (2001) and Walsh (2007) have identified the intricate webs of relations that link rural and urban areas and which also contribute to the construction of an increasingly complex rural spatial structure. These analyses, combining elements of both the positivist and postmodern traditions, can be contrasted with others more firmly rooted in the traditional bounded spatial approach (e.g. administrative regions) of some regional economists (Morgenroth 2007). Collectively these studies confirmed the existence of significant inter-regional differences in economic performance, especially in relation to per capita productivity levels and also in the endowments of key resources that are likely to influence future development patterns. These resources include physical infrastructure, human capital and institutionalized knowledge creation and transfer mechanisms.

By the late 1990s it had become evident that while the macro economic indicators for Ireland were rapidly converging towards those for the most developed regions of the EU, there was also a strong tendency towards divergence on key socio-economic indicators for the Irish regions. Unbalanced regional development was reflected in widening differentials in productivity, new physical infrastructure investment, new employment opportunities, migration of the youngest and brightest from rural areas and small urban centres, and ultimately depopulation of extensive rural areas.

At the same time escalating house prices in Dublin and other cities were forcing ever increasing numbers into new housing located at very considerable distances from the main workplaces. This phenomenon of long distance commuting (Williams and Shiels 2002; Walsh *et al* 2007)

from rural areas in the outer hinterlands of the cities while other rural areas continued to stagnate has resulted in heated discourses between those concerned about the implications of seemingly uncontrolled urban sprawl on the one hand, and the depopulation of more remote rural areas on the other hand. This issue combined with the concerns about the need to position Ireland advantageously in the EU and global economy, and the unbalanced distribution of economic activity within the State, was an additional factor in establishing the case for a National Spatial Strategy.

The heightened awareness of inter and intra regional differences in the Republic of Ireland were brought into even sharper focus with the emergence of conditions to support a new era of political stability in Northern Ireland. Some economic leaders were quick to identify the possibility of a potential economic corridor linking Belfast and Dublin. For others it raised the prospect of an even greater spatial divide between the eastern and western parts of the island of Ireland, but it also provided opportunities to take a fresh perspective on spatial planning for the northwest and Border areas (Walsh and Murray 2006). For the government of the Republic it provided a unique opportunity to engage in a process of tentatively putting in place measures to support a more coherent approach to territorial development within the context of the territory of the entire island of Ireland, while fully recognizing the political status of Northern Ireland as a region of Great Britain. This contextual dimension has particular relevance for understanding the conceptualisation of the Border areas in the NSS and more broadly for interpreting the key long term proposal in the NSS for the gradual development of an Atlantic Corridor linking the main cities in the west and south.

Related Policy Initiatives and Other Studies

The trends just outlined emerged from a period during which the economic growth rates were much higher than anybody had anticipated and for which there was no overall spatial framework, nor were there appropriate administrative structures to ensure co-ordination and integration of policies and strategies. Serious concerns about the emerging spatial patterns of development were articulated in discourses around a number of related policy areas which helped to identify the need for a policy initiative in the area of high level strategic spatial planning. In addition, the case for a national spatial strategy was promoted by a wide range of powerful advisory bodies as well as by some organisations with a specific interest in regional development and spatial planning (Walsh 1999b).

The government's strategy for Sustainable Development (GoI 1997) affirmed the centrality of the environment in the process of development and it emphasised the role of the physical planning system in sectoral integration on a territorial basis. The general thrust of the Planning and Development Act, 2000, which for the first time introduced the concept

of planning and *sustainable* development, is towards a comprehensive and integrated approach to spatial planning extending from the local authority level through the regional to the national level so that the overall objective of balanced and sustainable development can be achieved in a manner compatible with the supranational perspective represented by the ESDP.

The first White Paper on Rural Development, *Ensuring the Future – A Strategy for Rural Development in Ireland* included a recommendation that the objectives for rural development should be addressed within a framework for spatial development that takes account of the relationships between rural and urban areas and also of the diverse functional roles of towns and villages for those residing in the countryside (GoI 1999a).

In the area of enterprise development the national policy advisory and co-ordination board for industrial development and science technology published, in 1996, *A Strategy for Enterprise in Ireland in the 21st Century* in which a forceful case was made for an urban-led regional policy (Forfas 1996). It was followed in January 2000 with *Enterprise 2010*, which recommended a spatial strategy that would ensure: *inter alia*, co-ordinated provision of access, communication and utilities infrastructure, serviced land at an appropriate scale for towns of different size and a good regional spread of educational and training facilities (Forfas 2000).

The first major opportunity to get the specific concept of a national spatial strategy inserted into the overall thrust of development policies came with the preparation of the third National Development Plan for the period 2000-2006. The previous plans for 1989-1993 and 1994-1999 were particularly weak on regional development and spatial planning (Walsh 1993).

In advance of preparing the National Development Plan for the period 2000-2006 the Department of Finance commissioned a report by the Economic and Social Research Institute (ESRI) on the priorities for investment. Significantly, it recommended that a national spatial strategy focused on a hierarchical hub and spoke settlement model should be adopted as the framework for a massive investment programme over the medium to long term (FitzGerald *et al*, 1999).

Contemporaneously with the preparation of the ESRI Report and ongoing work on the National Development Plan by the Department of Finance, the National Economic and Social Council (NESC) was also preparing an outline strategy for development for the first decade of the twenty first century (NESC 1999). It set out a new vision which included the objective of sustainable and balanced development between regions and between urban and rural areas. In placing considerable emphasis on a comprehensive programme of infrastructural investment to encompass economic, social and environmental dimensions the NESC Report

strongly recommended a National Spatial Development Strategy. This was a crucial report as the NESC is chaired by the highest ranking civil servant and includes among its membership the most senior national representatives of each of the social partners as well as senior officials from key government departments. It is a key arena for consensus building at the highest level and its recommendations are normally taken seriously by the government.

Finally, the National Development Plan 2000-2006 (NDP) published in November 1999 identified balanced regional development as a core objective. This was the first time that a National Development Plan gave such prominence to regional policy for which the following objective was identified:

to achieve more balanced regional development in order to reduce the disparities between and within the two regions and to develop the potential of both to contribute to the greatest possible extent to the continuing prosperity of the country. (GoIb1999:43 (3.19).

In support of this objective the NDP identified Dublin, Cork, Limerick–Shannon, Waterford and Galway as ‘Gateways’ or locations where public and private investment would be prioritised in order to drive the development of their wider regions. Furthermore, the NDP committed the Department of the Environment and Local Government to prepare an overall spatial development strategy for the whole country, including the identification of a limited number of additional regional gateways to complement those already identified in the NDP.

The contextual overview has demonstrated the importance of evidence-based empirical analysis, with a strong emphasis on visual representation as a tool to promote a shared understanding of the need for a spatial policy initiative. It has also illustrated that a consensus around the need for an NSS only emerged after a lengthy process involving many seemingly unrelated initiatives. Much of the early public discourse was facilitated through conferences and publications of the Irish Branch of the Regional Studies Association (McCafferty and Walsh 1997; Walsh 1998) rather than directly through the professional planning institutes which became active at later stages. Finally, an important feature of the process that led to the decision to prepare an NSS was the participation of a small number of individuals who were unaffiliated to any of the major stakeholders, in almost all of the preparatory steps mentioned above which provided a basis for maintaining consistency in relation to the overall objectives that an NSS should address.

The preparation process of the national spatial strategy

The formal process of preparing the NSS was launched in Spring 2000 following the establishment of a Spatial Planning Unit (SPU) within the

Department of the Environment and Local Government. The SPU was a small cohesive group of only four professional planners who were assisted by a senior level administrative civil servant. In recognition of the cross cutting nature of spatial planning a Steering Group of high level representatives from all relevant government departments was established to assist the SPU. This was an important forum which helped to negotiate a consensus across departments with potentially conflicting goals.

In addition an Expert Advisory Committee, chaired by the former Chief Executive of the agency responsible for attracting inward investment to Ireland, was established. It included academic and other professional experts from different parts of Ireland, along with representatives from Northern Ireland and Scotland. Furthermore, the broader European reference frame was represented by a senior member of the ESPON programme management team. This Group assisted the SPU by critically assessing and refining at an early stage new concepts and approaches to planning, and also by ensuring that the NSS retained a clear focus on each of the three keywords: National, Spatial, and Strategy.

Collectively, the personnel of the SPU and the Expert Advisory Group brought a considerable amount of planning expertise and skills to the process which provided the opportunity to develop the NSS in a way that went distinctively further in a conceptual and methodological sense than the NDP or any of the other strategies or reports mentioned in the previous section. The planning methodologies that became important in the preparation process included visual representations of the current and prospective situations based on best available evidence, extensive consultations guided by research, and negotiations aimed at achieving a politically acceptable and administratively workable set of proposals.

The preparation of the strategy was guided by three parallel and complementary methodological processes. The first was an extensive programme of both proactive and reactive consultation; the second was a major research programme, and the third involved formal arrangements to secure buy-in across a number of government departments.

Consultation Phase 1

From the outset, the Minister responsible for producing the National Spatial Strategy was determined to develop the strongest possible level of consensus about the need for a national spatial strategy and what it might contain. To this end, specialist communications experts were procured to assist the SPU team in developing sophisticated techniques for both listening to the views of various groups and interests and communicating perspectives, conclusions from research and the finished product itself.

Very quickly the SPU produced a scoping report that set out the objectives and methodology for preparing the strategy (DELG 2000a).

The *Scope and Delivery* report sets out clearly the national and international context. In particular, it acknowledges the relevance of the aims and options contained in the ESDP. It then identifies the following objectives for the NSS:

- Continuing national economic and employment growth;
- Continuing improvement in Ireland's international competitiveness;
- Fostering balanced regional development;
- Improving the quality of life for all sections of society; and
- Maintaining and enhancing the quality and diversity of the natural environment and cultural heritage.

In order to achieve these objectives through spatial planning the report identified ten key challenges that the NSS would need to address. Apart from the challenge of fully exploring the concept of 'balanced regional development', other challenges related to reconciling the potentially competing objectives of economic competitiveness with balanced development; developing the concept of Gateways that was initially proposed in the NDP; assessing infrastructural requirements; addressing areas of social exclusion, and ensuring that the NSS would build upon the relationship between the two political entities on the island of Ireland and between Ireland and its EU partners.

This was followed by an outline of the methodology that would be adopted for the preparation process which would include opportunities for participation by a broad range of stakeholders at different stages. The outline timeframe was very ambitious with a target of completing the process by the end of 2001. The scoping report was widely disseminated and generally given an enthusiastic welcome for its level of detail and its commitment to facilitating participation while at the same time aiming for a relatively short timeframe. To the extent that there was any dissent it mostly related to concerns about delays that an extensive consultation process might incur.

Targeting of key audiences was a key aspect of the consultation and communications strategy. The first large event was attended by approximately 300 invited 'leaders' from the public, private and voluntary sectors, and was addressed by 'champions' of the NSS proposal. These included the Minister with overall responsibility for developing the NSS who was an enthusiastic advocate. This "Leaders Forum" was followed by workshops organised with the assistance of the eight Regional Authorities. Other high priority target groups included senior officials in national and regional development agencies, each of the social partners, national advisory fora such as the National Economic and Social Council and the National Partnership for Sustainable Development (Comhar).

The consultation process was guided by presentations of findings arising from the ongoing research programme, and also at crucial stages by papers published by the SPU. The first, disseminated in February 2000, sought to elicit views on an indicative list of issues that were grouped under six broad headings (DELG 2000b):

- Urban Ireland and balanced regional development
- Rural Ireland and balanced regional development
- People and balanced regional development
- Communications infrastructure and balanced regional development
- Management of the environment and balanced regional development
- Delivery mechanisms and balanced regional development.

While the manner of listing issues around urban and rural Ireland might have conveyed a sense of a conceptualisation based on separate, self-contained and unconnected spaces, in practice the emphasis was strongly on the relationships between areas, including an explicit reference to the international and national roles of Dublin, and an explicit recognition of the diversity of rural area types based on a specially commissioned rural typology study.

The Department of the Environment received 73 submissions in response to the *Issues* paper from a wide range of sources that included local and regional authorities, other public bodies, and community-based groups and individuals. Among the key responses were widely held views that the NSS should be unambiguously recognised as the overarching framework for local and regional strategies, and that the interaction with other policy areas should be curtailed to the spatial dimension. Other concerns that emerged from the submissions were around areas such as quality of life, transport and accessibility especially in rural areas, employment prospects particularly outside the main cities, declining population in rural areas, protection of landscapes of national importance, and policies in relation to urban sprawl, ribbon development and single rural dwellings.

From these responses it was evident that expectations were high with regard to the NSS and also that a strong social dimension needed to be included which had to be reconciled with the economic competitiveness concerns of the Department of Finance, representatives of the business community such as the Chambers of Commerce, and others. The overriding conceptual issue that emerged however was to do with balanced regional development, about which there was much confusion and uncertainty.

Recognising the central importance of establishing an agreed perspective on how balanced regional development might be defined, the *Issues* paper

was followed in June 2000 by a Technical Working Paper on the concept of Balanced Regional Development (BRD). This paper was crucial to the direction that the NSS would eventually take. It was published early in the process, following deliberations by the Expert Advisory Group. Two competing interpretations of BRD were considered where the distinction was between 'balance as equality' and 'balance as full utilisation of potential'. Drawing on the report of the *Study Programme on European Spatial Planning* (Nordregio 2000) the SPU recommended the 'potential' interpretation and provided the following definition of balanced regional development:

A structured spatial development approach, which seeks to ensure that no area or space is under or overdeveloped to the extent that this detracts from that area's potential to contribute to realising the optimal performance of the country as a whole in economic, social, environmental and physical terms (DELG 2000c:3).

The concept of 'potential' is a central component of the approach to BRD outlined above. This was defined as 'the combination of socio-economic and locational factors and the interaction between them that create the conditions and possibilities for economic development', (DELG 2000c:4). The BRD paper brought the discussion a stage further by focusing on the concepts of space and place which, following the SPESP report, were defined as follows:

'a 'space' is a territorial arrangement where any given place can be described by comparison with other locations within that territory', and 'a 'place' is any geographical location that can be described in comparison to other locations in terms of unique characteristics' (DELG 2000c:4).

The central task of the NSS was then presented as being about 'spatial positioning' of any given 'place' in relation to a 'space'. This rather abstract formulation provides some insights into the conceptual challenges faced by the members of the SPU. While rejecting the traditional 'needs' or 'regional equity' arguments as the rationale for the NSS, the spatial translation of the alternative 'potential' approach was difficult to achieve with clarity. However, the difficulties in defining the concept of potential within a regional context which has roots in the 'balanced competitiveness' concept used in the ESDP, may well have been helpful at that juncture in the preparation process. A clear rejection of the spatial equity approach could be justified from a rational analytical perspective, and this was necessary in order to maintain the confidence of economic stakeholders in the process who feared that the NSS could lead to a weakening of the national economic performance by detracting investment from Dublin. This concern was acknowledged from the

outset by the Minister for the Environment when he addressed the first Leaders' Forum, at which he confirmed that the NSS would ensure that the international competitiveness of Dublin would be maintained.

The presentation of the 'potential' model was, however, for the most part rooted in conceptions of space and place that are close to the positivist tradition in that 'space' is used to describe territorial containers in which 'places' have locally defined and constructed characteristics. This approach does not adequately reflect the extent to which places in Ireland are economically and socially embedded in international networks of production and consumption.

The Balanced Regional Development paper elicited many responses with the majority supportive of the proposed interpretation. Not surprisingly some of the more cautious responses were from representatives of areas that might have expected to gain more from the spatial equity approach, while on the other hand the most enthusiastic support came from the economic and business interests and representatives of Dublin. There was little response from the academic community of planners and related disciplines so that the opportunity for critical analysis that might lead to further refinement of the core concepts did not arise.

The NSS Research Programme

An extensive research programme was embarked upon in tandem with the first phase of the consultation process. The abandonment of regional planning for almost twenty years had left a major void in the knowledge base concerning the patterns, and underlying dynamics, of spatial development in Ireland. The SPU identified a list of almost 30 research projects that needed to be undertaken over a very short time frame. In practice this mammoth task was shared between the members of the SPU and several consultancies including university based research units. This approach brought additional planning expertise into the process and resulted in an extensive body of new knowledge which was publicised in summary format on the NSS website.

A selection of the main outcomes from the research programme are summarised in Walsh (2004). The research projects provided a significant resource of new information on spatial patterns that were of direct relevance to the formulation of the NSS proposals. While much of the new information was more descriptive than analytical in nature, which is not surprising given the very limited time frame for this work, it was used extensively in the workshops in order to maintain the focus on high level national issues and to avoid the risks associated with regional or local level introspection. More generally, the research component highlighted that there were significant gaps in the knowledge base on contemporary patterns of spatial development, especially at a fine geographical scale, and there were even greater gaps in the understanding of the underlying dynamics shaping new spatial patterns. For example, very little is known

of the extent of the regional, national and international networks that places are situated within; the new types of rural-urban relations; or the functional roles of small and medium size urban centres. It also became evident that there are serious deficits in the range and quality of easily accessible spatial data, and that the capacity for spatial data analysis and modelling was very weak. The scale of the challenges to be addressed within the time frame of the NSS was estimated by reference to specially prepared population projections.

Consultation Phase 2

The second phase in the consultation process commenced in September 2001 when the SPU published the final Consultation Paper *Indications for the Way Ahead* (DELG 2001). The 33 page document restates the purpose, vision and principles of the NSS. It then elaborates on the proposed approach to balanced regional development which it suggests should be 'a targeted approach based on the focussed strengthening of a small number of urban centres' (DELG 2001: 4). It also asserts that this small number of strong centres will:

- energise the contribution that different areas can make to balanced regional development,
- facilitate the development of North/South interactions,
- counterbalance the pull of the Greater Dublin Area and the Dublin-Belfast corridor,
- support complementary roles for urban and rural areas, and
- lift the level of development of entire areas.

In order to achieve these objectives five concepts were introduced: functional areas; potential; critical mass; gateways; and linkages. Taken together this set of concepts provided the basis for elaborating a more comprehensive approach to balanced regional development. The introduction of the concept of functional areas as an explicit alternative to thinking of territorial organisation in mainly administrative boundary terms was a major innovation to discussions about regional development and planning in Ireland. By focusing on the relationships between places the SPU selected twelve functional areas that covered the entire State. The boundaries of such areas were depicted as overlapping and imprecise, and were designed to convey a sense that in the latter phase of the NSS preparation the precision associated with formal empirical analysis needed to be modified to take account of additional informal knowledge derived in a somewhat *ad hoc* fashion from the collective wisdom of experienced planners and other spatial development researchers. According to the DELG (2001:15) the functional areas 'typically tend to share common characteristics and issues, and they are spaces where people live their working, schooling, shopping and leisure lives and with which many can identify. This sense of identification spans the urban/rural divide and in places extends across county boundaries'.

Each of the areas contains an urban centre or a number of centres, which are central to the economic functioning of that area.

The functional areas approach to balanced regional development relies heavily on the concepts of potential and critical mass. Potential is now defined as the capacity which an area possesses for development arising from its endowment of natural resources, population, labour, economic and social capital and its location relative to markets. Different areas have varying types and levels of potential. Critical mass is defined as the size, concentration and characteristics of populations that enable a range of services and facilities to be supported and which, in turn, can attract and support higher levels of economic activity. It is, therefore, an important concept in optimising local and regional potential. Critical mass can be achieved in different ways. It normally requires a concerted effort to develop a single town or city to play a larger role and deliver benefits to its wider hinterland. Alternatively, in some areas it might involve providing a package of supports to link a number of neighbouring towns in a polycentric network in order to collectively achieve a critical level of supporting infrastructures, facilities and services. Concentration of resources to achieve stronger centres and, thereby, the development of related areas is a crucial dynamic in bringing about more balanced regional development.

The National Development Plan designated the five largest urban centres as Gateways. These centres are at strategic locations and they also possess good social and economic infrastructure and support services including higher education institutions. The *Indications* paper signalled that there was scope for three or four additional Gateways though it refrained from identifying them. It further asserted that there would be a role for smaller centres, both individually and as components of regional urban networks. Rural areas for the most part were envisioned as constituting the hinterlands of urban centres upon which they depend for services and economic opportunities.

This territorial perspective, which allows for adaptations in response to the profiles of different regions, seeks to distance the NSS discourse from the language of Growth Centres that was associated with the earlier Buchanan report. In doing so it relies upon a broader concept of sustainable development than one primarily oriented towards economic growth. Thus it promotes a territorial approach based on spaces (represented by the functional areas) rather than one based on a small number of places as was the case with growth centre strategies. The adoption of 'spaces' as the territorial units for the draft NSS was a useful heuristic device in shifting the focus of most stakeholders from a short term and absolutist spatial perspective to a more dynamic and longer term approach where spatial positioning within Ireland and in the wider international arena became important. Finally, the *Indications* paper noted the importance of linkages between places or spaces which are regarded

as vitally important for building critical mass, enabling complementary strengths to develop in different places, and facilitating policies and strategies to promote development of a single island economy.

The *Indications* paper was very widely distributed using a variety of media, and followed up by ten Consultative Forums including seven at regional level and three at national level that were facilitated through the National Economic and Social Council, the National Partnership for Sustainable Development, and a Professional Bodies forum that included planners, architects and engineers. The paper was also considered formally by most of the local authorities. This consultation phase took place at a sensitive time as a general election was due to be held before summer 2002. For this and other tactical reasons the content of the *Indications* paper remained parsimonious on specifics, such as identifying additional gateways or potential hub centres. The focus was kept at the conceptual level.

There were in total 259 written responses to the paper from a wide variety of organisational and personal interests. The overwhelming reaction was supportive of the approach and proposals contained in the paper. Half of the responses subscribed without reservation to the overall approach towards balanced regional development and another 39 per cent were also supportive subject to some clarifications.

There were, however, some key areas that generated considerable discussion. The main focus of the new discourse was on the concept of functional areas (FAs), which was followed by comments on the Gateways and other settlement proposals, and also by suggestions in relation to implementation. The functional area concept and the accompanying map elicited some positive support, as a starting position, from the Irish Planning Institute and the Institute of Engineers in Ireland, but overall there were strong reservations with almost 30 per cent of the submissions stating that the concept of functional areas as outlined in the paper did not provide a useful explanation for the manner in which the country functions spatially. The main concerns were that the boundaries of the functional areas were not coterminous with those of the counties and regions. Particularly strong reservations were expressed by the local authorities in the Midlands and Southeast as the draft FA map suggested a distinctive FA located between these two regions.

The emphasis in the *Indications* paper on the role of Gateways in developing the FAs was also a cause for concern among those representing rural interests. In particular there was a view shared by many that the Strategy was likely to be urban led, with potentially detrimental impacts on rural areas. Allied to this was a concern that planning issues in respect of rural housing were not adequately addressed, which in itself is a discourse of contestation. A related issue mentioned by the Irish Planning Institute and other professionals was a need to identify and

protect outstanding landscapes as components of the national culture and heritage, while also recognising that they may constitute significant economic assets especially in some of the more disadvantaged rural areas. A different concern expressed by the National Partnership for Sustainable Development was that the *Indications* paper did not explicitly attempt to integrate sustainable development with spatial planning.

In summary the second consultation phase was characterised as a process led by the experts in the SPU and their advisors, that involved extensive well targeted consultation, and which sought views on a number of key concepts that could eventually underpin the final version of the NSS. At a conceptual level the paper introduced a relational perspective on space with spatial development considered as a dynamic process mediated through a hierarchical network of places. The precision of positivist analysis was replaced by somewhat fuzzy visualisation, and in keeping with the structuralist paradigm the roles of agencies such as local authorities, sectoral development bodies, key infrastructural providers, and professional organisations as stakeholders in spatial development were recognised. The feedback from the consultation process necessitated a revision of some key concepts (e.g. functional areas) and a need to incorporate what may be described as post-modern concerns that acknowledge diversity and the multiple responsibilities of spatial planning such as sustainable development, quality of life, protection of outstanding landscapes, and maintenance of viable rural communities. This phase also emphasised the necessity for clarity and consistency among those responsible for developing the strategy on what ought to be the core issues addressed in the NSS, and what other contexts might be more appropriate for issues that do not strictly come within the scope of the NSS.

The consultation process continued throughout the first half of 2002, though in a less visible manner as the place specific sensitivities implicit in the National Spatial Strategy had to be carefully managed in the volatile context of a national election campaign. While all political parties were in agreement on the broad objective of balanced regional development and on the need for better planning in urban and rural areas it was prudent in the context of an electoral campaign to avoid any politically contrived debate on the roles that particular places might be assigned.

Modes of Implementation

The *Indications* paper provided several proposals in relation to how the NSS might be implemented. These included the establishment of a Managing Authority at central level that would be supported by an inter-departmental network representing all of the relevant government departments, and also mechanisms for ensuring co-ordinated actions by various State agencies and infrastructure providers. In this way it was envisaged that the implementation, or perhaps more appropriately the

application, of the NSS would build on the partnership model of negotiated co-operation and collaboration that had been fostered throughout the preparation process. It was also proposed that in future all sectoral strategies would need to be consistent with the NSS objectives and overall framework, and furthermore that the application of the NSS would be supported in a consistent way by new Regional Planning Guidelines and county/city development plans while the City and County Development Boards would be required to provide frameworks for integrated development in accordance with the NSS. These proposals were generally welcomed and could be interpreted as evidence of support for a balanced approach that envisaged a combination of some elements of the positivist tradition of command and control via land use regulation, and also elements of the post-modern paradigm with its emphasis on participation, consensus building and shared governance in both the horizontal and vertical dimensions. In keeping with the overarching goal of greater coordination of spatial planning strategies between the two jurisdictions on the island of Ireland the *Indications* paper also suggested that the North/South Ministerial Council might assume a role in this area.

The content of the national spatial strategy

The final version of the National Spatial Strategy which builds upon the feedback to the *Indications* paper was published in December 2002. It is a substantial document written in a style that seeks to engage the various stakeholders in the expectation that there will be sufficient institutional and political support to ensure that the central messages distinguishing the NSS from other strategies are adopted throughout the public policy arena. Following a brief outline of the rationale and context for the NSS, Section Two provides an overview of the changing spatial structure of Ireland commencing with the external drivers and also summarising recent population and household projections. Section Three contains the core elements of the national strategy and sets out 'how Ireland can be spatially structured and developed over the next twenty years in a way that is internationally competitive, socially cohesive and environmentally sustainable' (DELG 2002:38). This is followed in Section Four by a preliminary outline of how each region will participate in the NSS. Section Five sets out indicative policies on the spatial dimensions of policies related to enterprise development, housing, access to services, and environmental management. In relation to the latter dimension which was identified as a weakness in some responses to the *Indications* paper, there is an affirmation that 'the NSS will be implemented within the framework of strong and ambitious policies for the protection of the environment and policies to integrate environmental considerations into sectoral policies' (DELG 2002:114). Various aspects of implementation are taken up in Section Six. In this part the content of the NSS is reviewed in line with the framework set out in the Chapter One in this volume.

Interpretation of Spatiality, Conceptions of Place and Spatial Organisation Principles

The opening parts of Section One clearly establish that a relational perspective on the Republic of Ireland 'space' is being adopted. Figure 2.1 (DELG 2002:21) illustrates graphically the links between Ireland and the UK, the EU core region and wider global context, while the inset on the same Figure captures some of the connections between the North and South of Ireland. Figure 2.2 (DELG 2002:23) has four maps showing the cities and towns throughout the island of Ireland. Taken together the first two Figures in the NSS establish that the NSS proposals seek to address issues concerning the functional and physical connectedness of different places to spaces and places beyond the territory within which the NSS will be implemented.

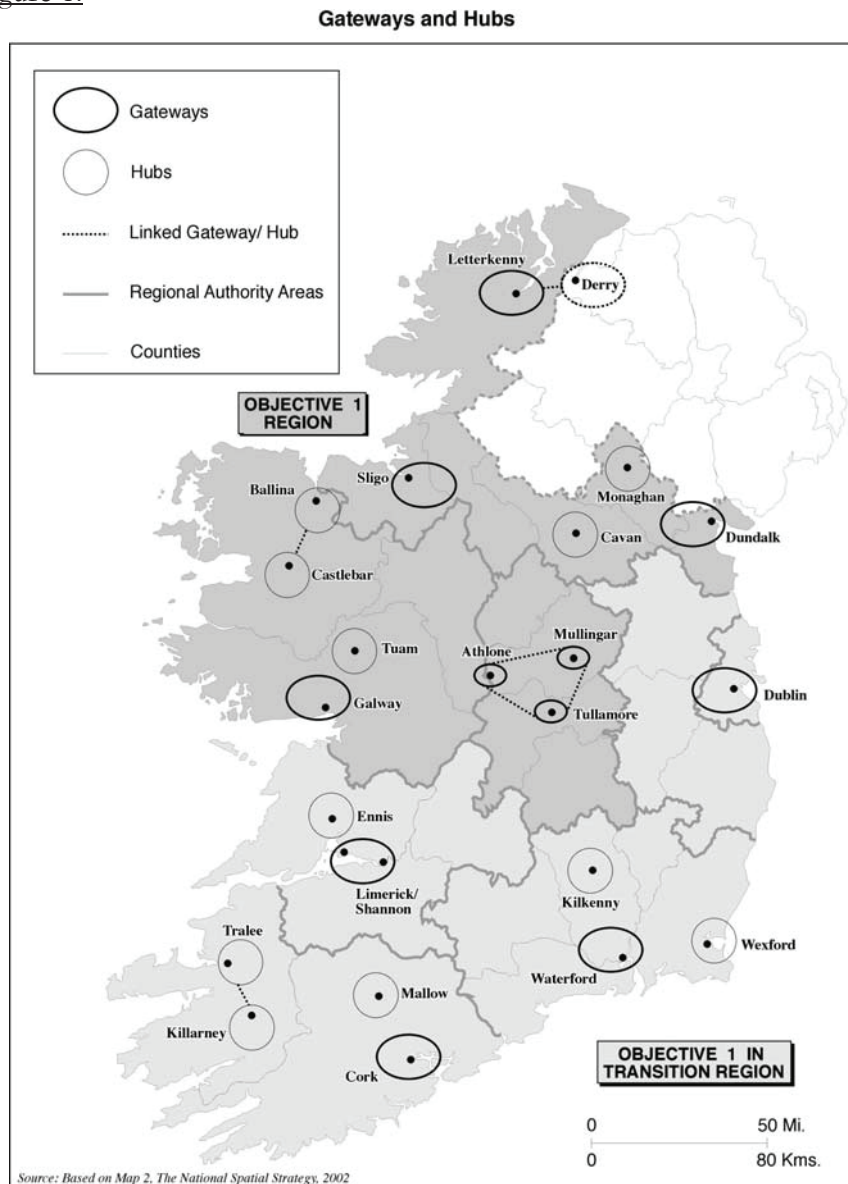
The first attempt to promote a functional spatial perspective according to the functional areas model in the *Indications* paper resulted in concerns that have been summarised above. It became clear that the draft Functional Areas map could not be relied upon as a tool in the NSS. In its place the NSS adopts an alternative functionalist interpretation of the strategic roles that are regarded as appropriate for each part of the country. Taking account of the vital national and international roles of the Dublin city region, the potentials of other cities and towns, and the different types of rural areas (DELG 2002: 54) the NSS outlines five strategic spatial roles. While these are illustrated as zones with fuzzy boundaries (DELG 2002: 57) with each place assigned to only one strategic role, in practice it was envisaged that each of the roles could be applicable to the different parts of each region. In broad terms the strategic roles are guided by the following principles to support a dynamic conception of spatial relations:

- *Consolidating* the Dublin city region,
- *Strengthening* the urban structure in a zone extending from Cork and Waterford via Limerick and Galway to Sligo and Letterkenny / Derry as an alternative development axis to a potential East coast corridor linking the Dublin and Belfast city regions,
- *Reinforcing* the intervening parts of the Midlands by seeking to create the critical mass necessary to sustain an inland Gateway,
- *Revitalising* western areas through urban led economic diversification and further exploitation of local potential based on land and marine resources,
- *Co-operating* in an all-island context with a particular focus on places either side of the Border.

In order to give effect to these roles the NSS proposes a settlement strategy based on Gateways and Hub towns, which is complemented by proposals for other towns and the rural areas. A defining set of attributes, organised according to eleven headings, is provided for the Gateways and Hubs (DELG 2002: 40). These places are conceptualised in a multi-dimensional and multi-functional way that goes well beyond

the ‘agglomeration economies’ arguments of regional economists who prefer to think in terms of growth centres (O’Leary 2007). The NSS identifies four additional Gateways to supplement the five already named in the National Development Plan. Each of the new Gateways (Dundalk, Sligo, Athlone-Tullamore-Mullingar, and Letterkenny-Derry) is located in the weaker Objective 1 region (Figure 1).

Figure 1.



The conceptualisation underlying the Gateways and Hubs draws heavily upon ideas contained in the ESDP. For example, the Midland Gateway is presented as a polycentric model linking three towns, while in the northwest the proposal to develop Letterkenny as a Gateway is contingent upon developing closer functional linkages with the much

larger city of Derry in Northern Ireland. Over the long term the NSS envisages the emergence of an Atlantic Gateway corridor linking Galway, Limerick, Cork and Waterford in order to achieve the critical mass to be a significant internationally competitive economic zone that will also provide an alternative to the east coast development. In order to promote balanced development within the regions nine Hub centres are identified, including two that are duo-centric reflecting local complementarities in functional roles.

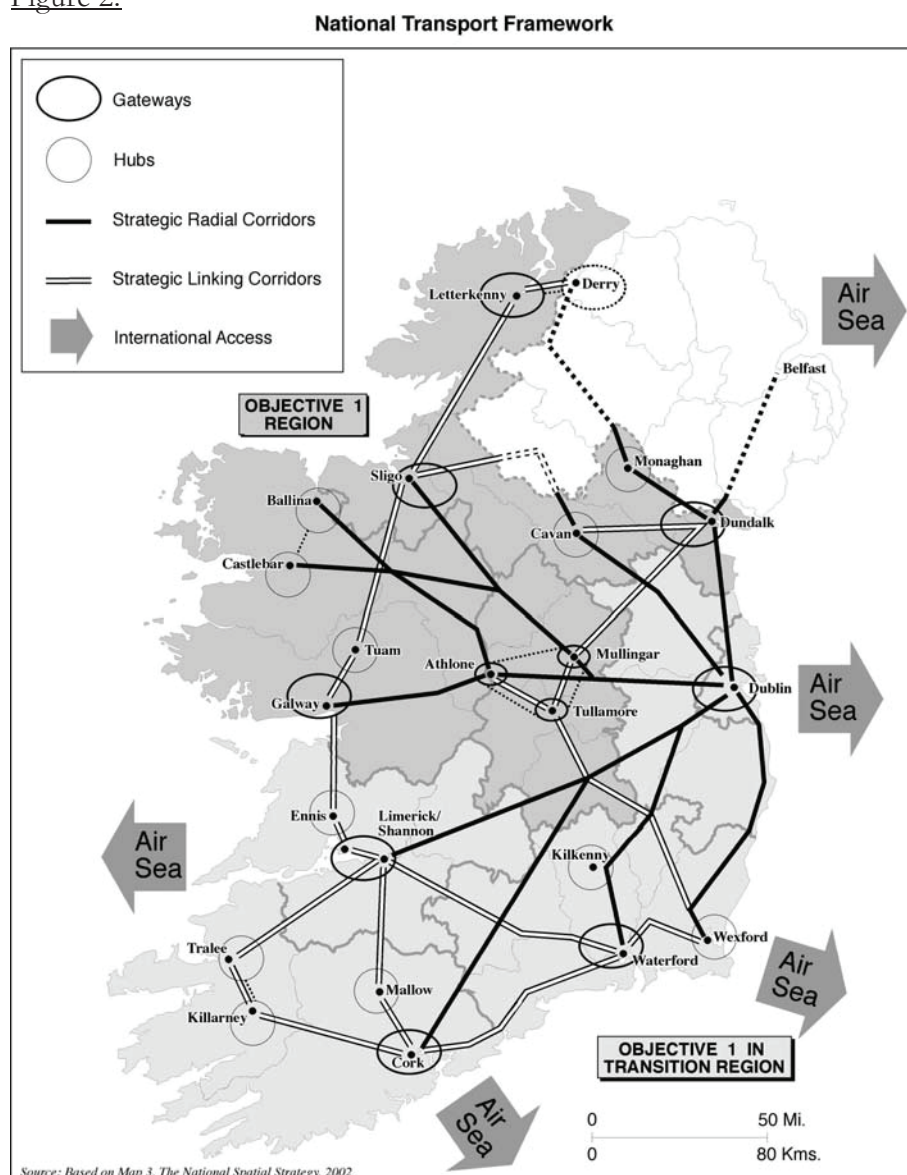
The NSS further seeks to restructure the prevailing patterns of spatial relations through alterations to the transport network (Figure 2). The main proposals include upgrading the strategic radial routes linking each of the Gateways to Dublin, and also by providing improved cross-radial linking corridors to facilitate greater interactions between and within the regions, especially in the western and southern parts of the country. In addition the NSS envisages improving the transport links to the northwest through a co-operative development of the route throughout Northern Ireland. It is also envisaged that enhanced international linkages via air and sea will be required, and in this regard the opportunities for enhancing accessibility through Northern Ireland are noted (DELG 2002: 61).

Throughout 2003 and the first half of 2004 the Regional Authorities, with the assistance of planners from the Department, prepared Regional Planning Guidelines which together with the NSS will provide the framework for future county and city development plans. Securing and maintaining a consensus on strategic spatial priorities at the local level is a major challenge. However, through a refocusing of spatial planning around more strategic issues it is anticipated that it will be possible to bring about a mindset shift away from traditional preoccupations with land zonings and parochialism, and that less reliance will need to be placed on regulation by central government, even though that option has had to be invoked on a few occasions over recent years.

While the NSS relies upon new concepts of spatiality it has been subject to some criticisms. For many professional planners, some regional economists (Morgenroth 2003), and especially representatives of the business community there are concerns that too many Gateways and Hubs have been proposed and that this will lead to a weakening of strategic focus on priority locations that could contribute most to achieving balanced regional development. There has also been criticism that the assumptions underlying the polycentric elements of the strategy may not be well grounded (McCafferty 2002). The absence of designated hub towns from some areas with extensive populations has been noted by Walsh *et al* (2006) while recent analyses based on the 2002 Census of Population (published after the NSS) provide evidence for a more vigorous approach to implementation and revision of the population targets for the Gateways (Walsh 2007). For those concerned more with

the rural dimension there is a concern that the NSS is overly reliant on urban based potential and that it does not adequately deal with the prospects for rural areas.

Figure 2.



Many of these limitations have been addressed in initiatives involving core members of the SPU which have resulted in a number of reports since the publication of the NSS. The initiatives include government strategies for transport, and science, technology and innovation (DETE 2006); a foresight study for Rural Ireland 2025 (Rural Foresight Group 2005); a framework for co-operation in relation to investment in infrastructure in Northern Ireland and the Republic (InterTradeIreland 2006); and detailed proposals in relation to developing the Gateways and Hubs (DEHLG and Forfas 2006; DEHLG 2006b and 2007).

The role of the NSS as the National strategy is to provide a high level overarching framework that is subsequently further elaborated at regional and local levels.

In summary, the NSS is innovative in terms of its conceptualisation of space and spatial relations. Many of the concepts required further elaboration which has been achieved through a continuation of the consensus building approach that characterised the preparation process, and through the building of active networks involving key actors throughout the system of public administration, including cooperative engagements with counterparts in Northern Ireland. Despite the reservations expressed by some the NSS has a high level of political and institutional support as evidenced by the prominence it has received in the National Development Plan. The experience to date demonstrates that in order to develop and secure on-going support for a challenging and innovative spatial strategy the conceptualisation and methodologies require a blending of traditional positivist expert-led analysis with an understanding of institutional structures and processes, and a methodology firmly grounded in post-modern approaches to negotiation, agenda setting and consensus building.

Concept of the Future and Time

The preparation of the NSS was informed by detailed assessments of recent trends in many spheres of activity that impact upon spatial development. The most important outcome for the NSS was a realisation that a new socio-economic context had emerged since the early 1990s and furthermore that the change is likely to remain on-going, and will continue to be significantly influenced by emerging impacts from Europeanisation and globalisation process. The impacts of these international processes, which are poorly understood, will be even greater in Ireland than in neighbouring states due to the exceptionally high level of openness of the economy. Thus the NSS attempts to provide a twenty year framework for an uncertain future. While every effort was made to ascertain the most likely macroeconomic trends, and a set of population projections were prepared based on alternative assumptions concerning demographic indicators and macroeconomic trajectories, the Strategy opts for a future that is ultimately guided by a quasi linear interpolation of the conditions at the turn of the century. The reasonably well understood contemporary context is uncritically projected into a future sheltered from any radical or uncomfortable shocks. This is all that was feasible within the limited time frame. With more time and resources the preparation process could have benefited from a foresight type assessment that would have developed a number of alternative scenarios which could then be evaluated. Instead, the key futuristic challenge is presented starkly by reference to future patterns of population distribution with or without the NSS.

Despite the uncertainty concerning the future the NSS adopts a confident positivist approach that envisages a twenty year planning framework designed to achieve a better balance of social, economic, physical development and population growth between regions. Furthermore, through closer matching of where people live and where they work, different parts of Ireland will for the future be able to sustain a better quality of life for people, a strong competitive economic position, and an environment of the highest quality (DELG 2002 10). These statements fit very comfortably within the positivist tradition of plan making and a belief that the future can indeed be shaped through planning. In order to achieve its objectives the implementation section identifies structures and mechanisms that will be put in place to ensure that the desired outcomes can be achieved. Further work on mobilising key actors and on integrating the NSS approach into other plans and programmes was envisaged for the period 2003-2006 after which implementation leading to tangible benefits will proceed. This phase will be facilitated by the investment programmes contained in the National Development Plan and its successors which tend to operate on five to seven year basis.

Visualisation and Representation

In contrast to the positivist approach that underpinned much of the analysis and also the conceptualisation of the future, the use of imagery in the Strategy statement and also in some of the earlier presentations during the consultation phase, displays a distinctly post-modern approach. Each of the key maps is deliberately fuzzy at the edges and tends to be more suggestive than prescriptive. Among the key messages emerging from the maps are the importance of spatial differentiation, connectivity, complementarities and inclusiveness. The photographic imagery, while limited in its coverage, captures a sense of a country breaking away from congestion and dull urban construction in the city to brighter, well-connected, free-flowing and energised regions inhabited by smiling happy children in sustainable communities and environments. The underlying messages are that the NSS can contribute to an enhancement of quality of life and sustainability throughout the regions by promoting a settlement framework that seeks to be inclusive without impinging on the established institutional and administrative physical and other boundaries.

A notable aspect of the visualisation techniques is the extent to which they are used, as alternatives to narrative in some cases, to convey messages about strategic spatial planning in an island of Ireland context (Hoch, 2007). The confidence of the political administration in the Republic in this regard contrasts with the more cautious approach adopted in the Northern Ireland strategy (see Chapter Five in this volume).

Understanding of Scale

The National Spatial Strategy as the title implies is primarily a planning framework for the State. However, various geographical scales that impinge upon spatial planning at the nation State level are invoked. In the opening section that particular scale is correctly positioned within larger international contexts. A strong political economy perspective underpins the analysis of the relationship between the national and international scales with references to globalisation, the role of the EU, international obligations in relation to sustainable development, and the role of urban centres as places through which international forces are mediated and through which participation in international production, consumption and governance networks are secured. In relation to the island of Ireland scale, the narrative and visualisation falls more within the post-structuralism and post-modern traditions as it is necessary to take account of the underlying political contestation and variable discourses that have influenced development patterns in the past, and also the variety of more recent political initiatives that may provide opportunities for new forms of territorial cooperation in areas related to economic development and provision of public services as diverse as healthcare and electricity.

The presentation of the internal dimensions of the strategy confirms a nested hierarchical approach to scale in spatial planning that extends from the local through the region to the national level, and vice versa, and which is strongly grounded in the positivist tradition of spatial analysis. The hierarchical vision is elaborated further in the use of spatial categories such as Gateways and Hubs with polycentric networks being invoked to create additional critical mass at a number of scales extending from the Atlantic Gateway to the ternary Midland Gateway and duo-centric Hubs in the West and Southwest. However, the anticipated complementary horizontal integration to be achieved by means of the Regional Planning Guidelines through application of the potentiality principle in pursuit of balanced development owes much to the post-positivist traditions of planning.

In summary in this area, as in so many other aspects of the Strategy, there is evidence of a plurality of conceptual approaches that are appropriate to the diverse objectives underlying the complex business of strategic spatial planning.

Conclusions

The National Spatial Strategy for the Republic of Ireland was embarked upon after a lengthy period during which there had not been any framework for promoting balanced regional development. However, in the context of rapidly increasing prosperity, and the prospect of a restoration of peaceful conditions in Northern Ireland, a number of somewhat unrelated initiatives culminated in a government commitment to prepare a twenty year strategy that would facilitate the promotion of

balanced regional development. The first lesson that became apparent is that the context for preparing the NSS was completely different to that which prevailed when the last previous attempt was made in the mid 1960s. The strong welfare redistribution role of the State had been replaced by a more liberal and entrepreneurial ideology; the nature of the national and international socio-economic realities and their underlying drivers of transformation were utterly different; and additionally the conceptualization of space and place had also undergone a number of paradigm shifts as outlined in the opening chapter. Allied to the diversity of perspectives on space and place were new ways of thinking about development, government and governance. However, the conceptual shifts were not universally shared across disciplines, or among professionals in the areas of planning policy design and implementation, or among officials throughout different government departments.

The review of the Irish experience demonstrates that a plurality of planning paradigms was used at different stages in the process and for different tasks. The traditional positivist based expert knowledge and methodologies of professional planners and others were essential at crucial stages but they needed to be complemented by insights and methods from the structuralism and post-modern traditions. In particular there was a strong emphasis on consultation and developing a consensus based on partnership. It is also apparent that the NSS process and content were strongly influenced by the ESDP process.

Reverting to the discourse in Chapter One the NSS experience demonstrates the extent to which the conceptualization of space and place has shifted away from a Euclidean neutral container and objectively map-able perspective. There is now a greater recognition of the extent to which places are socially and politically constructed as nodes in global production and consumption networks. For example, the role of certain locations in the Dublin city region as points for connecting the Ireland space to the global economy became a key issue, while the assessment of rural areas illustrated that formerly weak and remote rural locations were increasingly assuming new roles as consumption spaces that are incorporated into wider national and international systems of demand centred on tourism, leisure activities and simply differences in lifestyle and values.

Linked to the paradigm shifts are new ways of thinking about the organization and representation of space. While proximity, accessibility and distance decay effects remain important there is an increasing awareness of the role of the extent to which functional spaces are fluid and based on networks that are less place bound, and are also not congruent with administrative areas. These changes in the ways in which spatial relations are considered are particularly challenging to both analysts and practitioners trained in the positivist tradition and methodologies and can make the task of securing a consensus on

fundamental issues quite difficult. This was evident in the debates that occurred around the role and number of Gateways and how they compare with or differ from the older concept of Growth Centres.

The role of planners and other public servants within the process of spatial strategy formulation was vital. In relation to the NSS they had to combine the traditional roles of attempting to predict future development trends (for example population projections, housing demand, car ownership) while also seeking to achieve a negotiated consensus that required considerable consultation around draft proposals guided by expert analyses. The extent, depth and pro-active nature of the consultation process were a crucial factor in securing the support of very divergent stakeholders in a policy area requiring some fundamental reassessment and abandonment of traditional thinking. At one level, the small size of the Spatial Planning Unit made it easier to maintain consistency in the discourses with others and it was also able to keep a tight rein on the overall purpose and scope of the Strategy when at times issues were highlighted that could have posed a risk to the whole exercise (for example, a debate on rural housing based on flimsy evidence occupied the main focus of attention for a considerable period). At other levels, the work of the SPU was greatly aided by the evolution of a network of key high ranking officials in other Government departments and agencies that overtly took the form of the high level interdepartmental steering group but that over time, has developed into a virtual cross departmental team. The formal and robust exchanges between Departments that might normally be anticipated as they forge new relationships in working with each other in developing the NSS were replaced by collaborative and cordial day to day working relationships as the new era of spatial planning and its relational aspects emerged.

More critically while the planners and officials involved in developing the NSS wisely avoided sophisticated technical (positivist) modelling to produce alternative scenarios the process could have benefited from a (post-modernist) foresight type exercise that would have provided an opportunity to think more widely outside the comfort zones of the contemporary world that we know. More generally, while spatial planners have comfortably taken on board processes of engagement and consensus building that fit with the post-modern perspective there are significant challenges in communicating relational and post-modern concepts and having them incorporated into spatial strategy reports.

The experience in relation to implementation is that it is no longer sufficient to rely on a command and control approach through land use regulation. Much more can be achieved through an approach that seeks to promote a deeper understanding of the processes shaping territorial development. Of course, this requires sustained information sharing, a culture of cooperation and collaboration and a higher level of strategic capacity throughout different levels and strands of governance. While the

SPU were successful in building a supportive institutional context at all levels there is a need for on-going reinforcement in a consistent way of the main elements of the strategy. The subsequent studies initiated by the SPU on developing the Gateways, and the report commissioned by InterTradeIreland (2006) on how best to coordinate infrastructural investments in the North and South have been particularly helpful in keeping the core concepts to the forefront and in maintaining an engagement by key stakeholders (see also NESC 2005; National Competitiveness Council 2006). These initiatives are especially necessary when actions by others may unintentionally damage confidence in the process as, for example, the government's decentralisation programme, or at a different level some of the media commentary following the publication of the preliminary results of the 2006 census of population.

Strategic spatial planning should be led by professional planners but the process needs to be better supported. The NSS experience brought to the fore the necessity for a systematic rolling research programme, means to overcome the very considerable gaps in spatial data, and the need to enhance the level of expertise among professional planners at all levels in the administrative system. For the future, there is a need for a greater level of discourse amongst planners, regional economists, other policy makers and decision takers on changing perspectives of space and place and to make more tangible the concepts associated with the relational and post-modern perspectives in strategic spatial planning.

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CHAPTER 25

BEYOND THE “SIGH OF THE OPPRESSED CREATURE”: A CRITICAL GEOGRAPHICAL ENQUIRY INTO CHRISTIANITY’S CONTRIBUTIONS TO THE MAKING OF A PEACEABLE WEST

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A certain wisdom holds that we are now living in a postsecular age when religion is reasserting itself in the public realm. One hallmark of this age is the significance attributed to religion in international relations. The principal global regions, it is purported, sit perilously on the brink of a “clash of civilizations,” at the heart of which is conflict caused, aggravated, or symbolized by tensions within and between the prophetic religions of Middle Eastern origin, Judaism, Christianity, and Islam; the wisdom religions of Chinese origin, Confucianism and Daoism; the mystical religions of Indian origin, Hinduism and Buddhism; and the older ethnic or indigenous religions, which still resonate particularly in Australia and Africa. Simultaneously dubbed a source of conflict and war and a vehicle for peace and security, it is assumed that religion is enjoying a new sense of agency in geopolitics.

The focus of this article is the role of Christianity as a peace breaker and peace maker in the contemporary geopolitical theater. Placing the spotlight on Christianity serves as a necessary antidote to tendencies within the West to ascribe sole culpability for any emerging “clash of civilizations” to Islam and in particular Islamic fundamentalism. There can be no doubt that Islamic extremism has emerged as a potent threat to global peace and stability in the past decade, but to focus only on militant Islam is to occlude necessary examination of the roles and responsibilities of other religions, not least Christianity, Judaism, and Hinduism. It is crucial to hold to account the leadership of all the principal religions and to scrutinize their respective contributions to the making of war and peace.

Christianity’s embroilment in international relations takes many direct and indirect forms and includes prayer, lobbying, advocacy, and action around the provision of emergency relief in war zones and divided societies; ethical consumption and fair trade; corporate social responsibility within transnational companies; humanitarian aid in areas suffering natural or human disasters; nuclear disarmament; pollution and climate change; forced migration including the movement of refugees and sex trafficking; human rights abuses; HIV and reemerging infectious disease; biotechnology and stem cell research; new technologies of

fertility control and engineering; creationism and the school curriculum; faith-based schooling; the legal status of same-sex marriages; fertility control; adoption practices; dress codes in public spaces; freedom of speech and worship; and media responsibility.

Any elevation of Christianity within the public sphere requires a parallel moment of introspection, confession, and contrition. There can be no doubt that throughout its past, Christianity has made important contributions to cross-cultural and ecumenical dialogue, the deescalation of intractable and violent conflict, and directly to peace building itself. Although there is a tendency to view much of this work as essentially humanitarian and precognitive, motivated by immediate, practical, applied, and pragmatic concerns, it is Christocentric, Eurocentric, and Westerncentric to regard it as innately virtuous. It is necessary to excavate the theological, philosophical, and political bases of Christian initiatives for peace. Christianity has enjoyed a unique proximity to political power and has been implicated in a variety of inglorious histories of colonialism and imperialism. Against the backdrop of a new phase of Western colonialism, imperialism, and neocolonialism, it has a special obligation to reflect on the ways in which it might be serving both as a progressive and regressive institution in world affairs today.

On the other hand, although recognizing the potential of religion to serve as the “opium of the people,” mystifying, obfuscating, and veiling the roots of inequality, oppression, exploitation, and colonialism, Marxism has a much richer tradition of engagement with religion and recognizes its dual potential. Recently, Marxist philosopher Slavoj Žižek and Christian theologian John Milbank (Žižek and Milbank 2009) have both mooted the possibility of bringing Hegel and Christ into a new dialogue but for different reasons and on different terms. Written in exile in the United States and published in three volumes between 1954 and 1959, in fact Bloch’s (1986) *The Principle of Hope* makes an earlier and equally compelling case for reframing religion as at once a tool for the powerful and a resource for revolution. For Bloch, religion was indeed the “sigh of the oppressed creature,” as Marx (1843) so famously proposed in his *Critique of Hegel’s Philosophy of Right*, but it was also a rich source of utopian hope and revolutionary consciousness. Marxism needed to be alert to regressive uses of religion to legitimate exploitation, human misery, and conflict but could also be more open to building solidarity with religious currents that promote social justice; a fairer deal for the marginal, excluded, and poor; and planetary peace.

If the sigh of the oppressed creature is to give way to the principle of hope, it is imperative that Christianity’s progressive social and political currents assert themselves over regressive, conservative, and obfuscatory constituencies. The critical question then is the extent to which Christianity is formulating and evangelizing progressive social and political agendas, building and fortifying purposeful social movements in

support of the world's poor and exploited, widening and enriching public debate and democratic politics, and nurturing a stronger sense of global responsibility and care. Or, to put the counterfactual, to what degree is Christianity formulating and evangelizing conservative and regressive social and political agendas, building and fortifying entrenched and elitist interests, narrowing and diminishing public debate and democratic politics, and in-flaming a sense of otherness and superiority?

The case of the Roman Catholic Church is used to open a discussion on Christianity's varied, complex, contradictory, and competing ecumenical agendas. The approach taken places the Roman Catholic Church under postcolonial scrutiny. The Catholic Church is variably confronting its entanglements in colonial histories and reflecting on the possibilities of, strategies for, and merits of postcolonializing. A critical geographical enquiry into Catholicism's contributions to war and peace might productively interrogate the importance of the spaces and places from which Catholicism is postcolonializing its embroilments with other societies, cultures, and religions. The purpose of such enquiry would be to shed light on the locations from which Catholicism is acting to reassert a resurgent Christian West and the locations from which it is variously "provincializing" the West, so as to produce more or less effective strategies for peace building.

Firmly rooted as it is within contemporary social, cultural, and political geography, Kong's manifesto for "new geographies of religion" provides an opportunity to think both critically and geographically about Christianity's multiple approaches to building global peace and security (Kong 2001a, 2001b, 2002, 2005a, 2005b, 2006, 2007; see also special editions of *Social and Cultural Geography* [Holloway and Vallins 2002], *Annals of the Association of American Geographers* [Proctor 2006], and *Geopolitics* [Agnew 2006]). This article extends Kong's call for new geographies of religion and offers the concepts of "milieux of translation," referring to the social, economic, political, and cultural prisms through which theology becomes refracted into praxes, and "formations of the secular," referring to the conditions in secular democracies that permit religions prescribed access to the public realm, as key to the development of geographies of Christianity's postcolonialization.

In their search for an appropriate vista through which to apprehend the varied and complex processes of domination, control, resistance, and violence that have resulted from past and present colonial and imperial projects, geographers, too, have drawn on and contributed to the emerging field of postcolonial studies (Sidaway 2000; Blunt and McEwan 2002; Nash 2004; McEwan 2008). Motivated by a sense of contrition about the historical complicity of the discipline of geography in the colonization by European powers of territories in Latin America, Asia, and Africa, sustained attention is now being given to the locations from

which postcolonial theory and postcolonial geography itself is being imagined, framed, and enacted (Minca 2003; Pollard et al. 2009). This article concludes that future dialogue between Christianity and geography might productively focus on the risks and rewards that flow from the pursuit of postcolonial envisioning of global peace and security.

Christianity and Colonization: Evangelical Christianity in the United States—Paradigmatic or Exceptional?

Christianity comprises a crowded landscape with a confusion of beliefs. Originating as a Jewish sect in the first century, Christianity's growth to prominence has been fractured by at least two great schisms, the separation of Roman Catholicism from Eastern Orthodoxy in the eleventh century, and the further splitting of Protestantism from Roman Catholicism during the sixteenth century Reformation. Protestantism, too, exists as a complex composite of confessions, including the Anglican, Lutheran, Presbyterian, Calvinist, Baptist, Pentecostalist, Methodist, and Evangelical churches. With an estimated baptized population of 1.1 billion (Christianity has an estimated 2.2 billion adherents), Roman Catholicism stands as the single largest and most globally expansive denomination.

Given its complex historical formation it would seem inappropriate to make generalizations about Christianity's proximity to political power. Nevertheless, for some critics, beginning with the fourth-century Constantinian conversion of the Roman Empire, embodied in the Crusades of the eleventh, twelfth, and thirteenth centuries, and most clearly demonstrated in European colonization of Africa, Asia, and Latin America from the sixteenth century, Christianity's principal churches have been embroiled, albeit in varied and complex ways, in past colonial and imperial projects.

It is certainly true that at least three sets of relationships between Christianity and empire can be identified (Weber 1930; Tawney 1938; Said 1978; Livingstone 1992; Driver 2001):

- *Christianity as a precondition for the emergence of Europe:* Christianity provided the prepolitical cultural and moral foundations, conditions, and arguments and energy, efficacy, and organization for the emergence of European states, the rise of modern European capitalism, and the annexation by European states of overseas territories and resources.
- *Christianity as a source of geopolitical imaginaries that fuel colonial projects:* Through the production of geopolitical imaginaries that emphasize hierarchies of reason, virtue, and truth, Christian discourses about the "Orient" formed a critical component of "Orientalism" more generally, defined as a Western projection onto and will to govern over the Orient.

- *Strategic alliances between Christianity and colonial projects:* Early Christian missions provided knowledge, often in maps, which aided military conquests and colonial planning while Christian missionaries exploited the new opportunities opened up by colonization to evangelize.

In the combustible geopolitical climate of the moment, pivoting around a new phase of Western imperialism and a purported clashing of world civilizations, it is perhaps unsurprising that critics have claimed that Christianity is buttressing the geopolitical strategies of Western advanced capitalist nations and that these interventions stand as the latest incarnation in Christianity's historical intermeshing with empire. Although such claims have been directed at many Christian churches, they have been focused principally on the role of evangelical Christianity on American foreign policy. Amid rhetoric pronouncing a return to the Crusades and ruminations of Christianity as an "imperial religion and religion of the imperialist," it is important to be alert to the limits of historical comparison. Nevertheless, it is worthwhile considering critical voices, as they help to establish what is at stake in any consideration of Christianity's complicity in Western geopolitics.

Developments within global capitalism from the mid-1970s have pitted the West, and in particular the United States, into a new relationship with the rest of the world. Encapsulated by the debate between Niall Ferguson and Robert Kagan at the American Enterprise Institute in 2003, and reflected in disputes surrounding the Project for a New American Century, there is disagreement within the American right as to whether the United States should be described as an empire (Durham 2006). According to Agnew (2005), at the very least emerging international relations announce a new phase in U.S. economic and political hegemony. Harvey (2003), Gregory (2004), and Smith (2005) went further to assert that these relations are predicated on new modes of colonial and imperial annexation. The trafficking, reembedding, and policing of Western neoliberal ideology in non-Western societies has played a key role in appropriating economies around the world and underwriting a new period of transnational "accumulation by dispossession" (Harvey 2005).

Meanwhile, as early as 1980, Daniel Patrick Moynihan prophesized the rebirth of ethnicity as a force in world affairs. A spectator of the fragmentation of the Soviet Union into a mosaic of virulent ethnic nationalisms, Moynihan (1993) later likened future world disorder to "Pandaemonium," the capital of hell in Milton's seventeenth-century poem *Paradise Lost*. This focus on ethnicity was to mutate into a concern with civilizations, a derivative but distinctive concept. It was Huntington (1996) who was to globalize the specter of Pandaemonium and bring the geopolitics of civilizations into everyday public discourse, asserting that world peace and security, and in particular the Christian West, is

increasingly being threatened by the clashing of civilizations. Inspired by Flaubert's unfinished *Bouvard et Pécuchet*, written in 1880 at the height of the European colonial adventure, Said (1978, 113) noted the significance of the maxim that "Europe needed Asia to regenerate itself." Reading Huntington, it would almost seem that the West now "needs" a clash of civilizations, and in particular an other in militant Islam, to regenerate itself today (Said 2006).

Schama (2008) provided a timely reminder that Christianity has always been central to American political life but noted that evangelical Christianity has been presented with a new historical opening. The neoconservative lobby in the United States has played a pivotal role in shaping U.S. foreign policy and promoting fears over an impending clash of civilizations, and it is through this lobby that evangelical Christianity has exerted influence. Although often traced to a clique of "Straussians" who worked their way into high office or who were able to influence senior figures within the administration of President George W. Bush, neoconservatism in fact encompasses a wider constituency including "Evangelical Christians, Jewish Straussians, avowedly secular cold warriors who have made a fetish of the West, conservative feminists, and other family moralists" (Brown 2006, 698). Its pioneers include Irving Kristol, Norman Podhoretz, Nathan Glazer, Daniel Patrick Moynihan, and, more recently, Robert Kagan, William Kristol, Richard Perle, and Paul Wolfowitz.

Neoconservatism expresses abhorrence toward the alleged moral decadence wrought by liberalism, counterculture, and postmodernism since the 1960s. For neoconservatives, a strong theologically informed state will be required if the United States is to arrest declining standards, dwindling respect for tradition and authority, moral liberalism, the folly of political correctness, misplaced multiculturalism, and the paralyzes of relativism. The West, however, is threatened by outside "deviant" and "rogue" states, too, not least from the "axes of evil" emanating from the Muslim world. The United States has a divine mandate to "civilize" "laggards," "tyrants," and "dictators" by imposing liberal democracy, order, freedom, and the market, by force if necessary. Nationalism and patriotism are fanned by a rekindled interest in natural law and moral order and Christianity is foregrounded as unashamedly at the heart of public life and public policymaking.

The operation of power and authority within the U.S. polity ensures that this is a postsecular society only for religious constituencies that support the interests of U.S. nationalism and patriotism, U.S. capitalist globalization, and an offensive U.S. foreign policy. Culturally and morally conservative, evangelical Christianity fits this profile and has therefore enjoyed unequal and privileged access to political power. Moreover, it is difficult to assert that Christian neoconservatives have worked to fortify and enrich the functioning of democracy in the United States.

Evangelical Christianity has not only benefited from a secular politics open to its message, but through its absolute claims to truth and authority has helped to constitute a foreclosure of genuine agonistic debate and impaired the proper functioning of democratic politics. Brown (2006) referred to neoliberalism and neoconservatism's combined dedemocratic tendencies as constituting an "American nightmare."

Undoubtedly the role played by evangelical Christianity in public life in the United States in general and U.S. geopolitical strategy more specifically provides a crucial insight into the ways in which some Western politics remain radically and unequally open only to regressive Christian geopolitical agendas that are consonant with powerful colonial, imperial, and neocolonial interests. Even within its own terms of reference, however, such a mode of argumentation requires clarification, qualification, refinement, and perhaps even correction. It is inappropriate to infer that purported relationships that exist in the United States betray Christianity's more generic and innate complicity in the West's struggle to maintain global hegemony. It is imperative to return again to Christianity's complex historical emergence and splintering. Two critical flaws merit particular mention.

First, many constituencies within evangelical Christianity rightly object to the simplicity of recent accounts and their lack of representativeness of the wider faith community. Within geography, Dittmer (2007a, 2007b, 2008), Gerhardt (2008a, 2008b), and Sturm (2006, 2008) have all offered more nuanced insights into the popular geopolitical imaginaries and more varied political leanings of evangelical Christians in the United States, with specific reference to the different eschatologies proffered by premillennial dispensationalism and postmillennialism. Meanwhile, Yorgason and Chen (2008) have added the geopolitical imaginaries of Mormonism to the story. The more complex relationships between evangelicalism, Protestantism, the religious right, neoliberalism, neoconservatism, the presidency of George W. Bush, and U.S. foreign policy have also provided a focus for more careful debate in religious studies (Chernus 2008), international relations (Bacevich and Prodromou 2004), American studies (Newman 2007), and political science (Brown 2006).

Second, serious theoretical and political weaknesses derive from enshrining the case of the United States as paradigmatic and drawing overly strong inferences. Understanding of the contributions of Christianity to war and peace is being skewed as a result of an excessively narrow focus on a single case. It is necessary to explore with a broader gaze the variety of ecumenical vistas that are being secreted and mobilized as Christianity's rich diversity of denominations and churches interlace with other secular societies in other parts of the world. The remainder of this article strives to heighten awareness of the more varied stories that might be told if Christianity's complex historical emergence

and rich diversity of institutional formations are given wider recognition. Given its numerical dominance and global expansiveness, the Roman Catholic Church offers a valuable alternative case through which to probe Christianity's more messy social and political agendas.

In Search of the Principle of Hope : A Critical Geographical Enquiry into the Ecumenical Agendas Promoted by the Roman Catholic Church

This article contends that the varieties of peacebuilding strategies Roman Catholicism promotes reflect the myriad ways in which Catholic theologians are seeking to “provincialize” the West so as to alter the terms of reference of ecumenical dialogue. Following Chakrabarty (2000), the concept of provincialization is used here to refer to critical practices that usurp and decenter the sovereign supremacy enjoyed by Europe and the West in the framing of world history and global politics. It is possible to discern strategies that seek to historicize and relativize (1) the European Enlightenment, (2) Christocentric ecumenicism, and (3) globalized neoliberal capitalism, respectively. The peace initiatives offered by three of the most influential Roman Catholic theologians of the moment, Joseph Ratzinger (Pope and leader of the Roman Catholic Church), Hans Küng (leading Northern Hemispheric critic of the Roman Curia and reformer within the Catholic Church), and Leonardo Boff (a leading figure within Latin American liberation theology), capture exactly the different implications that flow from each of these forms of provincialization.

Joseph Ratzinger was born in Germany in 1927, Hans Küng in Switzerland in 1928, and Leonardo Boff in Brazil in 1938. All three were ordained priests in the Roman Catholic Church and progressed to doctorate studies: Ratzinger graduating from the University of Munich in 1953 with a thesis on Saint Augustine's doctrine of the concept of justification in the Protestant theology of Karl Barth; and Boff from the University of Munich in 1970 with a thesis on the church and the liberation of the oppressed as a sign of the divine in the secular world. Throughout the 1960s all three were to secure renown as leading progressive and liberal thinkers within the Catholic Church, and each was to contribute to and to be deeply influenced by the Second Vatican Council (1962–1965).

Their pathways were soon to part. Ratzinger took up a series of academic chairs at the Universities of Bonn, Munster, Tübingen, and Regensburg, before serving as Archbishop of Munich from 1977, Prefect to the Congregation for the Doctrine of Faith from 1981, and finally Pope Benedict XVI from 2005 onward. Küng, meanwhile, served as Chair in Theology and Director of the Institute for Ecumenical Research at the University of Tübingen until he retired in 1996, after which he established and served as President of the Global Ethic Foundation in Tübingen. Boff returned to his native Brazil where he took up a series of

chairs in theology, philosophy, and ethics and most recently served as Professor Emeritus of Ethics, Philosophy of Religion, and Ecology at the Rio de Janeiro State University.

At the heart of any critical geographical enquiry into the extent, nature, and consequences of Roman Catholicism's engagements with postcolonialism must be a concern with the locations in which different postcolonial strategies germinate and take shape and the capacity of these strategies to then access and mold the geopolitical agendas pursued by different nations. To this end, in this section I argue that the concepts of milieux of translation and formations of the secular are of value when subjecting Catholicism to postcolonial scrutiny. The idea of milieux of translation is deployed to help account for the ways in which Catholic theology produces different faith-based social and political praxes as it becomes refracted through different social, cultural, economic, and political worlds. The notion of formations of the secular is introduced to help account for the variable manifestations and impacts of Catholic peace strategies on public realms in different democratic polities.

Milieux of Translation: Locating Catholic Provincializations of the West

Catholic theology is capable of generating such different social and political prescriptions in part because theologians inhabit different geographical worlds, the prisms through which they refract universal tenets and concretize what needs to be done on this earth. Ratzinger comes to ecumenical dialogue following a long struggle with European secularism. Küng, meanwhile, has approached ecumenical activity from a conciliatory, European, post-Reformation Catholic tradition that found its zeitgeist in the liberal, ecumenical, and cosmopolitan atmosphere sown by the Second Vatican Council (1962–1965). Finally, Boff has crafted his ecumenical vista out of the ashes of Latin America's own history of colonization and neocolonization by European powers and later North American economic interests.

Joseph Ratzinger's ecumenical vista stems most fundamentally from his long struggle with European secularism. Ratzinger regards Europe as a critical bulwark against U.S. global imperialism and a potential "third way" between the West and other civilizations. In principle, then, he is a supporter of European integration and the deepening and widening of the European Union. Europe, however, is a continent in crisis. For Ratzinger, the roots of Europe's crises can be traced to the European age of reason itself and to the still reverberating cultural legacy of the European Enlightenment. The rise to prominence of radical or aggressive secularism has led to a godless Europe and as a consequence to the collapse of natural law and triumph of postmodernism and relativism (Boeve 2007).

For Ratzinger, Christianity's encounter with Greek culture in the fourth and fifth centuries was nothing short of divine providence. The Hellenistic Enlightenment allowed the fragments of Christian thought to be subjected to ruthless exegesis, critique, and reformulation. In turn, Christianity nourished Greek society by providing fundamental answers to questions of public significance. The European Enlightenment ushered in a period of de-Hellenization and resulted in a severing of theology from philosophy. It succeeded only in producing forms of both reason and religion that were inherently and unnecessarily self-limiting. Although claiming to be universal, this enlightenment was Eurocentric and culturally specific and needed to be historicized. A new rapprochement between faith and reason was required. "Pathologies of reason" required a "hint" from the great religions if they were to avoid becoming destructive, whereas "pathologies of religion" could be purified through rational debate and the application of human reason (Ratzinger 2006).

Ratzinger's principal contribution to ecumenical dialogue has come from his assertion that Christianity and more specifically Roman Catholicism will be most fit for purposes for interfaith, intercivilizational, and intercultural dialogue when it bears the stamp of its Greek heritage. Harnessing the fruits of the Greek enlightenment, Christianity could first engage in rational and reasoned debate on the competing claims to truth that inhere in different religions with a view to effecting some sort of a consensus. Second, it could provide a moral foundation through which European states might broker a more progressive set of relations with other regions of the world. Christianity could not hope to produce the kingdom of Heaven on earth and contained no prescription for a perfect society, but it could furnish the prepolitical moral and ethical precepts for a just world.

In 2000, in his capacity as Prefect of the Congregation for the Doctrine of Faith, Ratzinger had attracted international hostility by publishing *Dominus Iesus: On the Unicity and Salvific Universality of Jesus Christ and the Church* (Congregation for the Doctrine of Faith 2000). This document affirmed the absolute claim of Catholicism to be the one true religion and reasserted the belief that salvation was only possible through discipleship of Jesus Christ. It was condemned as arrogant, supremacist, and a blow for ecumenical relations. Ratzinger's response came in the form of *Truth and Tolerance: Christian Belief and World Religions* (Ratzinger 2003). The question of the relative merits of different religions could not be divorced from their competing claims to truth. A product of the Hellenistic Enlightenment, Christianity could defend the authority of its claims in a more rational and logical way than could other religions (Salvatore 2006).

This argument was publicized in his infamous Regensburg Lecture (Ratzinger 2006) and in the furor that followed Ratzinger was accused of

implying that Islam's claims to truth were weaker because it devalued human reason, was inherently irrational and drawn to violence, and demanded only blind faith. The purpose of this lecture was to assert that theology properly belonged in the university and that progress in ecumenical dialogue between Christianity and Islam required that both revalorize reason and rigorous intellectual scholarship. However, in a brief but provocative passage, Ratzinger meditated on a dialogue between the Byzantine Emperor Manuel II and an unnamed educated Persian reputed to have taken place near Ankara in 1391. Conditioned by his Greek education, the Emperor rejects the Islamic concept that God's logic transcends human logic and therefore that God is unknowable. Lamenting Islamic belief in the idea of a holy war—conversion by compulsion—the Emperor is quoted as saying, “Show me just what Mohammed brought that was new, and there you will find things only evil and inhuman, such as his command to spread by the sword the faith he preached” (Ratzinger 2006, 3).

In a public debate with Jurgen Habermas in 2004, Ratzinger argued that Christianity had a critical role in rediscovering the power of conscience and providing prepolitical moral foundations for the liberal democratic state (Habermas and Ratzinger 2006). Christianity had a duty to arrest the degeneration of morality wrought by the ascendancy of secular society and to provide an ethical bedrock for contemporary societies, but its principal task was never to search for the kingdom of Heaven on earth. Original sin had condemned “sinful” and “boastful” humans to continual lapses of error and humans could never hope to invent a perfect societal form. Ratzinger has in fact developed a forensic and extensive critique of Marxism and socialism on the one hand, and Western democracy, capitalism, and imperialism on the other (Ratzinger 2003). He has been at the forefront of deliberations on the moral and ethical problems presented by biotechnology, medicine, and science. Nevertheless he has consistently stopped short of a significant commitment to any particular social, political, or economic ideology other than an improved status quo.

In June 2009, he published his long-awaited social encyclical *Caritas in Veritate* (Charity in Truth), which will define the remit for Roman Catholic social doctrine for the foreseeable future (Benedict XVI 2009). This encyclical sought to root Christian social doctrine in natural law rather than political ideology. It addresses directly the current economic recession and crises in the global financial system and reflects on forms of economic life conducive to supporting human development in its widest and holistic sense. Although it is too rich to attempt to summarize here, the encyclical reveals the limits to which Ratzinger is prepared to move beyond the specification of a better status quo. Although warning that the instrument of the market can produce negative consequences, the thrust of the encyclical holds that markets are neither intrinsically good nor bad but are shaped by the “cultural configurations which define

them and give them direction” (Benedict XVI 2009, 36). It is “man’s [sic] darkened reason” (36) that allows markets to degenerate and falter. The injection of Christian values back into every level of capitalist society holds the key to the correction of markets so that they are directed toward the common good.

Hans Küng came to prominence as a leading advocate of reform of the Roman Curia during the Second Vatican Council. A product of post-Reformation liberal Catholicism, and greatly influenced by the liberal, ecumenical, and cosmopolitan zeitgeist sown by the “freedom generation” of the 1960s, Küng’s reputation has been built on his fierce criticism of self-admiration within the Roman Catholic Church, in particular in relation to its “medieval facade.” In *The Church*, Küng (1967) argued that the New Testament provides no doctrine of the Church’s essence that preceded its initial form. The essence of the Church, therefore, always expresses itself in historical form. Christianity was free to invent for itself a future based on (1) its origins and oriented to the present rather than its medieval past; (2) partnership and community and not patriarchal and hierarchical expressions of power; (3) ecumenicism and inclusivity and not fundamentalism and exclusivity, and (4) multiculturalism and cosmopolitanism and not Eurocentric imperialism.

From this starting point, Küng has gone further than any other Christian leader in laying the foundations for ecumenical dialogue. To date, he has participated in three phases of such dialogue. His early focus was on Christian reunification and the development of “theological bases for a rapprochement between the Church of Rome and Canterbury” (Küng 1964, xxxiii; 1967). This was followed with a series of works examining the status of contemporary Christianity (Küng 1976), the existence of God (Küng 1980), and Christianity and Darwinism (Küng 2007), all of which spoke directly to a secular audience. Since 1991, however, his primary focus has been on the building of bridges between Christianity and other world religions (Küng 1991, 1997, 2002; Küng and Schmidt 1998). He has sought to provincialize Christian ecumenism with a view to entering genuinely democratic ecumenical dialogue.

Küng’s ongoing efforts to foster “a de-escalation of the clashing together of civilizations” is structured around four maxims:

- There will be no peace among the nations without peace among the religions.
- There will be no peace among the religions without dialogue between the religions.
- There will be no dialogue between the religions without investigation of the foundations of the religions.

- There will be no survival of our globe in peace and justice without a new paradigm of international relations based on global ethical standards.

For Küng, the pivotal idea of the global ethic must be approached with modesty and humility and should not be taken to refer to “a new global ideology, a new single world culture, or even an attempt at a uniform unitary religion” (Küng 1997, 64). It is not intended to “replace the Torah, the Sermon on the Mount, the Qur’an, the Bhagavadgita, the Discourses of the Buddha, or the Analects of Confucius” (Küng 1997, 64). Instead it is inspired by the idea that for all their differences, religions share a number of “fundamental precepts” and reveal a “fundamental consensus on binding values, irrevocable standards, and personal attitudes” (Küng 1991, 8).

From this promising start, arguably Küng fails to capture the full potential of his approach. Küng’s project remains the work of a Western theologian and scholar, thinking, writing, and acting for a Western audience. A reading across the fundamental ethical precepts shared by all religions inevitably gives rise to a series of abstract schemas ultimately too removed from the world to be of practical utility. For example, the *Declaration of the Parliament of the World’s Religions* pioneered by Küng reached consensus on the importance of a “Golden Rule,” “Do unto others what you would have done unto yourself,” and four common truths: “a commitment to a culture of non-violence and respect for life; ... a culture of solidarity and a just economic order; ... a culture of tolerance and a life of truthfulness; ... equal rights and partnership between men and women” (Küng 1998, 18). Representatives from every religion felt able to sign the Declaration only because it steered clear of any concrete proposals.

Küng’s own efforts to ground the global ethic have been largely pragmatic and conservative. Like Ratzinger, he has failed to move beyond the specification of prepolitical moral foundations for a just society and economy, although in his search for such foundations he has cast his net far wider among a plurality of cultures and religions. Following a somewhat meandering engagement with the politics and economics of Kissinger, Roosevelt, Wilson, Bismarck, Morgenthau, Friedman, Keynes, and Polayni, Küng’s program for social change is based on improvements within the existing system (Küng 1997). A basic and fundamental reorientation toward ethical behavior, without an accompanying transformation of the basic structures of world order or global capitalism, will alone bring the West into an improved relation with non-Western societies. Peace between nations requires a new responsible politics, avoiding both “Realpolitik without morals” and a “moralizing Idealpolitik.” Accompanying a responsible politics would be a responsible economics, which tracks a “Third Way” between

“welfarism which is not affordable” and “neoliberalism which lacks social justice.”

Leonardo Boff, alongside other important theologians such as Gustavo Gutierrez, José Miguez Bonino, Enrique Dussel, Segunda Galilea, Ronaldo Munoz, and Juan Luis Segundo, has been at the forefront of the development of Southern Hemispheric liberation theology. Instituted following the second Latin American Bishops Conference in 1968, and germinating first in Brazil and Peru in the early 1970s, liberation theology has grown to become something of an interdenominational global social movement, generating radical theological traditions in other parts of Latin America, India, Sri Lanka, the Philippines, Taiwan, and in parts of Africa and influencing Black Christian social movements in the southern states of the United States. Although there is a sense today that the failure of the Nicaraguan and Salvadorian revolutions and more generally the failure of Marxism and the ascendancy of capitalism have rendered liberation theology obsolete, this tradition nevertheless continues to bristle with debate as to how to effect meaningful social change.

Boff has published more than one hundred books laying out the foundations for liberation theology and articulating its central concerns (most pertinent for this article are Boff 1978, 1982, 1985, 1986, 1997, 2005b, 2006, 2008). For Boff, the Christianity that came to Latin America was already inculturated by the European Greco-Roman tradition and took the form of a Western, hierarchical, clergy-dominated institution. This tradition was further mediated by the process of transplantation itself, with Christian missions, settlements, and evangelizing bound up with the Iberian colonial project, military conquest, violence and genocide, and economic exploitation. Stripped of the clothing of its origins and the wounds it inflicted as part of its passage, however, the Christian message still held the key to redemption. The challenge for liberation theology was to decolonize Christianity and to effect a new synthesis between the Bible and the social and political realities of present-day Latin America.

Liberation theology conceives of structures of polity and economy that serve to produce and reproduce global inequality, oppress the poor and the marginalized, and threaten the earth’s resources and natural environments, as nothing less than the presence of evil in the world. Capitalism in its “fundamentalist” neoliberal form, and democracy in its “compromised” Western form, are the work of the devil and inherently sinful. Jesus Christ was the world’s foremost revolutionary. If Christianity was to take the message of Christ seriously it had no option other than to challenge these structures and work for fundamental social and political transformation. The prognosis then was to rescue Christianity from the European colonial project and to recast the Christian message by bringing it into confrontation with the categories of politico-social liberation and praxes and in particular with Marxism and political

ecology. Importantly, though, all social theory was useful only in so far as it helped Christianity better understand and fulfill its mission. In liberation theology, Marxism is always subordinate to and parasitical on Christianity and there is no innate or intrinsic devotion to Marx.

According to Boff, global peace and security cannot be achieved within the contemporary world order, structured as it is to serve Western capitalism and the globalization of the neoliberal agenda. Western foreign policy toward Afghanistan, Palestine, and Iraq shares clear parallels with Iberian colonization of Latin America. Addressing unequal power asymmetries between colonizer and colonized is the only secure way to avoid a clash of civilizations. In an interview in *Comunità Italiana* in November 2001 in the immediate aftermath of the 11 September attacks on the World Trade Center, Boff controversially asserted:

For me, the terrorist attack of September 11 represents the shift towards a new humanitarian and world model. The targeted buildings send a message: a new world civilization couldn't be built with the kind of dominating economy (symbolized by the World Trade Center), with the kind of death machine set up (the Pentagon), and with the kind of arrogant politics and producer of many exclusions (White House spared, because the plane fell before). For me the system and culture of capital began to collapse. They are too destructive. (Boff 2001, 15)

Advocating a provincialization of Enlightenment Europe and a progressive redeployment of the global market for the common good, Ratzinger's ecumenical agenda remains essentially conservative and defensive of Western economic and political structures and therefore stands as a limited act of contrition. Küng's point of departure is a confident West, virtuous in its basic economic and political structures but willing to look out to the world with humility, to confess and face up to past and present arrogance and misdeeds, to open up to genuine cross-cultural dialogue and ecumenical solidarity, and to be enriched by other cultures and value systems. Arguably his approach offers more than he eventually realizes. Boff demands that the West face up to the role of capitalist economic interests and Western theories of development in the production of global inequality, friction, tension, and war and advocates a radical and alternative politics and economy. Although it is crude to sort all three into a continuum, it would seem appropriate to conclude that Boff's postcolonial agenda is the most radical, Ratzinger's is the most conservative, and Küng's sits uneasily between conservatism and liberalism.

Formations of the Secular: Securing Access to and Impact on Public Realms and Democratic Politics

To have any material significance, approaches to peace building need to concretize into praxes that access and impact public realms in different societies. Critical geographical enquiry needs to pay attention to the situated mobilization of peace strategies as well as the situated production of the colonial and postcolonial visions that undergird these strategies. It is here that geographies of secularism and geographies of the workings of democratic systems emerge as key. An important debate between Casanova (1994) and Asad (2003) helps frame reflection on the impact of the Roman Catholic Church in secular politics.

According to Casanova (1994), the much vaunted reentry of religion into the public realm does not represent a threat to secularism but instead reveals its maturation. Secularism resulted in a differentiation of fields of human endeavor with an effective separation of religion from politics, economy, science, and so on; the relegation of religion to the private and personal spheres; and the declining significance of religious beliefs, practices, and institutions. This removal of religion from the public sphere was to the detriment of agonistic debate and resulted in an inferior species of secularism. For Casanova, religions inject ethical values into secular societies, which they themselves rarely prioritize, such as solidarity, peace, and human dignity. The dawning of the postsecular age announces a new moment when religion, now disciplined and contained by the rules of democratic debate, reenters public life productively, as one voice among many, making a reasoned case, like all other interest groups, for particular public policy choices.

Asad (2003), in contrast, refused to regard the reassertion of religion in the public sphere as, at least in any simple way, an enrichment, advancement, and reinvigoration of the secular project, offering instead an anthropology of secularism that reveals its differential capacities to absorb different religions and denominations into the public realm. The categories secular and religion were invented at a pivotal moment in Europe's history. Secularism itself then emerged as a historically distinctive and sociopolitical process that sought to roll back religious and traditional authority only to replace it with new sources of power, politics, ethics, and modes of governance. Asad advanced the concept of "formations of the secular" to historicize secularism (see also Withers' 2007 "placing" of the European Enlightenment), to reveal the significance of its European heritage, and to capture the manner in which its prevailing political, economic, social, and cultural institutions act to sanction only particular and preferred incursions of religion into public life.

Echoing Asad's concerns, Swyngedouw (2008) has recently sought to draw the attention of geographers to the works of Jacques Ranciere, Slavoj Žižek, and Chantal Mouffe, concerning the status of our

“postpolitical” moment. A postpolitical democratic formation arises when the manufacturing of consent comes to take precedence over genuine agonistic debate, concepts of democratic participation become diluted to the point of ineptitude, entry to the public sphere is effectively foreclosed, and the public realm comes to serve as a source of propaganda for capital’s trajectories. Whereas the postsecular thesis posits a widening of the public sphere, concomitant with the elevated role played by religious leaders in public debate, the postpolitical thesis heightens awareness of the potentially illusionary character of such widening and draws attention to the heavily policed public sphere in which religions are currently struggling to articulate particular agendas.

Ratzinger, Küng, and Boff have accessed and impacted the public realm in different ways. First and foremost these differences reflect their differential access to authority within the Catholic Church itself. The Roman Curia (apparatus of governance) and Roman Magisterium (teaching office) provide a centralized, hierarchical, and absolute system of governance for the entire Church, vetting ecumenical agendas emerging from any sectional interest or particular national, regional, or local church to ensure alignment with official Roman doctrine. There is no doubt that by holding the Petrine office, Ratzinger has been able to employ the resources of the Vatican to ensure a high profile for his vision of how to secure global peace and security. His approach to ecumenism has become de facto the official position of the Roman Catholic Church. Even before his ascension to the papacy, in his prior role as Prefect for the Congregation for the Doctrine of Faith, Ratzinger was to censor, silence, and impose sanctions on both Küng and Boff. Although ostracization within the Church has undoubtedly opened up new audiences for Küng and Boff by default, their marginalization has inhibited their influence.

At the root of Küng’s ecumenical agenda is a belief that freedom within the Church is a prerequisite for the pursuit of freedom from social oppression. Only by looking inward can Catholicism look outward with confidence. It needs first to transcend its self-congratulatory pretension toward superiority and absolutist primacy before it can become an effective partner in dialogue. On this basis he has challenged the Catholic Church to rethink its approach to interfaith marriage, the role of women in the church, contraception, clerical celibacy, church governance, papal infallibility, and Marian piety. Throughout, however, he has chosen to remain a Catholic:

Despite my years of immense difficulty with Rome I remained true to the conviction that the Petrine office, oriented on the constitution of the New Testament, and the great Catholic tradition of the first millennium, with a moral and pastoral rather than formal and juristic authority, can still be an opportunity for Christianity as

a whole. In this respect I am certainly perhaps the most radical Catholic critic of medieval juristic primacy of the rule by the pope, but paradoxically at the same time possibly one of the most effective Catholic advocates for a pastoral primacy in the service of Christian ecumenism. (Küng 2008, 428)

Following a protracted conflict with Rome over the speed with which the Roman Curia and Roman Magisterium were “modernizing,” Küng’s interrogation of the doctrine of papal infallibility in 1970 finally provoked Vatican reprisal, leading eventually in 1980 to the withdrawal of his right to instruct in the Catholic faith. Küng was charged with no longer believing in the central doctrines of the Catholic faith and therefore was assumed to be unable and unfit to communicate these doctrines effectively. This marginalization was profoundly debilitating for Küng and arguably he has yet to recover from it on a personal and political level. As a consequence, Küng’s contribution has been channeled outside of the Church in his role as a public intellectual and president of an influential research institute.

In 1996 Count K. K. von der Groeben provided an endowment to establish the Global Ethic Foundation in Tübingen, Germany, and installed Küng as president. The foundation has since expanded offices into Hungary, Colombia, Ireland, Switzerland, and France. In search of a global ethic, the Foundation has been active on three particular fronts. First, Küng has sought to deepen public understanding of world religions through the production of a seven-part television series, publication of major manuscripts on each of the main religions, and the organization of an exhibition of world religions that has toured the major cities of the world. Second, Küng has engaged world leaders in his project by hosting an annual invited lecture, given to date by Tony Blair, Mary Robinson, Kofi Annan, Horst Kohler, Shirin Ebadi, Jacques Rogge, Helmut Schmidt, and Desmond Tutu. Finally, Küng has played a central role in drafting two significant cross-faith declarations: the *Declaration of the Parliament of the World’s Religions* in Chicago in 1993 and the *Universal Declaration of Human Responsibilities* in 1997 (Küng 1998).

Following his elevation to the papacy, Ratzinger met Küng at Castel Gandolfo in Lazio in September 2005. There was to be no reconciliation (Küng 2008). Ratzinger himself has praised the global ethic project as well spirited but has argued that it can only work at a level of abstraction that means little to those experiencing actual conflict, war, and genocide (Habermas and Ratzinger 2006). Küng, meanwhile, is vehement that any conversation with Islam or Judaism predicated on Hellenistic reasoning holds out little promise for a genuine ecumenical dialogue:

Only one enlightenment is really acceptable to him, the classical Greek enlightenment. He regards the clothing

in Greek dress of a message which comes from the semitic sphere as a divine dispensation of such a kind that no other dress is either necessary or legitimate. The secular enlightenment of the seventeenth and eighteenth centuries is unacceptable to him; Hellenism is the maxim of all that is authentically Christian. . . . Anyone who wants to carry on a conversation with Jews or Muslims on the bases of the traditional Hellenistic doctrine of Trinity and incarnation will begin a pseudo dialogue that will very soon come to an end. (Küng 2008, 133, 305)

Four years into Ratzinger's papacy, Küng remained pessimistic about his vision for the Catholic Church and the contributions it might make to world peace. In January 2009 in the German newspaper *Sueddeutsche*, and based on a line of reasoning whose credibility time alone will determine, Küng pondered over the prospects for the Catholic Church were Barack Obama to become Pope:

In the Catholic Church the mood is oppressive, the pile-up of reforms paralysing. Ratzinger has confirmed all the fears which arose when he was elected pope. The pope favours people who still reject the freedom of religion affirmed by Vatican II, dialogue with other churches, reconciliation with Judaism, a high esteem for Islam and the other world religions and the reform of the liturgy. Whereas President Obama, with the support of the whole world, is looking forwards and is open to people and to the future, this Pope is orientating himself above all backwards, inspired by the ideal of the medieval church, sceptical about the Reformation, ambiguous about modern rights of freedom. Whereas President Obama is concerned for new cooperation with partners and allies Pope Benedict XVI is trapped in thinking in terms of friend and foe. He snubs fellow Christians in the Protestant churches by refusing to recognize these communities as churches. The dialogue with Muslims has not got beyond a lip confession of "dialogue." Relations with Judaism must be said to have been deeply damaged. (Küng 2009, 4)

In his role as Prefect of the Congregation for the Doctrine of Faith, Ratzinger (1984) published an *Instruction on Liberation Theology* warning Roman Catholics about the "errors" in liberation theology. Shaped by Catholic warring with Marxist ideology, in particular its privileging of materialism over spiritualism in the unfolding of history, the central importance of the Solidarity movement in Poland to the papacy of his predecessor John Paul II, and his own experiences of Soviet Communism

in East Germany, Ratzinger ascribed to liberation theology the status of heresy:

The very radicality of Liberation Theology means that its seriousness is often underestimated. Since it cannot fit into any of the accepted categories of heresy its fundamental concerns cannot be detected by the existing range of standard questions. The Sermon on the Mount is indeed God taking sides with the poor. But to interpret the “poor” in the sense of the Marxist dialectic of history and “taking sides” with them in the sense of class struggle is a wanton attempt to portray as identical things which are contrary. (Ratzinger 1984, 4)

He was to use this *Instruction* to censor a number of Latin American bishops and theologians. Leonardo Boff was censored for nine months in 1985 following publication of his Marxist-inspired *Church, Charism, and Power* and when the Roman Magisterium attempted to do so again in 1992 to prevent his participation in the Earth Summit in Rio de Janeiro, he opted to leave the priesthood. Ostracized by Rome, Boff's political theology found an audience among grassroots activists in marginal communities in Brazil and his work in defense of the poor has earned international recognition.

Synchronizing global political and economic politics with local and community activism, for Boff, “Comunidades de Base” or “Base Christian Communities” have offered a fruitful way forward for Christian social praxes. There are more than one hundred thousand of these grassroots organizations in Brazil alone. The Comunidades de Base have served not only as sites for the production of new forms of liturgy, worship, prayer, and lay involvement in ministry but also as breeding grounds for community leaders, activists, and agitators; trade union members and organizers; and representatives of socialist political parties. From within these sites a contextual theology capable of challenging capitalist exploitation and the hegemony of transnational capital and restoring human dignity has been produced, circulated, and popularized.

For Boff the Roman Catholic Church will not serve as a partner for peace in any meaningful sense for as long as Ratzinger remains Pope:

If the attitude of confrontation with modernity and postmodernity prevails, I foresee disastrous consequences for the future of the Church. Traditionalist as he is, Benedict XVI must know that this strategy profoundly wears down the Church. In the past, he deprived the liberation movements of the oppressed the cooperation of Christians who could have offered Christian values to the

emerging social relations, leaving them instead alienated and immature. A Church that returns to models of the past becomes immobile, like a fossil. Ratzinger says that only the Catholic Church is the Church of Christ and that the others are not Churches, but only have ecclesial elements. It is also to say to other religions that they have valid elements, but that their followers run a grave risk of perdition because they are outside the Catholic Church, the only true religion. This is not to dialogue but to insult. Cordiality is used to facilitate conversion. That is deceitful and undignified. (Boff 2005a, 1)

The profile, resources, and politics of the Petrine Office have ensured that Ratzinger's approach to peace building has reached a global audience and infiltrated public debate in many societies with some effect. Although no longer the church of the establishment in many European states where it formerly dominated, the Catholic Church exerts both formal and informal influence, especially in polities where there remains a significant Catholic electoral block. Nevertheless, as evidenced in the extraordinary breadth of public commentary that surrounded his overseas visits to Germany in 2006; Brazil in 2007; France, the United States, and Australia in 2008; and Cameroon, Angola, and the Middle East in 2009, Ratzinger has been unable to access the secular stage without exciting controversy and resistance. This is in spite of the fact that the Church has used its tightly regulated and centralized command and control structure to silence dissenting voices and to promote socially conservative political agendas.

Defense of the Church's "citizenship" rights has been a major theme of Ratzinger's papacy. The Roman Curia repeatedly laments that Ratzinger has been the victim of negative media coverage and has been unduly and unfairly caricatured and ridiculed. For Ratzinger media hostility is evidence of the persistence of aggressive secularism and the difficulties some secular constituencies have with granting Christianity the right to participate in democratic debate. It is not surprising then that at the heart of *Caritas in veritate* is a plea for a fairer hearing for Christianity:

The Christian religion and other religions can offer their contribution to development only if God has a place in the public realm, specifically in regard to its cultural, social, economic, and particularly its political dimensions. The Church's social doctrine came into being in order to claim "citizenship status" for the Christian religion. Denying the right to profess one's religion in public and the right to bring the truths of faith to bear on public life has negative consequences for true development. The exclusion of religion from the public square – hinders an encounter between persons and their

collaboration for the progress of humanity. Public life is sapped of its motivation and politics takes on a domineering and aggressive character. (Benedict XVI 2009, 30)

Catholicism's struggles to be taken seriously in the public square in spite of its ruthless "management" of dissenting liberal and socialist wings raises important questions about the wider contributions of Christianity to democratic formations beyond the United States. Two interpretations present themselves. First, it might be that secularism has become so entrenched even in those Western democracies that aspire to a postpolitical foreclosure of agonistic debate in favor of deepening and extending neoliberal ideologies that political systems do not see value in courting Catholicism even when it might be politically useful to their cause. The marginalization and silencing of the Catholic Church by aggressive secularism raises the possibility that beyond the United States, conservative Christianity might be of limited interest to capitalist elites with vested interests in globalizing neoliberalism and consolidating Western power. In our postpolitical moment, rationalities that originate in the secular field might be capable of manufacturing consent alone, without the need for religion to serve as an additional source of support.

An alternative reading posits that secularism is working effectively to facilitate an appropriate and healthy incorporation of Catholicism back into the public sphere. Asad (2003) is correct to foreground the varying access to the public realm different religions and branches of religion actually secure in different places and at different times. In contexts when Roman Catholicism struggles to justify and promote even its more conservative social and political agendas, however, Casanova's (1994) assertion that religion has the potential to make valuable contributions to the enhancement of agonistic debate in the public democratic sphere becomes more convincing. At its best, secularism permits Roman Catholicism only an equal opportunity to state its case. Critical geographical enquiry into Christianity's contributions to war and peace needs to map both the unequal and privileged access to secular politics some Christian churches enjoy in some societies and the progressive and regressive outcomes that derive from the struggles other Christian churches encounter when trying to secure access to the public realm in other secular democracies.

Conclusion

As growing intolerance between religions has come to be viewed as a significant threat to world peace and security, Christianity has been called on to exercise its influence responsibly and to promote greater tolerance, understanding, and mutual respect. The embroilment of certain branches of evangelical Christianity in the rise of a new phase of U.S. imperialism has been interpreted as confirmation that Christianity is

structurally imbricated in the Western project and its struggle to maintain global hegemony and as such is incapable of brokering peace between Western and non-Western societies. This article has challenged the paradigmatic status ascribed to this case study and has called for a heightened awareness of Christianity's complex historical emergence and conflictual brew of churches and faith communities.

With specific reference to Christianity's single largest denomination, the Roman Catholic Church, this article advances the more careful claim that although Christianity can indeed perform as a mystifying apparatus, serving the interests of colonial and imperial projects, it can also work as a galvanizing force for progressive social, cultural, economic, and political agendas. On this basis it has placed Roman Catholicism under postcolonial scrutiny and set out an agenda for a critical geographical enquiry into Catholicism's role in war and peace. The concepts of *milieux* of translation and formations of the secular have been used to denote the significance of both the situated production of Christianity's colonial and postcolonial visions and the situated capacities of these visions to be brought to the public square and to impact meaningfully on democratic polities.

Concerned with the future of critical human geography and the search for a foundational ethics for a meaningful politics, some geographers have offered Christianity itself as a credible source of nourishment and encouragement. Pacione (1999, 118), for example, asserted that Christianity is capable of providing a "moral framework for a more relevant human geography," and Cloke (2002, 587) offered Christianity as a resource for "living ethically and acting politically in human geography." This article demonstrates that there is indeed considerable merit in reconsidering (institutional) geography's relationship with Christianity and affirms the potential value of Christian geographies. But it would seem unfortunate if the discipline of geography, itself in the throes of reflection on its colonial origins, were to allow its moral and ethical compass to be uncritically defined by a Christianity that is arguably only now awakening to its historical emergence in and through empire.

Future dialogue between Christianity and geography might usefully begin with an exchange of ideas on how best to progress Chakrabarty's (2000) wider project of historicizing, relativizing, and provincializing Europe and the West. Critical human geography, and in particular postcolonial geography, must simultaneously instruct as well as be instructed by Christianity. Christianity can furnish geography with a range of possible strategies for provincializing the West and insights into the challenges of pursuing these strategies materially in the *realpolitik* of contemporary international relations. Geography, meanwhile, offers Christianity a heightened self-understanding of the role of location, space, and place, in the framing, enactment, and success of different postcolonial visions.

Only when it is put in its proper place will it be possible to deliberate on the times and spaces in which it may be productive to harness Christianity in the service of critical geographical enquiry.

Finally, although Christianity has provided the focus for this article, it is clear that other religions, in particular Islam, Judaism, and Hinduism, require similar critical scrutiny. It is here, however, that more complex theoretical challenges might present themselves. Given the relationship both have with the West, it could be argued that the dialogue (institutional) geography is capable of having with Christianity is not open to easy replication. Of course, it is ethnocentric to assume that the majority of Anglo-American geographers are Western or Christian, even in the loosest senses of these signifiers, but it remains pertinent to ask with what authority and on what bases Anglo-American critical human geography might feel entitled to bring Islam, Judaism, Confucianism, Daoism, Hinduism, Buddhism, and so on to account. If critical geographical enquiry is to advance interfaith, intercultural, and intercivilizational dialogue, it will need to think seriously about the colonizing tendencies of postcolonial geography itself. It is imperative that Anglo-American geographers are afforded the right to speak critically about other religions but the terms of reference of such critical enquiry and the analytical frameworks that might be best suited to the task require prior reflection.

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CHAPTER 26

‘NOTHING LESS THAN ITS ERADICATION’? IRELAND’S HUNGER TASK FORCE AND THE PRODUCTION OF HUNGER

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Introduction

Issues to do with hunger and its continued prevalence are high on the development agenda at the moment. There have therefore been some recent noteworthy interventions that aim to do something about it. For example, in Africa, the continent in which hunger is most prevalent, the Comprehensive African Agricultural Development Programme (CAADP) calls for African governments to invest 10 percent of their national budgets on supporting agriculture. Such investments tend to pay off – for example, in Sierra Leone, increased government spending has dramatically boosted rice production (Africa Renewal, 2011: 10) – but they are not the only changes that might be pursued to reduce hunger. One notable set of arguments is contained in the World Bank’s 2008 World Development Report, *Agriculture for Development*, which suggests that Africa should pursue ‘the new agriculture’, which can be ‘led by private entrepreneurs in extensive value chains linking producers to consumers’ (World Bank, 2007: 8) and particularly via the production of non-traditional agricultural exports (think: baby sweet corn or fresh cut flowers [Barrett et al., 1999]). Meanwhile, from the other end of political spectrum, an alternative path to reducing hunger has been laid out in the Nyeleni Declaration, an ambitious and imaginative set of arguments for food sovereignty and radical reform of the global food economy (see Patel, 2009) promoted by La Via Campesina, a transnational movement of peasants and small-scale farmers (see Desmarais, 2007).

Still another contribution to the debate about hunger and how best to tackle it is a 2008 report by the Hunger Task Force (hereafter, HTF), a group of experienced development and health experts mandated by the Irish government in 2006 to, ‘identify the additional, appropriate and effective contributions that Ireland [could] make to international efforts to reduce hunger and thus achieve the first Millennium Development Goal of halving poverty and hunger by 2015’ (HTF, 2008: 14). The HTF report, which was launched at the United Nations in 2008, sets out:

[...] a very focused programme of actions to address three priorities, which the Task Force believes can have the greatest impact in reducing, and ultimately eliminating, hunger: Increasing the productivity of smallholder, mainly

women, farmers in Africa; implementing programmes focused on maternal and infant undernutrition; and ensuring real political commitment, at national and international levels, to give hunger the absolute priority it deserves' (p.1).

It is not my intention to critique the report's call for action. I leave it for someone else to consider fully whether development interventions regarding the first two priorities will save or improve many lives, or if the third recommendation is really the best use of Ireland's resources. Rather, what interests me in this paper is what the report says and fails to say about *the causes of hunger*. Further, I want to consider what the report might tell us about the place in which it emerged and on which I argue it reflects: Ireland. In particular, I argue there is a need to position the report relative to some pertinent political and economic changes in the country and Ireland's peculiar geo-history. In this regard there are two absolutely crucial points to note.

The first is that the HTF was formed at the height of the so-called 'Celtic Tiger' boom; that is, at a time when the Irish political class was optimistic about how it could use the country's wealth. Among the members of the HTF, for instance, there was a sense that Ireland could try to become 'the Norway of hunger'. Thus, like Norway, which is a small, resource-abundant country proudly occupying its position as the world's foremost advocate for conflict resolution, Ireland could aim to become a third-party mediator, an initiator, indeed a leader in the fight against hunger. Why hunger? This is the second point: Ireland knows about hunger.

Between 1845 and 1852 in particular, *an Gorta Mór* (in Irish, 'the Great Hunger') killed one million people and caused at least another million to emigrate (see Nally, 2008). As Chair of the HTF, Joe Walsh, noted in the Preface to the 2008 report: 'The members of the Task Force believe that Ireland, because of its history and commitment to development, can play a pivotal role in the global fight against hunger' (HTF, 2008: 1). Other members of Ireland's political class also highlighted the country's legitimacy and indeed obligation to tackle hunger. For example, one month after the HTF presented its report to the UN General Assembly in 2008, Ireland's President, Mary McAleese, said in Norway:

Last month at the United Nations General Assembly the Irish Government launched its Hunger Task Force Report. Indelibly marked as we are by the memory of our own Great Famine, Ireland is determined to take a strong leadership role on the issue (McAleese, 2008).

Likewise, in a speech to the U.N. General Assembly in 2009, Minister of State for Foreign Affairs, Mr. Peter Power, T.D. said:

I speak today as the representative of a country which has experienced famine and hunger and a country whose population was decimated after the Great Famine of 1847. Hunger is the result of many failings. Its eradication, and *nothing less than its eradication*, must be our goal (Power, 2009; my emphasis).

As these quotations indicate, therefore, leading members of Ireland's political class argued that Irish interventions regarding hunger were not only needed but also that Ireland had the legitimacy to speak up. It is hard to argue against this general sentiment. But as I will argue in the next section, although the HTF report invokes and seeks to build upon memories and commemorations of the Irish Famine, it does not show any signs that the group sought to learn anything about the causes of that particular hunger, nor how those general causes might still be at work today.

A critical analysis of the Hunger Task Force report

To begin, then, consider the following, which is the report's clearest statement about the causes of hunger:

This inability [to obtain the basic food intake] can arise from a number of causes including poverty, low food production, mothers' and fathers' lack of education, poor dietary diversity and hence low nutritional quality, poor water, sanitation and health facilities, and climatic shocks. This indicates the multi-dimensional nature of the hunger problem and of the solutions needed to reach the MDG. The vulnerability of hungry households is exacerbated by gender inequality, and the impact of HIV/ AIDS and other major diseases. The extent and causes of hunger vary by region. War and HIV/AIDS have been hugely important factors causing undernutrition, particularly in sub-Saharan Africa. In Asia, the low status and consequent poor education of women has affected child malnutrition and mortality (p.17).

There should be no doubt that hunger *is* multidimensional. It is. Hunger will always be the result of complex combinations of forces. Nor will there be much disagreement with highlighting *connections* between hunger and poverty, low food production, poor dietary diversity, or poor water, sanitation and health facilities. Or that 'war and HIV/AIDS' have been important factors in sub-Saharan Africa. However, recognizing connections or factors is absolutely not the same as identifying them as *causes*. Poverty, for example, is an *effect* of other processes and failures (although which *precise* mix of processes and failures is not at issue in this

paper). Thus, what the HTF report does in this short statement is ascribe causality to effects. It draws on and advances a confused, incorrect logic.

In addition to displaying a poor grasp of hunger's causes, the report also ignores numerous central features of the capitalist food economy that contribute to and, we might even say, *produce* hunger. In particular, the report should have gone beyond identifying relevant related conditions affecting the incidence of hunger and instead considered a similar set of dynamics that played a part in creating Ireland's famine. As numerous contributors to the critical literature on the global food economy have noted (e.g. Akram-Lodhi, 2007; Akram-Lodhi and Kay, 2010; Friedmann, 1987; McMichael, 2009; Nally, 2011; Weis, 2007, 2010), hunger cannot be divorced from the governance of agriculture and international agricultural trade. For McMichael (2009), these governance mechanisms give rise to a 'corporate food regime' (CFR) that draws on World Trade Organization rules, particularly around the Agreement on Agriculture (AoA), to enshrine and cement the power of corporations such as Monsanto, Cargill, or Archer Daniels Midland (ADM) and their ilk. For example, a central aspect of the AoA is that it pushes for reduced trade barriers in developing countries, which helps to create a world price for agricultural commodities and 'open markets' for corporations to access and exploit, but yet also allows agricultural subsidies to continue in rich, northern countries. These arrangements enable and encourage northern agribusinesses to target 'southern markets with artificially cheapened food surplus exports' (McMichael, 2008: 209). Across Africa, such food imports, which total about \$33bn annually (Africa Renewal, 2011: 11), displace domestic production, causing many peasants to leave the land, and heightening their vulnerabilities to food price rises. WTO restrictions on domestic supports also reduce the 'development space' (Wade, 2007) for governments in developing countries to support their agricultural sectors – a shift in the place of domestic food production which McMichael (2008: 209) refers to as the 'evaporation of public support of peasant agriculture'. Many developing world governments therefore have limited scope to ensure food self-sufficiency. Thus, rather than promoting national food security, what the WTO seeks to create is a world in which food import dependency persists; a world in which food security is *privatized*. To eat, one must pay.

Perhaps the most obvious critique of the HTF report is that none of these general or specific features of hunger's contemporary production are mentioned. This failure is especially disappointing given that Ireland's Famine was in large part a product of similar forces. The disaster unfolding in Ireland in the 1840s was closely bound up with dominant liberal ideas in Britain about trade, state interventions relative to market forces, and personal responsibility (e.g. see Nally, 2008). Despite reports of desperate conditions in Ireland, leading British politicians rejected imposing restrictions on food exports and out of fear of disrupting 'market forces' (see also Bernstein, 1995), the British state refused to purchase sufficient quantities of food on the international market to

extend support to the hungry. Other state interventions in Ireland – such as to feed the hungry via public works programs – were also frowned upon and limited by the British government. Further, although the British government reluctantly provided some funds for an Irish Poor Law system that fed many in county workhouses, it did so with the explicit aim of reforming the Irish character; that is, to force the Irish to take personal responsibility for their own circumstances. Like contemporary welfare and workfare policies, the Irish Poor Law and the workhouse sought to ‘discipline and regulate’ (Nally 2008: 733); but also to balance Britain’s reluctant charitable drive against the belief that the Famine would ‘teach the Irish crucial lessons about self-reliance’ (Bernstein, 1995: 534).

It goes without saying that these same sorts of mentalities – the visions and dreams of imposing class power even, or indeed especially, during moments of intense suffering – persist today. In the 1840s, the connection between *liberalism* and hunger was at issue; today, the issue is about *neo-liberalism* and hunger. It follows from these points that, insofar as it invoked the Famine and was supported by the Irish political class in the memory of those who suffered in the 1840s, the HTF should have been alert to the possibility that contemporary hunger might have rather similar causes to the Irish case. It might therefore have considered how the WTO’s pro-trade, anti-interventionist rules protect corporations in their pursuit of profit, even if they employ unsustainable production practices such as the use of food grains as feed for livestock, which is unsustainable ecologically (Weis, 2010: 320-321), but which also helps to set a market price for grain that many poor people simply cannot afford to pay. Or the report could have considered how the WTO enables corporations to seize intellectual property rights over seeds, which creates a market for objects that peasant producers once controlled and which therefore limits their scope to access them (Kloppenborg, 2010). Nally (2011) imaginatively conceptualizes this process as ‘accumulation by molecularisation’; like Harvey’s concept of ‘accumulation by dispossession’, Nally’s argument is that capitalists have found a new arena for accumulation in investments in micro-scale biological processes that lead to higher-yield but also infertile crop varieties that tie producers to seed manufacturers or lock them out of the market. The effect of this accumulation strategy is to devalue the right to food (Nally, 2011: 48; Huish, 2008) and harm peasant producers and small-scale farmers.

What is all the more remarkable about the above silences in the HTF report is not only that the authors had scope to tackle these issues but also that it dealt with other, related tensions in a benign and uncritical manner. For example, the report discusses the importance of what it calls ‘governance failures’ at the international level and draws attention to the role of the World Bank and International Monetary Fund, but its findings are far from critical. In a section titled ‘A call to action: What Ireland can and should do’, the report states that, ‘International Financial Institutions (IFIs) have often supported stringent fiscal constraints to maintain

macroeconomic balance at the expense of expenditure on service provision' (p.45) – which is certainly one way of putting it, but is not by any means a sufficient statement about the role of IFIs in producing hunger. On top of this, the report argues that tackling failures at national levels requires 'substantial increases in resources to tackle key capacity constraints' (p.41), such as 'agricultural support structures [that were] run down through neglect and partial privatisation' (p.41). Unfortunately, we are left in the dark as to why those structures were neglected or privatized: the report fails to explicitly consider how structural adjustment programs reduced the scope for the state to support agricultural production by dismantling or privatizing agricultural research and extension (see Holt-Gimenez and Patel, 2009: 45-49). Thus, in the contemporary period, agricultural extension (like so many of other former public sector services) is increasingly provided *to those who can afford it* by private consultants while millions of producers enjoy little or no support. This situation is in stark contrast to Europe and North America, where the state extends numerous supports to farmers (albeit unevenly, with the largest farm units gaining the most in many places) via research monies, say, but also via subsidies that encourage overproduction and give a boost to demand for the inputs (agri-chemicals, seeds, etc.) corporations produce.

Another crucial point the report should have made is that neo-liberal logic seeks to lock in this relationship via arguing that sub-Saharan Africa need not pursue a protectionist stance, nor even invest in agricultural research and extension so long as it is cheaper to import (subsidized) food from abroad. In response to the 2008 food crisis, for example, WTO Director-General, Pascal Lamy, said, 'we have heard calls for "food self-sufficiency", with some portraying import-substitution as the answer to food security. What this forgets is that international trade can be exactly the sort of vehicle, or "conveyor belt" if you will, that would allow food to travel from parts of the world with a surplus to parts where there is a shortage' (Lamy, 2009). The resonances with liberalism's logic in producing Ireland's famine are clear: although a 'conveyor belt' might move food to those who need it, the obvious danger is that many consumers will be locked out of the market if they cannot afford the world price. Such is the logic of hunger's production.

So far I have argued that the HTF report remained silent about how the capitalist food economy contributes to the production of hunger. But whilst its silences deserve critique, some of its arguments are also highly problematic. Consider here what changes the report argues are needed to *boost* food production. One is that the state in developing countries should create an 'enabling environment' for the private sector to take the lead in expanding agricultural production (p.38). The report tries to qualify this statement by saying, 'The private sector in this case is primarily comprised of millions of small producers', which might be the case, but which cannot hide the fact that many of those in the private sector whom the state will 'enable' will actually be capital-intensive,

commercial agri-businesses producing for export rather than domestic consumption. A point the report failed to address here is that structural adjustment helped configure a ‘neoliberal agricultural export bias’ (Akram-Lodhi and Kay, 2010: 275) in sub-Saharan Africa. One outcome is a ‘bifurcated agrarian structure’, in which capital-intensive export oriented commercial agriculture sits besides and in some contexts has begun to take precedence over a peasant sub-sector (Akram-Lodhi, 2007; also Barrett et al., 1999). Both sectors increasingly produce for the export market as ‘a means of boosting access to foreign exchange, facilitating debt repayments, increasing funds for investment, promoting technological change and boosting rural productivity’ (Akram-Lodhi and Kay, 2010: 263). Just like the 2008 World Bank’s Agriculture for Development report (see Oya, 2009), the HTF report in effect calls for the state to get out of the way or, if it is to spend anything, it should ‘focus on expenditures with proven returns, for example, pro-poor agricultural research, education and advisory services’ (p. 39) (on other so-called ‘pro-poor’ initiatives, see Borras and Franco, 2010; Bakker, 2007].

The report also presents a flawed analysis of the place of smallholders within agrarian structures. As Pauline Peters (2004) has noted, for example, conflicts over land in sub-Saharan Africa are increasing at the same time as inequality over access to land grows. And related to this is the new ‘land grab’, via which speculators, hedge funds, sovereign wealth funds, and agri-businesses have begun acquiring African land, thereby heightening tensions over land and deepening many of the differences between Africa’s different, bifurcated agricultural worlds (e.g. see Zoomers, 2010). In some cases, there are signs that investments will re-direct African agricultural production in ways that will further undermine domestic food production, such as by growing exclusively for foreign grain reserves.¹ It is revealing, then, that the report does not consider the possibility that redistributive land reform might have a role to play in addressing smallholder productivity. Yet there is scope for agrarian reform all across sub-Saharan Africa and in Zimbabwe, at least, there is growing evidence that its ‘fast-track’ approach has begun delivering some positive results (e.g. see Cousins and Scoones, 2010). Promoting the possibilities that agrarian reform holds out would have aligned the report with many of the movements of peasant and small-scale farmers that constitute La Vía Campesina (see book review discussion on Desmarais’ (2007) book, *La Vía Campesina* in Volume two, Issue two of this journal) – but on the potential place of such movements the report was (tellingly) silent. Furthermore, although the report does at least note that

¹ Of course, this is exactly the sort of outcome that neoliberal proponents of structural adjustment promoted: as then-World Bank Chief Economist Lawrence Summers argued, Africa should capitalize on its competitive advantage, even if that means receiving western pollution; or, as has begun to occur, Africa’s land should be used not for local or national food production if the market does not allow for it, but rather for more ‘efficient’ or ‘rational’ purposes, such as growing fresh cut flowers.

inequalities in access to land matter, it awkwardly couches its statements in terms of a 'management' issue. For example, the report says there should be an improvement at the macro-level in the 'management of, and access to, natural resources since these provide the base for sustainable agricultural production'. It continues, 'Unequal or insecure access to natural resources perpetuates poverty and can underlie devastating conflicts' (p.39). Unfortunately, the report does not tell us whether land is included in its definition of 'natural resources', nor what it means when it calls for improved management of natural resources? Is it calling for new, private sector, managers?

At the same time as the report seeks to enlist the private sector, it also ignores other actors with whom it could engage. For example, the report claims (rather vaguely) that the, 'challenge is to build real political commitment to reducing hunger, to give the hungry more voice and build greater capacity at all levels of society to address hunger effectively and in a sustainable manner' (p.41). It is not at all clear what this means. But perhaps the key word in the statement is 'give': what the report wants to do is give the hungry voice, not to support them acquiring that voice through struggle. It seems, therefore, that part of the challenge regarding 'governance failures' is to find ways to more successfully *govern* the hungry, just as the Irish Poor Law sought to change the ways of Ireland's hungry masses (see Nally 2008).

In summary, then, the HTF report ignores central features of the capitalist food economy, such as the role of the corporate food regime, despite the resonances that exist between the production of hunger today and the production of Ireland's Famine in the 1840s. In addition, the report promotes policies that will liberate private sector actors whilst ignoring the scope that exists for bottom-up or even state-led interventions that might reduce inequality in access to land. These failures lead me to conclude that the HTF report is a weak and benign intervention which fails to live up to its laudable aims of addressing the causes of hunger.

The Hunger Task Force and Ireland

What might these failures say about the place in which it emerged – Ireland – and on which it reflects? There are two issues here. The first is about how the HTF fits within Irish government efforts to occupy a prominent place in the world. The second follows on from the first but brings into focus economic changes in Ireland and how the HTF connects with them.

Ireland in the world

Certainly, immediately prior to its economic collapse from 2008 onwards (but perhaps even to this day), Ireland's political class promoted a vision of the country's rightful place among the world's leading states. Its wealth was such, for example, that the least it could do was aim to meet the UN's target of overseas development assistance of 0.7% of GDP. But

Ireland's aim was to become more than just a donor. Countering views of Ireland as just another recipient of structural aid and inward investment on Europe's periphery (consider that, much to the annoyance of its leading politicians, Ireland is sometimes referred to as one of the crisis-hit 'PIGS' – Portugal, Italy / Ireland, Greece and Spain), efforts such as the HTF are intended to underscore Ireland's capacity to lead and not least alongside the United States. In Ireland, therefore, it is viewed as a success that US Secretary of State, Hilary Rodham-Clinton, has co-sponsored one outcome of the HTF report, the 1,000 Days partnership, which aims to 'scale up' nutrition and end child malnutrition. Indeed, as Kevin Farrell, Ireland's Hunger Envoy, noted in a 2010 parliamentary hearing:

On reflection, when looking back on recent years, it is in the area of advocacy that Ireland has made its most significant contribution. We have done some great work in agriculture. We have also done some great work, and are doing even more, in respect of nutrition but it is in the area of advocacy that we are having a real impact. I was in New York last September to attend the launch of the 1,000 Days initiative, that is, the 1,000 Days nutrition programme that was co-hosted by [...] the Secretary of State, Ms [sic] Clinton. [...] While the meeting itself was a hugely significant event, *the important point is that Ireland is now working closely with a major player, namely, the United States*, which is actively and enthusiastically working with us on this initiative (Farrell 2010; my emphasis)

This quotation says a lot about how the work of the HTF and its report is intended to fit within Ireland's broader diplomatic goals. Not only is the aim for Ireland to become the 'Norway of hunger', but Ireland's effort to lead the (purported) fight against hunger aims to portray a particular image of the country: one that builds on the 'Celtic Tiger' boom, which encouraged the Irish government to think about how it could occupy a new place on the world stage. Indeed, some boom-time Irish geopolitical maneuvers entailed purposively cultivating a view that Ireland was 'between Boston and Berlin' (Finn, 2011) – a place that combined the 'best' of US and European political and economic ideas and policies (e.g. a light-touch regulatory environment from the US and a European-style welfare state). But Ireland also developed a narrative about its capacity to be a bridging state that could help the US and Europe to communicate with each other. This was a strategic stance, not least because Ireland definitely had to look to its west and to its east: inward investment from the US, for example, was a central aspect of Ireland's boom, but so too was the flow of funds from Europe that helped educate Ireland's workforce and improve its infrastructure (e.g. see Kitchin and Bartley, 2007).

Given this context, it makes sense to imagine that interventions such as the HTF report would seek to conform with, rather than challenge, mainstream views on hunger. What, for example, would the HTF need to avoid if it wanted to be taken seriously by foreign politicians, diplomats, and civil servants (not least by such people in the United States)? Would statements about corporate control over the global food economy have much mileage? Consider here the central role of TNCs in the production of hunger, an issue the HTF report ignored. The Irish government wanted support from the United States. Yet, as the 2009 World Investment Report documents, of the 10 largest TNCs in five sectors of the agribusiness economy, 30% of the firms are from the US (UNCTAD, 2009). A critique of TNCs, or discussing something approximate to the corporate food regime, which would implicate US trade policy (see Weis, 2007: 68-69), would not have gone down too well.

These points about Ireland's stance on hunger suggest that the pressure on states and agents mandated by them to remain diplomatic in their dealings regarding development curtails the scope for real, adequate, and critical analysis to emerge. Further, whilst there is a 'will to intervene' (Robinson, 2008) among states in the context of a world of humanitarian crises, the geopolitical imagination that drives such interventions is always tempered by other and often competing interests. In Ireland's case, the HTF failed to explain hunger as a product of (or even in any way connected to) an unfair trade system propped up by rich-world national governments to benefit their corporations, or by poor-world governments to protect their domestic elite allies. But the HTF report also fails to consider that Ireland is a major recipient of EU agricultural subsidies; subsidies that are widely recognized as a contributing factor to the difficulties facing agriculture in sub-Saharan Africa (e.g. see Heinisch, 2006). Between 2000 and 2009, for example, farmers and agribusinesses in Ireland received almost €17.4bn (Pers. comm. from Central Statistics Office, 2011). By point of comparison, Ireland's development assistance during the same period totaled €5.84bn. Although these figures are not exactly comparable (ODA stems from government funds, whereas agricultural subsidies flow to private individuals and businesses), Irish agriculture nevertheless gains from the subsidy regime.

Based on the above discussion, it is hard not to conclude that the HTF report was part of a discursive process of misrepresentation and avoidance; about coordinating the illusion of doing something serious about causes, when in reality it only seeks to address effects, admirable as that may be. Like the legitimizing discourses and indeed cultural politics that 'constructed consent' (Harvey, 2003: 39-63) for neoliberalization via the making of arguments about the state, say, or the way the market was represented as the solution to society's ills (see also Frank, 2000), the HTF report legitimizes corporate control over the global food economy insofar as it defends private sector expansion in the agricultural sector, refuses to acknowledge the corporate food regime's failings, and fails to attack trade rules. That the report spent its time and resources enrolling

experts and collecting evidence, whilst receiving ‘buy-in’ from some ‘stakeholders’ (e.g. Catholic charities in Ireland’s HTF report) and excluding others (e.g. La Via Campesina, which the report ignored), but failed to acknowledge the role of corporate control over the global food economy, leads me to argue that it *misused* those resources. The outcome, then, is a ‘development smokescreen’ which hides the real forces and structures at work in the production of hunger *and* the position of Ireland within those structures.

Ireland’s emerging corporate foodscape

A second set of issues that deserves attention here is about how the HTF report connects with Ireland’s emerging corporate-dominated foodscape, which Sage (2010: 100) argues, ‘is more powerful and extensive than ever’. He notes for example that, ‘the spread of corporate food retailing, dominating the landscapes of suburban areas and towns and further exacerbating dependence upon cars, represents one of the most significant features of the “Celtic Tiger” era’ (p.95). A crucial point in this context is that corporate retailers’ power stems in part from the Irish government’s decision in 2005 to abolish the Groceries Order, thereby allowing retailers to attempt to gain market share by attracting consumers with below-cost goods, not least alcohol products. This change gave a serious boost to the larger retailers, who now dominate the retail market. Indeed, Ireland’s largest retailers, such as ‘Dunnes Stores, Tesco and SuperValu account for 70% of the retail grocery market in Ireland, one of the highest levels of retail concentration in the EU’ (Campbell, 2009). As is the case in other contexts (e.g. see Patel, 2007: 215-252), the retailers’ buying power has knock-on effects for small-scale farmers because, ‘[w]ith corporate retailers competing aggressively for market share, growers have come under exceptionally intense pressure as they shoulder the consequences of special promotions and discounts such as “buy one get one free”’ (Sage, 2010: 95).

Not only have corporate retailers flexed their muscles over small-scale farmers, but Ireland’s corporate sector has also managed to exert pressure on Irish governments to construct a regulatory regime that grants them considerable power. Taylor and Millar (2004) shed light on one example. They note that, in the context of ‘food scares’ and consumer anxiety about food safety (see also Jackson, 2010), ‘the Fianna Fáil/Progressive Democrat (FF/PD) coalition in 1997 opted to replace a myriad of governmental bodies responsible for food safety in Ireland with a “super agency” that would have sweeping powers’ (p.595). This shift was ‘undertaken in a manner fully cognizant of the WTO’s Sanitary and Phytosanitary Agreement (SPS) which ensures that measures taken to protect food safety impact as little as possible on free trade (p.601). And reflecting the Irish state’s broader willingness to work in coalition with the private sector, the new agency, the Food Safety Authority of Ireland, has a consultative council on which the agribusiness community has representation. According to Taylor and Millar, this arrangement

‘formalizes privileged access’ (p.599) to agriculture and food sector corporations and offers them ‘invaluable access’ (p.602) to the FSAI. The FSAI also passes the burden of truly judging food safety risks onto individual consumers. It passes on scientific information but consumers must decide what they want to consume. In so doing the FSAI formalizes ‘the preference of multi-national capital that if *no risk is proven, it is not risky*’ (p.600).

I argue that the upshot of all these policy initiatives is that Irish government policy has cultivated a corporate-friendly space economy in the food sector. Large retailers are among the winners. But Irish food processors have also done well. Indeed, the foodscape has been the springboard for two Irish corporations ranking in UNCTAD’s list of the world’s 50 largest food and beverage TNCs (ranked by foreign assets): Kerry Group (at position 38) and Greencore (at 46). In contrast, only one Irish corporation, CRH (at 83), ranks in UNCTAD’s list of the largest 100 non-financial TNCs (UNCTAD, 2009). Ireland’s agri-TNCs are punching well above their weight and it is no coincidence that they originate from a state that has sought to promote their emergence.

Some aspects of Greencore’s story are especially instructive for the purposes of this paper. Greencore is the name of the former state-run sugar corporation which was privatized in 1991 and which has since then grown to become a large player in Europe’s convenience food sector. Its privatization was controversial, in part because it was botched by Irish stockbrokers (Irish Times, 1993) but also because it was the first of a wave of privatizations via which the Irish state neo-liberalized the economy. Following flotation, Greencore expanded rapidly by acquiring firms throughout Ireland, Europe, and the world. But retrenchment occurred alongside expansion. In 2005, for example, Greencore gave indication of its intentions by closing its sugar refining plant in Carlow, a move the government defended thus:

The recent decision by Greencore Group plc — Irish Sugar Limited to close its sugar plant in Carlow and to consolidate all of its sugar manufacturing in Mallow was a commercial decision taken by the board [...] Greencore’s rationalisation programme involves an investment of €20 million to €25 million which clearly demonstrates a commitment to maintaining an efficient sugar processing industry in Ireland (Coughlan, 2005).

One year later, Greencore used payments from the European Commission to close its last remaining sugar plant in Mallow, County Cork, which employed 230 workers. Sugar farmers who supplied the factory also received compensation from the EC. However, in a report on European Commission (EC) spending released in November 2010, the European Court of Auditors found that the EC had mistakenly paid Greencore and Irish sugar beet farmers a total of €131m. The payment

was questionable because Greencore used 2001 production figures to justify closing the Mallow plant; yet figures from later in the decade showed that the plant would still have been profitable today. So why did Greencore want to close its factory? The key issue was the potential value of the 160 hectare site for property development (Irish Times, 2011): why operate a factory when the site could be transformed into apartments? Greencore, which was part-owned by a prominent Irish property developer, had caught the Irish property market bug. Needless to say, in the context of Ireland's collapsed property bubble, the undeveloped factory site now holds nowhere near the sort of value Greencore expected it would. At the time of writing (June 2011), Greencore's share price has dropped almost 78% since its peak in 2007.

In many respects, the Greencore story is emblematic of Ireland's woe: misplaced faith in speculative property investments. But attention to the Greencore case and recognizing the company's prominence within Ireland's domestic capitalist class reminds us that the country's agrarian sector remains important: the boom might have helped Ireland to change positions in the international division of labor, but the agrarian sector still has a strong presence within Irish society and economy. Indeed, as the size of Kerry Group and Greencore indicates, some of domestic Irish capitalism's greatest 'successes' are in the agribusiness sector. It goes without saying that the corporate food regime empowers prominent Irish firms. Crucially, as Ireland tries to map a route towards economic recovery, it is becoming increasingly clear that government policy will try to strengthen its position here. Food exports from Ireland are already worth approximately €8bn each year. Ireland is the largest EU exporter of dairy products and the fourth largest beef exporter in the world. And although most of Ireland's food exports stay within the EU (e.g. 99% of beef exports are sold in EU states), its farming and agribusiness sector stands to gain from new EU trade deals, such as the opening of Turkey's market to EU beef exports in January 2011 (RTE, 2011). The revised Cotonou Agreement between the EU and 79 countries from Africa, the Caribbean and the Pacific also holds out the prospect that Ireland can capture new markets. For a small capitalist economy such as Ireland, it is no surprise that state policy is slanted towards capturing new export markets. From the perspective of the state, then, the pro-corporate transformation of Ireland's domestic foodscape and the success of corporations such as Kerry Group and Greencore is something to be celebrated. But what is striking about the HTF report is not only that it failed to consider the corporate food regime but also that it ignored Ireland's position within it. As with the report's silence on the issue of EU agricultural subsidies, Ireland is not registered as a player with a strong vested interest in the politics of food and hunger, but rather as a coordinator or referee. The HTF claimed it wanted to tackle the root causes of hunger, but the reality is that some of domestic Irish capitalism's best prospects lie in the continued survival of the same global food economy that produces hunger. Truly trying to prevent

hunger - truly aiming for 'nothing less than its eradication' - would entail Ireland acknowledging its role in the subsidy regime and then seeking to move towards a radically different stance on the world stage.

Conclusion

The HTF was one realization of boom-time Ireland's new vision for itself; the sense that Ireland could act out a new role on the global stage. In trying to play out this new role, however, Ireland confronts numerous contradictions. For example, the HTF's purported drive to tackle hunger is undermined by Ireland's determination to form alliances with the U.S. and by the reality that domestic Irish capitalism is pinning its hopes on future profits from companies such as Greencore leading the economy out of its current crisis. Further, at the same time as the agrarian sector's historical and cultural meaning in Ireland compels its political and civil society to form the HTF and take a stance on the global development stage, the agrarian sector's other side – its contemporary material meaning – relies on the reproduction of relations, networks, institutions, and structures that help create the precise condition of hunger that the HTF purports to attack. The HTF failed to deal with these contradictions. Rather, it aims to pursue agrarian changes in developing countries but without also addressing the emerging and highly problematic place of Ireland's agrarian sector. Thus, insofar as it invokes Ireland's historical experience of famine and hunger as a reason for intervening on the global development stage, the HTF and its report actually exploits the tragic history of Ireland's agrarian sector whilst promoting – or at the very least, not damaging - its contemporary geopolitical and economic interests. At the point at which Ireland's attempt to speak up and be heard had the chance to say something meaningful, serious, and critical about the causes of a form of suffering that it had known so deeply - hunger – its representatives on the HTF bailed out.

Given the scale of its economic crisis, another sort of bail out (led by the European Central Bank and the IMF) now preoccupies Ireland. The confidence with which Ireland sought to make its mark on the world stage – the sense that Ireland was going to be, like Norway, a resource-abundant country that could tackle global problems – has been eroded. And at least in part because of the crisis, it now looks highly unlikely that Ireland's (once much-lauded) ODA will reach the United Nations 0.7% of GDP target by 2012. Nevertheless, the government's Hunger Envoy continues his work and some of the reforms called for in the HTF report are being implemented. And so there remains some scope for post-crisis Irish governments to pursue a new stance on the production of hunger. Rather than situating its efforts within the development space of other nation-states and their diplomatic classes, perhaps Ireland might begin to position its agenda on hunger relative to some of the grassroots, bottom-up players that constitute organizations such as La Vía Campesina (Desmarais, 2007) and that argue for an agro-ecological solution to

hunger (Pretty, 2009). The HTF report did not do justice to the memory of Ireland's Famine; but future efforts could begin to rectify that.

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CHAPTER 27

SYLLABUS CHANGE, STUDENT LEARNING AND TEACHER EXPERIENCES

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In the Republic of Ireland, secondary education is a unitary system; most schools follow the national curriculum. Virtually all students in lower secondary school study geography, with 92% completing the Junior Certificate (JC) course in 2008 (State Examinations Commission (2010)). Of these students, 49% also take geography to Leaving Certificate (LC) level, completing the programme at 18 years old (State Examinations Commission (2010)).

The national curriculum has not been subject to frequent change. The current LC syllabus was implemented in 2004, replacing a curriculum in use since 1971. The stability between 1971 and 2004 proved helpful for teachers and students as it provided a degree of confidence about requirements. However, a number of major concerns had risen over time, focusing on the content-based nature of the syllabus and an assessment-based curriculum. As there was a long content list, programmes were generally limited to those aspects that featured regularly in the examination paper. Textbooks and other resources concentrated on these and as a result, students could successfully complete the course without developing a general understanding of geography. The programme was assessed by means of a single three-hour terminal examination that was composed of four questions for higher level students plus a world map question for ordinary level students.

The 2004 curriculum is a radical departure from this, with clear aims and objectives, a core programme and alternative pathways. The assessment is also different, with a terminal examination consisting of multiple-choice, short and long (essay) answers plus a geographical enquiry carried out and submitted prior to the final examination. We discuss differences between the two approaches in detail.

Stage one: issues and methodology

We investigated the effects of the changes on the student experience of geography at LC level using the following questions:

1. In what ways is the new curriculum different from the 1971 statement?
2. Does the new syllabus have any impact on learning outcomes?
3. What are the teachers' responses to the change?
4. Will the teacher expectations be realised?

The initial phases of the study involved an examination of course materials and the collection of data from teachers. The findings from this study helped us design an instrument to explore student learning changes. We examined and compared the documentation relating to both programmes. We also conducted semi-structured interviews with 26 teachers during the summer and early autumn of 2004. We employed a snowball technique to recruit participants. Interviews were recorded, transcribed and NuDist was used to analyse the responses. At the time of the interviews, teachers had received the syllabus document and some in-service training. Textbooks and other materials had also begun to appear. We assumed that teachers had a basic understanding of the curriculum, although the interviews revealed wide variation in knowledge.

Identifying the perceived changes

The earlier syllabus had been criticised for being limited in its guidance, outdated and containing a large amount of content; it was impossible for teachers to plan programmes to complete all requirements. The assessment had become predictable, focusing on a limited number of course sections. This outcome encouraged teachers to design programmes based on a selection of areas favoured in the exam. Candidates had to answer four questions, one based on an Ordnance Survey (OS) map, one on regional geography and two others selected from physical, social and economic geography. It was possible to avoid either one of the last two sections by completing a fieldwork project or developing skills in working with aerial photographs as these two topics were included as full questions in the examination. Teachers often stated that fieldwork was important for the developmental understanding of physical and human environments, but it was not mandatory. Many schools did not conduct fieldwork, and since the related examination question had a consistent format, some students memorised reports on projects they had not actually carried out.

Few schools studied social geography despite a teaching objective that ‘a student should have had the opportunity of developing positive attitudes to such matters as the interdependence of peoples and the need for social co-operation at all levels’ (Department of Education 1988, p. 332). Teachers were encouraged to be aware that ‘geography should be taught from motives... which go beyond the narrow and traditional objectives of imparting geographical knowledge and the training of students in the recall of facts’ and were advised that they should use ‘a methodology that includes many and varied techniques and skills’ (Department of Education 1988, p. 332). However, teachers had no guidance on how to achieve these goals, and the assessment process did not encourage them to make the attempt.

The 2004 syllabus was very different from its predecessor. It had broad aims and specific objectives focussing on:

- Knowledge of physical, environmental, social, cultural and economic phenomena and processes, plus interactions and interrelationships between these processes
- Developing citizenship ‘to understand the opportunities for, and challenges of, global interdependence’ and ‘to assist students to become well-informed and responsible citizens’
- Facilitating lifelong learning ‘to provide students... with an interesting and enjoyable experience and imbue them in a lifelong love of their natural and cultural environment’
- Developing ‘... skills which will help them make informed judgments about issues at local, national and international levels, including: maps, figures, statistics, photographs, pictures, textual sources, presentation and communication; investigative, social and evaluation skills; and the use of information and communication technologies’

There was a compulsory core curriculum plus options that allowed teachers to select aspects of geography of interest and relevance both to their students and themselves.

All students had to take one of two elective modules. In order to allow for differentiation by ability, the option modules were available only to Higher Level (more able) students. At this level, emphasis is on the need for integration of various aspects and on the importance of skills and active learning. The assessment format ensured that all candidates completed the core modules, including a geographical enquiry. These are assessed using multiple-choice or one-word answer questions and by a report submitted before the final examination. There were no longer questions dealing either exclusively with OS maps or with aerial photographs.

Detailed assistance was provided in ‘Guidelines for Teachers’ (Department of Education and Science 2004) that included guidance on assessment, teaching the syllabus (including an exemplar programme structure), sample lesson plans and a resource list. ‘Guidelines’ emphasised the need to teach for understanding, noting that ‘knowledge does not always imply understanding. In particular, knowledge acquired for the short-term goal of performing well in examinations does not transfer to life situations’ (Department of Education and Science 2004, p. 64).

Understanding and developing learning

In our study, we selected male and female teachers. We interviewed teachers from a range of schools, including mixed and single-sex schools, day and boarding schools and schools with varying student catchments.

The mean length of teacher service was 17 years, with a range of four to 29 years.

While the respondents had some reservations about the changed programme, all of them welcomed the change overall. The reasons for these positive attitudes are practical. One teacher stated, 'I think it's actually going to be good because we know exactly where we're going' (T003), and 'also, it's going to be shorter' (T006). Others considered that change itself was important, saying, 'I'm glad it's come in, the old course is stale' (T008). Other responses reported increased satisfaction with the new course. For example, 'part of my passion for geography is because it's such a general thing, it's an integrator, if you like, across a whole spectrum' (T004). Another noted, 'I'm looking forward to it because it's a change and I need to change for myself to keep myself active. It gives me scope to use a lot more case studies' (T010). One final area of positive feedback was that it would no longer be possible to select such a small part of the syllabus for study 'then you have areas where you focus on. I like that idea that you do everything, you don't just pick and choose, you cover so much more' (T021).

A major concern was that the course could lack depth, for example, 'we are going to know a little about a lot of countries, places, but not enough about anything in particular' (T002) and 'it could be a bit bitty and you know you have to cover things and master things . . . quickly. Less seems to be done in depth as well to master it' (T018). Some reservations appeared to be pragmatic. For example, 'I had it down to a fine art, looking at certain elements of the course to the exclusion of others. It now means that I have to tap into other areas' (T007). Some also felt that the course might be too challenging for students, while others considered that it might not provide sufficient challenges – in this, there was no consensus.

Development of global and local citizenship

Many of the interviewees considered that the new course increased the focus on these aspects of geography. For example, one teacher stated that 'they have to know what's going on currently, be it political, or human, the catastrophes that are going on, the earthquakes whatever, bring it right up to date' (T001), while another noted, 'it gives the students a broader base, things like culture, identity, ecology, things like that' (T011).

Generally, the changes were viewed positively. For example, it was noted that 'it's the kind of stuff that everybody should know' (T008). Another teacher considered that 'if we tackled it well, we could perhaps educate people in such a way that we could prevent difficulties relating to racism' (T007). Some also commented that the move away from the Eurocentric focus of the previous syllabus would be helpful in developing global citizenship and mutual understanding, for example, 'Asia didn't exist

apart from development and how we can help them and the problems they have' (T016).

A small number of participants expressed reservations based on the diverse and changing nature of the course. For instance, 'I find a lot of the social geography very hard to keep up with because it's changing so frequently' (T010). Others had concerns regarding the level of student comprehension of complex concepts and issues, suggesting that weak understanding may lead to 'waffle' in assessments. A final group considered that some suggested topics might lead to difficulties, 'I thought the Northern Ireland issue too close to home to get a good, unbiased discussion going' (T020).

A final concern was that the new programme did not address a perceived deficiency of the old programme – a requirement for students to learn about Ireland in any depth.

I think definitely if the children are in Ireland... you start at local level. If a child has some understanding of... space around them at local level... you've some chance of extending it into the broader world. (T007)

Skills

Positive comments on the development of skills were relatively limited, focusing on continuation from the prior (JC) course and the need for more varied use of media for students who are 'so used to visual stimuli (that) we were falling behind' (T002). However, some concern was expressed about changing from a content focus to a skills focus. For example, 'what kind of skills, and do you have time for the skills?' (T017) and 'if we're going to go down that road... there's going to be a lot of time involved in looking all that up' (stimulus materials) (T003).

The skill area that excited most comment was map work, specifically in relation to OS maps. Two interviewees considered that the integration of OS maps into the whole programme was a positive move. 'I do think that maps will be brought in more, linked in to the physical questions more than they have been and I think that's a good idea' (T023). However, most of the comments about OS work were concerns about the change from the previous approach. Some of the respondents considered this focus important because map work is a fundamental aspect of geography. 'Maybe leave the OS as a question on its own, to have skills, I think that's something that's lacking in a lot of subjects' (T012). One respondent with concerns about the possible loss of map skills commented that 'we are losing the skills, but on the other hand if we concentrate on the skills without knowledge then it's no good either' (T020). Although the term 'knowledge' is used, the respondent's definition of knowledge corresponded more closely to an understanding of relevant content rather than just facts. Others felt that the concentration on map work

supported by the full examination question was helpful for weaker students – ‘a lot to be gained from continuity and particularly if you are... trying to practice their map drawing skills, their map reading skills’ (T018).

Stage two: student-based surveys

We designed a questionnaire to obtain data on the effects of changes on student outcomes with a sample based on student availability. Level 1 and level 2 students at the National University of Ireland, Maynooth were available. Although these students are not an entirely representative sample of LC geography candidates, there is no reason to suppose that their experience of the two programmes was atypical. We completed the survey in October 2006 when level 1 students would have followed the new programme and those in level 2 the older one.

The questions established students’ experiences of geography along with profile data and information on programmes of study within the university. Other questions either were designed by teachers or arose from the syllabus. These related to sustainability-/environment-/citizenship-related issues, global events and map interpretation. The questions about map interpretation examined the teacher-predicted decline in OS map skills. The questions reflect the work of Boardman (1983), and Gillmor and Waddington (1993). In the Gillmor and Waddington study, teachers were asked to rate the difficulty of a wide range of skills involved in using and interpreting the OS maps. Findings showed that teachers considered the use of compass directions and understanding contours were straightforward skills to learn but that the interpretation of cross-sections and estimation of height between contour lines were more difficult. Boardman’s earlier work showed that students who were less experienced and/or took a less challenging geography course were less likely to be able to identify heights between contour lines than those actually on contour lines.

We coded and analysed the questionnaires using SPSS. A classification system was used to code the answers – with answers being classified using a four-fold system ranging from correct (a dictionary-standard definition) to wrong. We used a cross-tabulation procedure to compare the two cohorts, and a chi-square test was used to assess the strength of differences between the two groups.

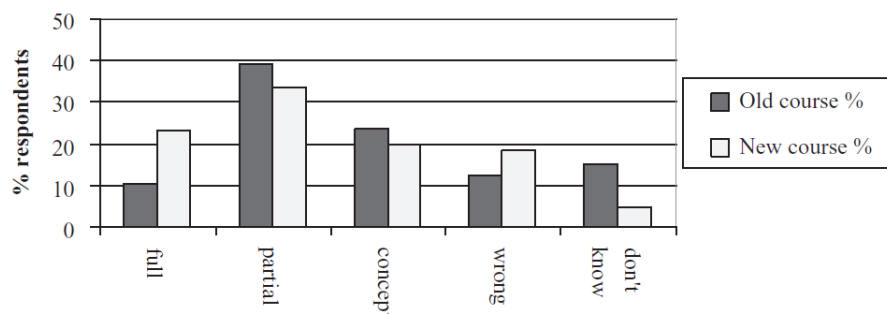
Outcomes of student survey

The questionnaire was completed by 523 students. The entire first-year cohort studied geography, while the second-year group included both geography students and people studying other subjects. A total of 406 students had taken LC geography, and 370 stated the year in which they completed the programme. Of these students, 281 (75.9%) took the old course, while 89 (24.1%) had completed the new programme.

The two multiple-choice questions were in the environment-/sustainability-/citizenship-related area. They related to the issues of greenhouse effect and fishing as a resource and they indicate some difference between the two cohorts. These differences were small, with the old course students having a slightly higher level of knowledge about the former (74% correct – old course, compared with 70.8% – new course) and the new course of the latter (66.9% old and 68.5% new). Thus, for these questions, there was no support for the hypothesis that the new programme allowed students to develop a greater understanding of these global issues.

Two open questions revealed evidence that the changed curriculum influenced learning outcomes for participants. When the respondents were asked to define desertification, clear differences in understanding between the two groups were revealed. A higher proportion of new course respondents showed more understanding of the concept (23% compared with 10% of old course people) (see Fig. 1).

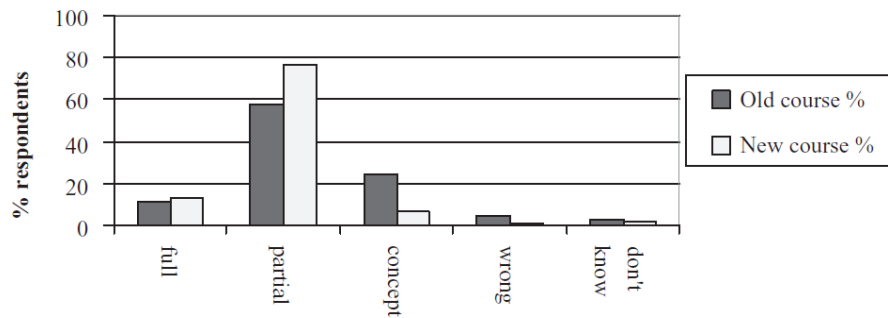
Figure 1 Understanding of desertification.



Further, while only 4% of the new course cohort indicated that they could not answer the question, 41 people (15%) of the old course group gave this response (Fig. 2). The difference is statistically significant ($P = 0.002$) and provides support for the suggestion that the emphasis in the new syllabus objectives on environmental and sustainability aspects of citizenship has an increased effect on student's understandings of these issues.

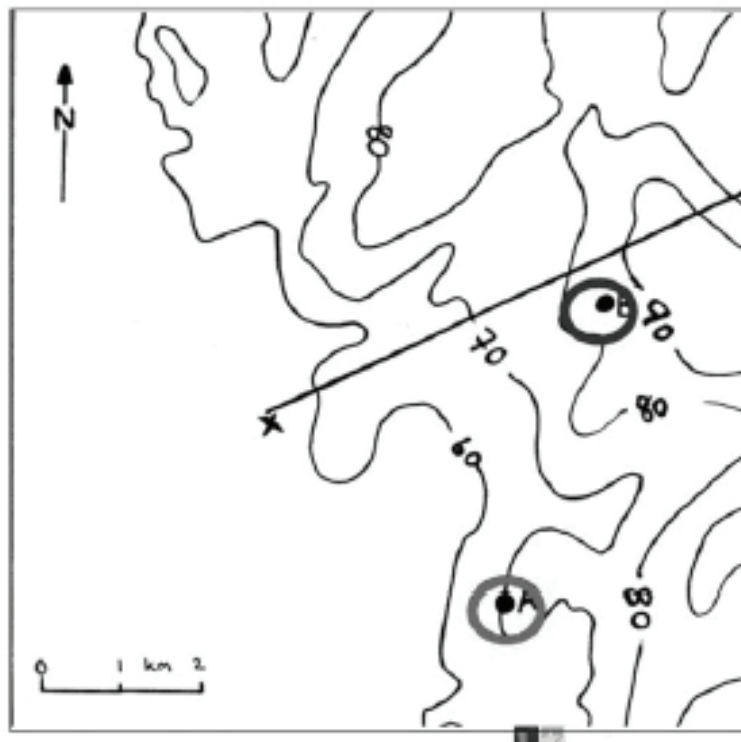
When urban sprawl was examined across the two groups, it was found that there was a statistically significant difference in understandings of this concept ($P = 0.002$), with the new group indicating a better understanding of the concept. A small percentage of both groups reported a full understanding (13.5% new and 11% old), but a considerably higher percentage of the new cohort showed a partial understanding (76.4% (new) compared with 57.1% (old)) (see Fig. 2). This, again, suggests that the change (from old to new) has had a positive influence on outcomes.

Figure 2 Understanding of urban sprawl.



There were differences between the two cohorts on global events, but these were small. The older programme group generally indicated a higher level of knowledge about earthquakes and the most likely location to experience a tsunami. However, the question on Hurricane Katrina was answered correctly by 46.6% of the new course respondents compared with 31.0% of the old programme participants. It would be hard to support any suggestion that an emphasis in the new programme on students becoming 'well informed . . . citizens' has been achieved on this evidence.

Figure 3 Identification of heights using contour lines. Height A (on contour-70 m) Height B (between contours-85 m).



With map work, the analysis revealed that approximately 83% of both groups were able to identify the correct compass direction, and none of the participants indicated that they did not know the answer. The old course respondents were slightly better at identifying the correct orientation of the cross-section compared with those who had taken to new course (79% old/75% new). However, when the respondents were required to identify height between contours, there was a much greater difference between the two groups ($P = 0.0005$), with 81% of the old course group correctly identifying the height compared with only 48% in the new course group (see Fig. 3).

These findings provide clear support for the teachers' contention that the decreased emphasis on OS map work has led to a decrease in the development of these skills for students. Since an understanding of maps is clearly a fundamental skill for geographers and indeed, arguably a life skill, we believe that this finding is a cause for concern.

Conclusions

It would appear that the change in the programme has had effects on the learning outcomes for students. There is some indication that general knowledge and knowledge of events, particularly natural disasters, had increased. Further, students have gained more understanding in some areas of the environment, sustainability and global citizenship aspects as shown by the improved performance of the new course group in defining urban sprawl and desertification. Of course, it is also important to acknowledge that this change has been limited. Further investigations may reveal other changes of a positive nature, but unfortunately, time and resources did not permit this.

However, the new programme does appear to have a detrimental effect on map skills as predicted by the teachers. While the new programme places considerable emphasis on the use of maps, the removal of a compulsory question has (as predicted by the teachers) led to some decrease in the required skills. It can not, of course, be argued that map skills are of more importance than all other skills aspects, but an adequate understanding and use of maps is clearly an important area of geographical education as are the life skills that they have the potential to provide. Further, these skills are quintessentially geographical in nature, and in a time when the inclusion of subjects in curricula may be questioned, it is important that these remain an obvious and well-developed part of geography. We therefore suggest that a review of the use of maps within the programme might be appropriate. It must, however, be acknowledged that any changes to the current programme might result in other aspects being assigned as less important, and therefore, difficult choices need to be made. In the words of one teacher/interviewee, 'I mean, you can never finish teaching geography' (T004).

This study has shown that curriculum changes do affect outcomes and that teachers are, to some extent, able to predict what these changes may be. Future work may involve further exploration of the impact of changes in the stated requirements on outcomes, focusing on other curricula and/or other subjects.

Acknowledgements. The author would like to thank all the teachers who so willingly gave up their time to answer questions about the changes in geography. She also gratefully acknowledges the efforts of all of the students of NUIM who completed the questionnaire and particularly, the 2006–2007 GY 201 class that assisted so ably in designing the questionnaire and in the subsequent data processing and analysis.

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CHAPTER 28

SELLING THE COLONIAL SPA TOWN: THE CONTESTED THERAPEUTIC LANDSCAPES OF LISDOONVARNA (IRELAND) AND TE AROHA (NEW ZEALAND)

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Introduction

Lisdoonvarna, in County Clare on the west coast of Ireland and Te Aroha, on the eastern edge of the Hauraki-Waikato plains in New Zealand, are two distant locations that share a series of commonalities. Both feature sets of historic buildings framed by the natural mineral waters around which they were initially constructed. They now exist as contemporary replicas of the Victorian spa town. Both are examples of what health geographers refer to as therapeutic landscapes, places that have achieved lasting reputations for providing physical, mental and spiritual healing (Kearns and Gesler, 1998). In their roles as therapeutic landscapes, deeper and contested relationships between health and place can be identified while both towns can be described as contemporaneously 'typical and unique' (Strang, 2004). Their relative typicality and uniqueness will form an essential part of our narrative but also point towards how the colonial spa town was a metaphor for contested understandings of a traditional therapeutic landscape form (Williams, 2007).

In this paper, we explore narratives of these towns' historical development and wider themes around the commodification of health in place. Our rationale is that similarities are often observable across different examples of therapeutic landscapes in terms of their structural processes and experiential expressions (Geores, 1998; Gesler, 2003). Our intention is to examine a set of health histories in place, through co-considering two places on different sides of the world with similar provenance. We contend that, notwithstanding their cultural and spatial distance, the examples of Te Aroha and Lisdoonvarna reflect ways in which the spa town was developed within a global template during the 19th century. While local cultural forms shape such spaces, we maintain they are also part of wider global cultural networks, in these cases, the British Empire. To us, it is instructive to consider the different ways in which such local-global networks operated. Through this dual case-study approach, we offer an advance on many singular studies of therapeutic landscapes which are carried out in isolation, or within individual

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jurisdictions. In a comparative study, we argue, there is also much to be learned about spatial similarities and variations in a process whereby place is commodified and sold on its reputational therapeutic characteristics.

The paper is laid out as follows. Initially the concept of the therapeutic landscape is introduced, to clarify associations between health and place. As a classic example of such a landscape, the literature discussing the spa town will then be examined from which two broad themes will be drawn, relating specifically to the commodification of the spa town, and the contested identities associated with such settings. The histories of the two study towns, Te Aroha and Lisdoonvarna are then briefly noted before the sources and methods used in the study are noted. The empirical heart of the paper illustrates the thematic concerns with commodification and contested identity, noting the similarities and differences apparent within both settings. Finally, discussion and conclusion sections identify a set of theoretical and applied ideas from which wider work on the spa town as a representative therapeutic landscape could be developed.

The Spa Town as Therapeutic Landscape

The therapeutic landscape concept has, since its initial introduction by Gesler (1993), developed as a significant focus within health geography as well as influencing disciplines such as anthropology (Williams, 2007; Lea, 2008) With theoretical foundations in cultural ecology, structuralism and humanism, the idea offers a conceptual and analytical framework for natural, built, social and symbolic environments as they pertain to healing or well-being in place (Williams, 1999). Initial studies focused on European locations famed for their healing powers, including spas and religious-spiritual sites (Gesler, 1996). Other foundational landscapes included natural settings for asylums and retreats as well as wilderness settings that emphasised more phenomenological connections to healing in place (Tuan, 1974; Palka, 1998; Williams, 1998). More recent debates within the field have contested earlier understandings of the term. In particular, Conradson (2005) identifies the notion of a therapeutic experience and suggests that places and landscapes offer healing through individual experiential engagements in place, but that these can equally be negative or health-endangering. This perspective is strongly linked to the notion of places as generating contested behaviours. Collins and Kearns (2007) identify the beach as a good example of a landscape which can potentially both enhance (through exercise, fresh air and retreat) and damage (through drownings and melanoma) health.

While the focus of this paper is on the traditional therapeutic landscape of the spa town there are traces of this contested understanding of health to be found in such settings. This is especially true of therapeutic landscapes whose original health/healing identities shift, as at Bath or Brighton, to new identities where leisure and tourism assume more

significant positions (Gesler, 1996; Towner, 1996; Foley, 2010). In such identify shifts, the central roles of local economics and the commodification of health and place are arguably under-emphasised dimensions in therapeutic landscapes research (Williams, 2007; Smith and Puczko, 2009; Foley, 2010). In many settings the explicit marketing of health in place was central to the production and maintenance of their curative reputations.

Spa towns are represented in a range of locations and forms (Gesler, 1993; Porter, 1990; Smith and Puczko, 2009). They date back to the 12th century city of Spa in modern-day Belgium, and had a long development in mainland Europe through the 15th and 16th century in towns like Lucca and Bagnères. The period from the end of the 17th century to the end of the 19th century marked their heyday in Europe and in those global settings shaped by European cultural expansion. Thus spa towns were developed in colonies as far afield as the US, Canada, New Caledonia, Australia and New Zealand (Rockel, 1986; Connell, 2006). Importantly, the spa tradition combined healing with socio-cultural and class-related practices, so that the spa town developed a complex mix of curative and socialised identities (Mackaman, 1998; Gesler, 2003). In their construction, promotion, and framing of place, such towns also incorporated ensembles of both physical and human landscapes (Foley, 2010). Common features of spa towns included the hot, warm and cold mineral springs that provided the core 'medicinal' product, as well as commercial edifices such as hotels, pump-rooms and bath-houses that were built to house and treat visitors and patients. The 'spa town ensemble' also encompassed the development of specific socio-cultural practices. The spa town identity was therefore shaped by curative stories/narratives as well as more liminal social meanings associated with assembly, status and matrimonial prospects (Mackaman, 1998).

In a classic example of these combined medical and social-economic dimensions, Geores (1998) discussed the entrepreneurial history of the town of Hot Springs in South Dakota, whose mineral waters were central to its construction in the late 1880s. Here, the metaphor 'Health = Hot Springs' was created, maintained and adapted within historical contexts of class, medical-health thinking, advertising and available technology to attract visitors from afar. The metaphor was embodied throughout the town's history, with health commodified through the restorative power of the waters and wider landscape (Geores, 1998). Indeed the notion of a health history was extensively used in Hot Springs, where an earlier identity as an American Indian site of sacred healing featured in its marketing. Other North American spa towns such as Radium Hot Springs and Saratoga Springs, employed similar narratives (Wightman and Wall, 1985; Valenza, 2000; Sterngrass, 2001). This linking of a discursive connection between older or 'native' health histories associated with the 'place' is reflected to an extent in both our study area towns. Here, the Māori antecedents at Te Aroha and the holy well traditions at

Lisdoonvarna were used to legitimise the historic healing power of place (Wells, 2003; Foley, 2010). This legitimisation was therefore invoked in cultural as well as curative terms both of which fed in to the marketing of health in place.

In terms of how spa towns were sold, the typical narrative was one which had a distinctly place-making flavour. In a common sequence of events the healing waters were discovered by entrepreneurs who in turn had those waters tested for their constituent minerals. Once this chemical evidence was in place, the next step was to identify a medical benefit, generally developed through known cures associated with specific minerals. Individual health biographies were then used to 'verify' the cures. Once the biomedical evidence was in place, preliminary accommodation was built to bring in visitors. Over time commercial demand drove the development of not only the built-environment of the spa but also the social and economic reputation of the associated town (Brookliss, 1990; Hamlin, 1990; Cossick and Galliou, 2006). In the classic example of Bath, earlier Roman and pagan narratives of spiritual healing were linked to chemical testing and curative narratives in the 16th century. This shaped the town's development as a medical place which was subsequently strengthened via a calculated commodification based on fashionability, social mixing and cure (Gesler, 1998). The specific place of spa medicine was always relatively uncertain, reflecting Porter's astute observation that spa towns represented, 'the hypochondriacal interplay between organic medicine and the half-acknowledged underground realm of the psychosomatic placebo cure' (Porter, 1990: xi). Over time one can trace a shift in health practices from immersions in, and consumption of, the spa waters to more complex and medicalised hydrotherapy treatments within which technology and referral played a greater role (Foley, 2010). While one can distinguish at times between a specific selling of health and a specific selling of place, in most spa towns commodification (selling) and associated marketing and place promotion (telling) were fundamentally co-dependent (Towner, 1996). The selling and telling of health in place were also represented across time and space in a rolling process of re-selling and re-telling.

While the towns themselves were sold on the health metaphor, wider social narratives and practices were also essential to their contested development. Many social practices associated with the spa town had distinctly unhealthy outcomes that emphasised their parallel liminal reputations (Porter 1990; Urry, 2002; Conradson 2005). To elaborate, the more leisure and tourism-based attractions developed around the spa, the more they departed from being solely health-focused and relied instead on narratives of liminality, gluttony, sex and matrimony, wherein the social reputations fed the healing identities and vice versa (Foley, 2010). These social practices, an essential part of the spa town image, paradoxically managed to simultaneously deepen and weaken the power of the therapeutic space/place. In considering the traditional therapeutic

landscape in this contested way, newer theoretical understandings of the ‘pharmacon’ (a drug that can both kill and cure) can be applied, wherein different experiences, inhabitations and performances shape a range of therapeutic outcomes (Andrews and Holmes, 2007; Collins and Kearns, 2007).

A second form of contestation related to how the model of the ‘colonial spa’ reflected indigenous and local populations and practices. The development of relatively wealthy clienteles, for whom the spa town became a locus of class identity formation was underpinned by a notion of exclusivity (Mackaman, 1998). The great European spas, wherein the nobility and aristocracy mixed and deepened their identities, was reproduced in global colonial settings with strong class aspirations. Within colonial settings, these exclusive identities were also associated with a range of exclusionary practices around ownership, regulation, power and profit, wherein the local populations had limited access and proscribed roles (Gesler, 2003; Kelly, 2009; Foley, 2010).

In applying these broader theoretical themes to specific spa towns in Ireland and New Zealand, our aim is to examine the processes of telling/selling health and place and assess how similar these processes were across ‘colonial’ space. In critically examining the factors shaping the (re)production of a commodified construction of health-in-place we also address two associated objectives. *Firstly*, we examine the tangled narratives of health and place which act as metaphors linked in to material places and which were utilised in the production of both Lisdoonvarna and Te Aroha. These narratives, we contend, provide valuable evidence of both typical and unique processes of therapeutic landscape production, and within such narratives mobile health and place meanings are also identified to illustrate the importance of time, inhabitation and economics. *Secondly*, we re-examine the two spa towns in terms of being contested therapeutic settings, wherein conflicting health and leisure practices and identities were mirrored in exclusive and excluding relations between dominant colonial ownerships and historic ‘native’ meanings and practices. In considering to what extent these contested understandings of a watering-place-for-health were erased or incorporated into the narratives, we identify wider socio-cultural factors which may have applicability for other colonial spaces and places both within Ireland and New Zealand and also in wider jurisdictions.

Settings and Method

Te Aroha

Te Aroha remains a unique place by virtue of a narrow line of geothermal springs which emerge from a south-west facing slope at the foot of Te Aroha Mountain. Without

these special waters, it is unlikely that a settlement of any kind would have endured here. (Wells, 2003, 11).

The rural town of Te Aroha (2006 population: 3,760) is located on the North Island of New Zealand in the eastern Waikato District at the foot of the volcanic mountain of the same name (Figure 1). Originally known to the local Māori as Waipuia, the hot springs on the site became better known during the local goldrushes in the 1870s. The original Māori landowner, Te Mokena Hau entered a deal with the Crown in 1878 for entrepreneurs to develop the site and the first hotels were commissioned the same year. Over time a separate domain area (Figure 2) was created around the different springs (primarily alkaline with soda, sulphur and chalybeate) and a range of bath-houses, tea-houses and treatment rooms were built. In the town itself, the development of a range of accommodation and services were augmented in 1886 with the arrival of the railway.

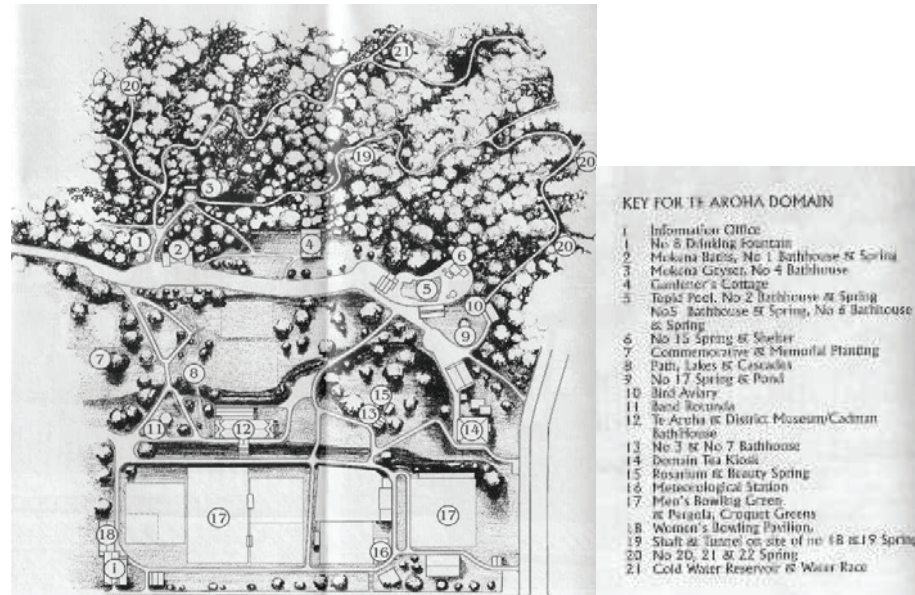
Figure 1. Location Map of Te Aroha. (Source: Matamata-Piako District Council)



Te Aroha was founded as a premiere spa destination for upper-class international visitors. The town was part of an ambitious wider project to establish tourism and spas in colonial New Zealand and was itself based on the spa of Daylesford in Australia (Rockel, 1986). Its popularity and repute peaked in the late 1800s and early decades of the 20th Century. This was followed by a period of decline into the later 20th Century, and a subsequent revitalisation with a heritage orientation. The rural setting and shifts in health-place notions as well as spa culture were additional

factors associated with the town's historical development (Rockel, 1986; Wells 2003).

Figure 2. Map of Te Aroha Domain. (Source: Matamata-Piako District Council)



Lisdoonvarna

There was a very short description of the remote Clare village in Ruddy's (1757) guide to the spas of Ireland (Figure 3). Though the waters were known and used, there was little or no development evident in first edition Ordnance Survey maps dating from around 1840. A very intensive period of growth in the 1850s and 1860s occurred with 67 houses in place by 1872. By then the town had developed around the roads leading into the square, mainly along the north-south axis, with some development east-west and to the south-east below the main spa (Figure 4). While the town did not initially have an enclosed domain, the presence of a range of different wells (chalybeate, copper and sulphur) were central to its development, though they were cold rather than hot.

After 1876, Lisdoonvarna developed even more rapidly and, with the coming of the West Clare Railway to Ennistymon in 1887, probably outstripped the most sanguine expectations of Westropp and Stacpoole, the original entrepreneurs associated with its development. The town's peak seems to have been from the 1880s through to the 1920s with the decline of the Anglo-Irish clientele being replaced by a partial popularity in the new state. The spa season declined from the 1940s on but its original social identity lives on in the Matrimonial Festival in September, now the focal point of the town's social and economic activity. The waters at the main pump room are still consumed from May to the end of September. There have been unfulfilled plans to revive the treatment

rooms, but nothing as active as those at Te Aroha. Outside of the main sulphur well, the other wells have declined. The Double Wells are a relict feature; the Copper Well is inaccessible, while the Twin Wells are usable, but protected behind grilles. The town's identity is evident in surviving hotel names including; The Royal Spa, The Imperial, and of course the Hydro (Furlong, 2006)

Figure 3. Location Map of Lisdoonvarna. (Source: © OpenStreetMap contributors, CC-BY-SA)

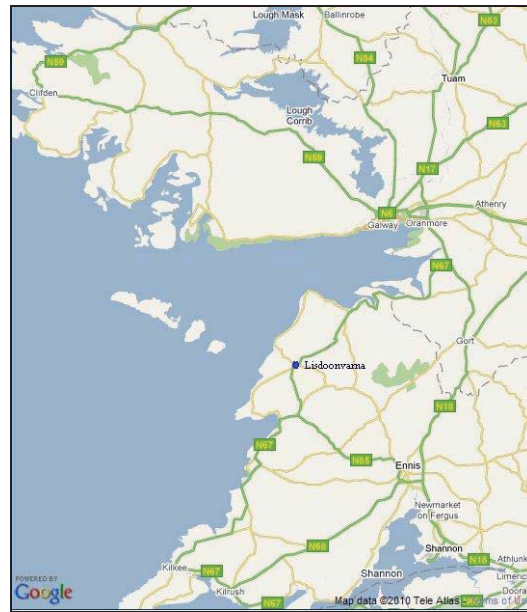


Figure 4. Map of Lisdoonvarna, 1890s. (Source: Ordnance Survey Historic Map Series)

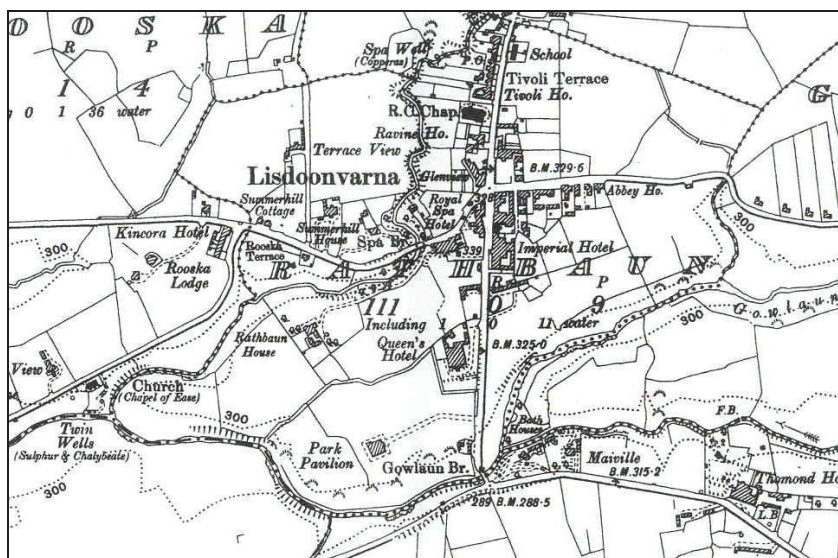


Table 1. Comparative Spa Town Elements: Lisdoonvarna and Te Aroha

<i>Element</i>	<i>Lisdoonvarna (Ireland)</i>	<i>Te Aroha (New Zealand)</i>
<i>Initial Development</i>	1860s and 1870s	1880s
<i>Peak Period</i>	1880-1920	1890-1920
<i>Type of Water</i>	Cold: Chalybeate, Sulphur, Copper, Magnesium	Warm: Alkaline with Soda, Chalybeate, Sulphur (trace)
<i>Key Buildings</i>	Hotels, Guest Houses, Treatment Rooms, Assembly Rooms	Hotels, Guest Houses, Treatment Rooms, Assembly Rooms, Bath Houses
<i>Curative Services</i>	Hydrotherapy, Electrical baths, Spa doctor	Hydrotherapy, Electrical baths, Spa doctor
<i>Listed Cures</i>	Rheumatism, paralysis, neuralgia, sciatica, gout, skin diseases, gravel	Skin diseases, acne, eczema, rheumatism, gout, scrofulous, swellings, bone diseases
<i>Clienteles</i>	Anglo-Irish (Colonial Settlers)	Colonial Settlers
<i>Access</i>	Road, Steamer, Indirect Rail	Road, Steamer, Direct Rail
<i>Practices</i>	Imbibing, Walking, Dancing, Bathing	Imbibing, Walking, Climbing, Dancing, Bathing
<i>Liminal Elements</i>	Drink, Romance, Revolutionaries	Drink, Romance, Revolutionaries
<i>Compared with</i>	Harrogate	Vichy
<i>Contestations</i>	Health superseded by Social meanings	Health and Social meanings about the same
<i>Exclusions</i>	Native Irish	Native Maori
<i>Contemporary Status</i>	Heritage & Tourism, Waters still potable	Heritage & Tourism, Waters still potable, Hot pools

Method

In the case of both towns, we used a range of secondary material and primary observation to examine the development of the healing places and identify narratives, cures and treatments that made the places. In the case of Te Aroha's evolution as a spa town, and the changing role of its healing reputation and mineral waters, early place-promotional material was investigated, along with more recent publications that reflected the

decline of the town and its contemporary survival. Within historical materials and accounts, significant agents who promoted the waters serve as a useful point of analysis and these were supplemented by selected brochures and media publications that confirmed Te Aroha's development, construction and place identity. Historic newspaper, brochure and magazine articles provide secondary data about the place and its contested identities (Wright, 1887; Spooner, 1895; Te Aroha Borough Council, 1980).

For Lisdoonvarna, a similar range of historical source documents included material from local histories, national spa guides and colonial accounts (Hembry, 1997; Dooley-Shannon, 1998; Furlong, 2006). In addition, summaries of the minutes of the local management companies in both towns were valuable sources as was more experiential material found in traveler's accounts and historic photographs (Cowie, 1888; Lynd, 1998; Foley, 2010). Information on local social and cultural practices, recounted in both official and unofficial documentation, were used to identify clienteles, specific curative practices and wider social behaviours. Given the nature of the coloniser's descriptions, the narratives of the native occupants, Māori and Irish, were often overlooked. These remained a strong presence, yet evidence was hard to come by given the predominantly oral nature of both cultures at that time.

Core Themes

Selling Health

As recently as five years ago Te Aroha was, but to a very few persons, a *Terra Incognita*, but the facts of several remarkable cures...having been published and proven to have been effected by the hot mineral springs which are here situated, soon began to bring it into favourable image.... during the past three years many sufferers have resorted thereto from all quarters, and in many instances have returned to their homes completely restored to health. These have...personally testified to the wonderfully curative properties of the Te Aroha thermal waters, their fame thus becoming extended further and wider (Wright, 1887, unpaginated).

The above passage from Dr Alfred Wright's *Te Aroha: Its Thermal Mineral Waters*, was published for the Hot Springs Domain Board that employed him as a physician (Wells, 2003). The figure of the spa doctor loomed large in many spa town narratives, while plans for the development of Te Aroha are clearly enunciated in the above quote (Mackaman, 1998). The centrality of the 'several remarkable cures' was always the starting point around which key interested parties including local hoteliers,

entrepreneurs and medical men, linked the 'health-giving' waters to the marketing discourses central to their development. In addition, the medical credentials of Dr Wright as well as references to 'many sufferers ... completely restored to health', add authority to early discourses of the spa as a quality therapeutic resort. The entrepreneurial vision of early figures and their influence on the domain board were reflected in aspirational claims that the waters', 'medicinal and therapeutic properties are such as cannot fail to bring them into the highest repute, and as their rare virtues become more generally known, it is confidently expected that Te Aroha is destined ere long to become the chief sanatorium of the Australasian colonies' (Wright 1887; Ingram, 1892). Spooner (1895) subtitles his booklet on Te Aroha 'the Sanatorium of the Million' and "the most popular health resort of the Southern Hemisphere'. To deepen narratives of healing reputation, specific cures were always explicitly listed, 'Many marvellous cures have been effected by the springs and by drinking the waters, more especially...rheumatism, paralysis, neuralgia, sciatica, gout, skin diseases, gravel etcetera' (Ingram, 1892). The common 'patient biography' tactic was also used with testimonials of people returning to 'near perfect health' included to support the healing claims (Wright, 1887).

A later 1924 brochure from the Department of Tourist and Health Resorts claimed Te Aroha to be one of the country's principal resorts. The description of the town and its location were similar to those from thirty years previously: photographs of a bustling Domain were depicted along with the nearby forest park, within which Mount Te Aroha was given a prominent place. Recreational activities continued to be colonially inspired and similar to those of the late 19th century. From a specifically curative perspective, the description of the mineral waters and baths identified alkaline and bicarbonate baths as still the most abundant and important. A particular selling point was that unlike the larger springs at Rotorua, Te Aroha's springs were not sulphuric. More significantly, various electrical massage treatments were introduced, with qualified staff members employed to administer these treatments (Wells, 2003). This age of electrotherapy represented an increasingly medicalised role in the selling of health in place. In addition, marketing Te Aroha's spring water, arguably the core medicinal product, involved a range of entrepreneurs who in time were subsumed into the soft drink industry (Rockel, 1986). Wells (2003) also notes the contestations associated with the potential benefits from drinking mineral waters, and indeed that these are still debated. Today, the water from the drinking pump holds mere novelty value, as is the case at Lisdoonvarna.

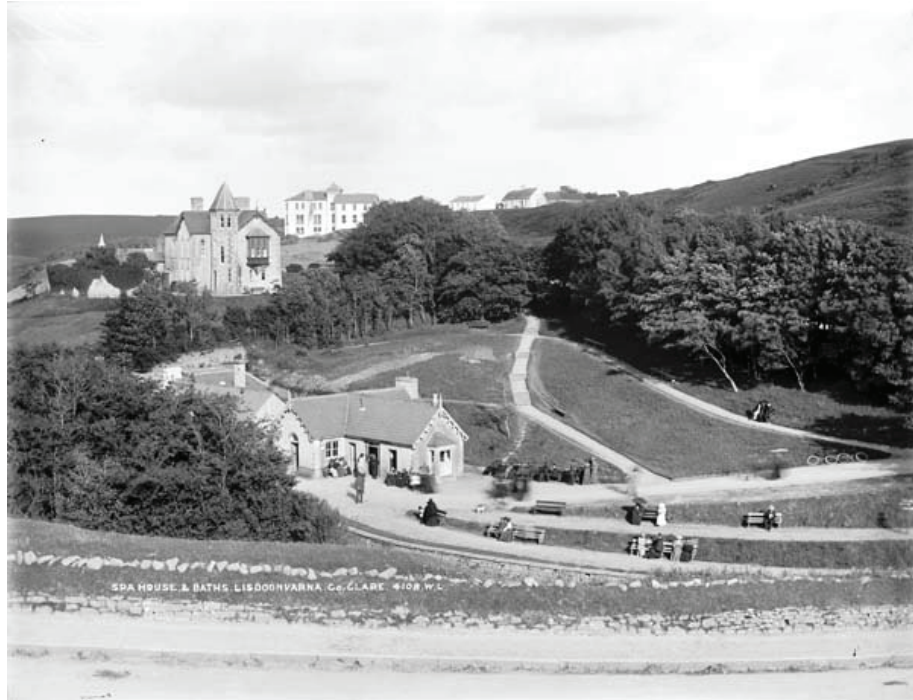
At Lisdoonvarna, narratives identifying the specific make-up of the mineral waters, and subsequent direct linkage to a set of cures and treatments were told and sold in almost identical ways. The different springs, chalybeate, copper and sulphur, did not mimic Te Aroha's unusual soda content, but provided similar cures, being considered, 'most

efficacious in cases of scaly skin diseases, in acne and eczema, in chronic rheumatism, rheumatic and atomic gout, scrofulous swellings, also in some diseases of bones and joints' (Mapother, 1871). Over time the waters were augmented by a set of treatments, and these were specifically associated with the same forms of 'patient biography' encountered in New Zealand. A local doctor, Edgar Flinn, noted that, 'Personally, I am aware of patients who after several courses of treatment at Harrogate pronounced that they got more benefit and personal relief from the Lisdoonvarna waters than any other' (O'Carroll, 1982: 13). The latter half of the 19th century marked the arrival of a specific 'spa doctor', William Henry Stackpoole Westropp. He updated the dispensing methods for the sulphur springs and introduced bath pumps for both hot and cold baths. As in Te Aroha, there was a distinct shift towards more medicalised hydrotherapies from the end of the 19th century, supervised from the doctor's residence, Maiville House, built in 1876 directly above the sulphur wells (Figure 5). These mobile health narratives reflected a shifting focus from natural healing waters to more produced forms including electrical baths that created a new 'currency of health'. As noted in a historical guide from the turn of the 20th century, Lisdoonvarna had developed its selling of health so that,

The curative treatments now available and yearly being improved and supplemented, comprise, in addition to the hot and cold sulphur water baths, the needle bath, the general electric; the Schnee bath (Galvanic, Faradic or combined), Ionization and electro massage. Various medicated baths as prescribed, are also given, such as Acid Alkaline, Bran, Pine, Peat, Nauheim (Dooley-Shannon, 1998).

While the relative power and importance of the traditional Anglo-Irish clientele at Lisdoonvarna was waning, nonetheless the early decades of the 20th century still saw the town at a relative zenith as marked by a visit by the Lord Lieutenant in 1906 to reopen the Thomond Hotel. A range of treatments, sulphur baths and the various waters continued to be avidly consumed in the summer season (Keena, 2007). A new clientele of middle class farmers and professionals emerged in the early decades of the new Irish Free State and carried on the health practices in place. But the economic downturn after the Second World War and improvements in wider health care provision put paid to the town's traditional healing function (Furlong, 2006). It is still possible in summertime to consume the sulphur waters at Lisdoonvarna and bottled water is still sold on site, but that process is now primarily a heritage function.

Figure 5. Gowlaun Well and Spa Doctor's House, Lisdoonvarna. (Source: Lawrence Collection, National Library of Ireland)



Selling Place

In both settings, the telling and selling of health was inextricably connected to the selling of place. The metaphors of the therapeutic landscape were in part framed by their therapeutically verifiable dimension but just as much in the social and cultural landscape of the towns and their surrounds (Foley, 2010). In addition there were elements of more deliberate forms of tourism/place building bound up in the development of the spa town. This was easier in towns such as Spa or Baden-Baden, where long-established reputations provided enduring economic support. Tourism/place building was harder to reproduce on the fringes of Empire. While it was left to individual landowners and entrepreneurs to sell their 'own' watering-places, there was a more deliberate state function in other settings, especially New Zealand. Dr. Arthur Stanley Wohlmann was appointed as the first official Government Balneologist in 1902. His positioning within a new department named Tourist and Health Resorts neatly encapsulated the dual functions of health and place selling (Johnson, 1990). This development was a variation to the processes encountered in other countries where that place promotion was 'bottom up' rather than 'top down' (Porter, 1990). Additional spatial factors, including the physical setting and surrounding therapeutic landscape, location, transport infrastructures and catchments all played a role in the production of the watering-place. Finally more

imaginative connections were also central to the selling of place, wherein anticipated social and cultural encounters were a major driver for the reputation and popularity of the associated resort (Foley, 2010).

In selling Te Aroha as a healthy place, the wider setting of the Domain was a significant factor in discussions of the power of nature and landscape. Both Spooner (1895) and Wright (1887) discuss “majestic” Mt Te Aroha, asserting that it provides the ‘grandest, most romantic and extensive views in the province’, and Wright (1887) comments that the mountain is accessible to those with ‘ordinary powers’. Native forest, scenery, the river and gardens are positively discussed by these writers, and associated with the therapeutic quality of the place. Ingram (1892) describes the Domain as, ‘...laid out in a most attractive manner, the winding walks being romantic and attractive, including paths, flower-beds and seating’, representing an early form of therapeutic design which reflects Gesler’s (1992) identification of the natural and built dimensions of a therapeutic landscape. A government-appointed board was responsible for managing the Springs and Domain, with responsibilities for improvements and beautification (Ingram, 1892). Te Aroha’s climate was also included in varying discourses on its healing properties and overall quality, which Ingram (1892) describes as being ‘most healthful, invigorating and enjoyable’ throughout the year. Under ‘new landlords’, Te Aroha’s later spa era, in which the arrival of the railway played a prominent part, marked a significant new phase (Rockel, 1986; Wells, 2003). Here the connection of the town to its catchment ‘markets’ in Auckland and Hamilton saw it prosper temporarily before a more powerfully promoted place, Rotorua, took both reputational and economic precedence (Johnson, 1990). Indeed a particular example of how these different elements coincided was the introduction of special invalid carriages on the Auckland-Te Aroha trains in the late 19th century (Wells, 2003). Prior to this time, traveling to Te Aroha from Auckland involved a seven hour train journey, or taking a steamer and coach via the Firth of Thames and Paeroa. The deeper telling and selling of place involved an attempt to make Te Aroha into a ‘world class resort’. Class-related ideologies, the formation of the Domain board, and legislation to banish animals from the Domain (Wells, 2003) represented a significant reordering of space in Te Aroha and the construction of a specific kind of healing place suited to a certain clientele. The invocation of other spas and water quality comparisons, a common global aspect of spa towns, was used in Te Aroha. European spas such as Vichy were regularly invoked in posters and promotional material (Mackaman, 1998; Foley, 2010).

Despite its greater proximity to the ‘colonial metropole’, it was equally difficult for Lisdoonvarna to sell itself in competition with more established spas (Hembry, 2007). In part this was due to the perception, at least to colonial eyes, of Ireland’s general backwardness. An account by Barry (1998) of an 1864 visit noted that only one of the five wells was

attended and that the Lisdoonvarna spring waters needed upgrading, 'under cover of a splendid saloon, and be made to issue from the mouth of a nymph, a lion or the like', to attract English visitors. Despite considerable local attempts to develop the springs and a large increase in the number of visitors in the 1870s and 1880s, a scathing comment from a European guide noted, 'Ireland is very poor in wells of all kinds. The wells of Swanlinbar and of Lisdoonvarna scarcely deserve mention as far as their mineralisation is concerned, nor do they offer such accommodation as can attract strangers' (McPherson, 1869 cited in Henchy, 1958, 210). Despite these external dismissals, the town did expand the number of hotels, the individual wells themselves, as well as associated elements such as pavilions, promenades and a local park reminiscent of the 'Kurpark' ('Cure Parks') found in German spas (Keena, 2007). Chemical and medical analyses were regularly reproduced to further sell the town's virtues, at least to domestic markets. Visitor numbers expanded from around 1,500 in 1870 to 5,000 in 1878 and rose to 18,000 in 1896 (Dooley-Shannon, 1998). One significant change in this period was the slow transfer of the ownership and management of the wells from the original landowners, the Stacpooles, to a Local Improvements Committee (Dooley-Shannon, 1998).

Unlike Te Aroha, the setting was less celebrated and was described by Hembry (1997) as, 'a straggling, unprepossessing place in bleak and uninteresting surrounding country', while other accounts noted the climate as 'bracing' (Weber and Parkes-Weber, 1898). In time the town's proximity to the sea became an additional selling point as coastal watering-places became more popular (Kelly, 2009). Whereas Te Aroha benefited from the arrival of a direct rail link to the nearby metropolis, Auckland, Lisdoonvarna was never directly connected by train and the nearest that the West Clare Railway got to it was a station at Ennistymon, seven miles away. A set of 'carmen' were on hand there to transport people to the spa while a popular route prior to the arrival of the railway was to go by train to Galway, take a steamer across the bay (reflecting earlier routes to Te Aroha) and then travel on by car (often sponsored by the individual hotels) from small harbours on the North Clare coast (Furlong, 2006).

A core promotional document in both settings was the tourist guide, wherein both the health and social facilities were listed and invariably over-praised. Guides to Te Aroha from the late 1800s emphasise beliefs about the healing qualities of the springs and the town. Ingram's 1892 *Guide for Invalids* provides an introduction to the place and its healing waters, where, '...Te Aroha hot Springs have, within a remarkably short period, gained for themselves, by their wonderful curative powers, a deservedly very high reputation among sanatoria of New Zealand, and their fame is everyday extending to the sister colonies'. Ingram and Wright (1887) both asserted that sufferers of 'nervous disorders...can obtain perfect serenity and repose'. The Baths, buildings and drinking

springs were thoroughly described, including their temperatures, minerals and disorders they would purportedly cure. Spooner's 1895 guide provides an analysis and technical description of the spring's chemical composition along with treatment capabilities and recommendations. While guesswork may have been involved, proponents of the healing waters were enthusiastic advocates of their quality and more specifically in how the waters should be applied, under scientific-medical guidance, to heal. According to Wright (1887, unpaginated),

“The mineral waters are exceedingly interesting and will prove of great value medically. They closely resemble some of the European mineral springs so justly celebrated... You may rest assured that all you can do for your springs in the shape of improving the facilities for their use is entirely justified by the character of the water”.

While the waters of Lisdoonvarna were compared to other spas, in particular in an 1875 report which pointed out that the sulphur spring was three times more powerful than that of Harrogate, it seemed as if wider aspirations were limited given its relatively late development in the wider cycles of spa histories (Dwyer, 1998, Kelly, 2009, Foley, 2010). The role of reputation and the wider narrative powers of the place were regularly invoked however. ‘The wonderful cures which result from these spas are everywhere spoken of. One thing is certain, that a fortnight spent at Lisdoonvarna renews the constitution, gives new energy and animation, and the invalid in most instances leaves a place which has made a new man of him in every respect’ (Unidentified newspaper clipping, 23rd August, 1863), It should also be noted that there were considerable contrasts between the negative accounts of Lisdoonvarna in British publications and more positive local publications such as *A Handbook to Lisdoonvarna and its Vicinity*, written in 1876 under the pseudonym P.D. This more focused text was eager to acknowledge that the chapter on the *Medicinal Properties and Effects of the Spas of Lisdoonvarna* was the work of Dr. Westropp of Lisdoonvarna while the expressed purpose of the guide was a perceived duty ‘to alleviate human suffering and to promote innocent recreation’ (O’Ceirin, 1998).

Contested Identities: Health/Leisure

As was the case in most spa towns, the curative reputations and purported power of the springs’ minerals were only one part of the story. Just as in more elegant and established settings like Bath, Spa or Carlsbad (Karlovy Vary), the seasonal inhabitations and practices encountered in place were as much social as medicinal. One key reason to visits a spa was to meet others of one’s own social station and have a pleasant break from normal routines. In addition the locations of the spa, neutral settings where one could expand one’s own circle of contacts, marked them as liminal spaces. One example was the specific identity of a spa town as a site of potential romantic contact (Mackaman, 1998, Foley,

2010). Evidence for this is less clear in Te Aroha (though the name means 'love' in Māori and hot springs were traditional sites for encounters between young Māori men and women) given the less classed character of New Zealand society. The social function of Lisdoonvarna as a site of 'matrimonial promise' did however, reflect wider spa narratives. Given the relative dispersal of the small but powerful Anglo-Irish class across Ireland, the watering-place was a convenient site for prolonged exposure to potential partners, both in business and pleasure. It might be reasonable to assume that Te Aroha played a similar function for *Pakeha* (white settler) society in New Zealand. In both cases the extended seasonal visits to the spa and associated performative practices of promenading, dining, dancing and drinking (of both mineral waters and stronger spirits) created spaces for connections to be made (Wells, 2003). It should be noted that these socialised practices were often a direct contestation of the curative ones so that the gains made by drinking the recommended 'two to eight tumblers' of water (1 to 4 pints) in the morning might be wiped out by the embodied losses sustained in a night's claret drinking and card-playing. Te Aroha's proximity to nearby gold-fields and the relative lawlessness of early colonial society was slowly transformed to a more socially-ordered place, within which the waters and treatments had an increasing role. It would be fair to say that Te Aroha did not have the same reputation for alcohol or liminality as at Lisdoonvarna, where the social excesses became part of the town's identity and saw it described as 'like Lourdes in the morning and Monte-Carlo at night' (Keena, 2007). While this was in part a comment on the increased presence of clerics of all denominations, the all-night dancing and gambling became central to the town's identity. Even in the 21st century the town's matrimonial reputation has been sustained into a month-long festival in September of each year. This tradition, with regularly shifting clienteles, has lasted from the Anglo-Irish period of the mid 19th century into the present day (Keena, 2007).

Equally significantly, the relative importance of social over medicinal identities was also shaped by a wider narrative, wherein spa medicine in general was slowly discredited by the newly professionalized medical classes. Even though curative practices changed over time and increased medicalisation became a feature in both towns, *The Lancet* continued to lampoon the assumed quackery and dubious outcomes associated with the spa (Price, 1981). Thus, in Lisdoonvarna, a qualified approval was given in a report from 1902 but only to the sulphur springs, the others being considered medically unreliable or unproven (Hembry, 1997). Given that the development and management of spa medicine in New Zealand was explicitly linked to a governmental development of 'health tourism', the town's health and leisure identities were deliberately blurred, with both identities given equal formal prominence. As a result it is less easy to identify a judgemental 'medical gaze' being turned onto Te Aroha's waters, with the wider merits of the location being given equal value. Wells (2003) discusses a questioning of the curative powers of the

mineral waters and the wide range of 'hydropathists' using them, from medical doctors to quacks. He suggested that hydrotherapy undoubtedly improved some medical conditions, with warm bathing and bicarbonate in the drinking water being the main benefactors at work. But the evidence largely entailed guesswork and the idea of mineral elements curing specific ailments were relatively unfounded in a scientific sense.

Contested Identities: Colonial/Native

As a second form of contestation, it is also valuable to consider the different cultural groups who met and mingled in such settings. While most spa towns in Europe had relatively elitist clienteles, at least in their initial formations, and these shaped a form of class-based 'inhabited ownership', contestations of space became more apparent at the colonial spa. Although a much less dominant narrative in Te Aroha, healing associations and journeys could be traced back to pre-European history. Wells (2003) identified over six hundred years of Māori presence in the Hauraki region and a widespread regional knowledge of the waters, including spiritual meanings, land connections, relief from aches and pains, and use for pleasure. Thus, Te Aroha served as a local healing place long *before* it was adopted and developed into a spa town by Europeans (Te Aroha Borough Council, 1980). Wells (2003) discusses discriminatory attitudes within spa-era Te Aroha and the segregation of Māori to a designated bathhouse, where the relative 'whiteness' of Te Aroha served as a point of assumed superiority. Wright's brochure (1887) discusses ladies' usage (times and spaces), areas suitable for children, and Māori, where 'a bath-house a distance from the rest...is set apart for the sole use of natives'. The construction and assignation of the No. 7 bath house (Figure 5) further signals the particular ordering of space in constructing the spa town of old. In addition the ambiguous word 'apart' can be read simultaneously as being excluded (apart) and included (a part) in the same space. Thus, a definite, if often overlooked cultural aspect and alternative story and significance can be traced within the construction of Te Aroha as a therapeutic space (Wilson, 2003). It was also the case that indigenous Māori knowledge and therapeutic practices were much less fully used in the subsequent branding of Te Aroha than in Rotorua, a town seen as less British in its character and identity (Wells, 2003).

This sense of ambiguous positionality was also evident in Lisdoonvarna, though perhaps less visibly marked than in Te Aroha. Indeed there were different responses to exclusion here when, in 1867 the Anglo-Irish landlord, Stacpoole, attempted to block access to the spa waters. This was met with a literal explosive response with newly built locked gates being blown up in the middle of the night. This was partly a political response given that, 'These were Fenian times and the right of public access was asserted by dynamite' (O Ceirin, 1998). While the natives worked at the spa, they were there to serve the wealthier clienteles. Even a local character such as 'Bidly the Sulphur', a local woman who doled

out waters at pump-room, was actually a relative of the landowning family. Gradually in the early twentieth century, these contestations of ownership saw the management of the wells passed across to a local committee (after a lengthy legal struggle) and this more collective ownership fed through into the newly independent state after 1922 and up to the present day. This more co-operative ownership model developed in Te Aroha too, although it took until much more recent times for Māori rights to be reasserted. Te Aroha also reflected the slow shift across to more democratic local utilizations at Lisdoonvarna, as local farmers from the Waikato plains became significant visitors to the town and sustained its activities. While it is tempting to frame these examples of contestation as ‘local/inclusive’ versus ‘colonial/exclusive’ dualities, the narratives were always more complex on the ground. The local resistances in Ireland were reflected in the successful campaigns to keep the waters free and open. Yet during the First World War, a request to the Lisdoonvarna Improvements Committee in 1916 to use the town as a rehabilitation centre for wounded troops (common elsewhere in Ireland and Scotland) was declined (Dooley-Shannon, 1998; Durie, 2006). The ‘place’ of the Māori at Te Aroha was also ambivalent, given that access to the springs was originally granted by a Māori chief. Yet at the same time an early visitor to the spa identified that its best prospect of success lay in the ‘the absence of Māoris and the presence of a railway’ as key ingredients (Wells, 2003: 15).

Figure 6. Māori Bath-house No. 7, Te Aroha. (Source: Wells, 2007)



Discussion

In a relational sense, the colonial spa sat in a space which was distant from the metropole but also distant from more centralised models of spa town networks in mainland Europe. While attempts were made to replicate and reproduce the typical spa town ensemble observable elsewhere, local and unique elements also shaped practice and form. Thus Te Aroha's and Lisdoonvarna's locations rendered them both geographically and culturally remote which in turn shaped the cures and health care performances found in the two towns. While competition played a role in the telling and selling of health in both settings, these practises were also framed by place characteristics and the entrepreneurial alliances involved in that production. The wider circulations of health paradigms, as nature-based water medicine was replaced by hydrotherapy and increasingly biomedical discourses, were observable in both settings, despite their enormous geographical separation. This tension between the relational in both spatial and cultural terms was also visible in the contestation of native/othered spaces as well. Indeed the connections between the sites also allow them to be seen as what Hoyez (2007) refers to as 'globalising therapeutic landscapes', wherein cultural forms are reproduced across vast distances which often bear little relationship to specific local settings.

The mineral water resources in both towns were central to the changing ideas, practices and place constructions regarding health and well-being. In establishing facilities and a healing reputation, Te Aroha's spa town settlement originated and was organised around mineral springs. This project of establishing the antipodean spa scene in New Zealand was one way in which colonialism could be inscribed upon, and reflected in, the landscape. The process of creating the envisaged scene involved not only building place in physical terms. Attracting clients as well as reputed experts and using their narratives to promote townships like Te Aroha was also an essential endeavour. It was hoped that New Zealand spas would come to rival the famed resorts of the Northern Hemisphere, given the long history of thermal watering places in Europe (Rockel, 1986). The traditional patronage of these spa towns was mostly comprised of society's upper classes, and along with serving as locations for therapy, spas were also places to see and be seen (Mackaman, 1998). In addition, travel and tourism for health and well-being remained significant dimensions of spa cultures. The extent to which this remained the case with respect to Te Aroha, was a central question. The transposing of spa culture onto a burgeoning New Zealand society and rural landscape entailed the challenge of applying its principles within a quite different context (see Rockel, 1986).

While closer to the metropole, Lisdoonvarna was ironically even more marginal than Te Aroha. Both suffered deeply from a lack of fashionability, a core and understated element in the reputationally-formed therapeutic landscape of the spa town. Scale, proximity and

competition from other therapeutic landscapes were also significant. In Lisdoonvarna's case it suffered direct competition from both British and Continental watering-places but also from sea-bathing resorts closer to home (Foley, 2010). For Te Aroha, the competition came from Australian spas like Daylesford but also from the expanding resort of Rotorua, heavily promoted by Wohlmann, the Government-appointed balneologist, who focused much of his energies on that resort (Johnson, 1990). The reputation of many a European spa was also founded on royal patronage (Cossick and Galliou, 2006). In the case of both Te Aroha and Lisdoonvarna the nearest they came was a visit from the de facto heads of state, the Lord Lieutenants, in both jurisdictions. A visit to Lisdoonvarna in 1906 by Lord Aberdeen, the Lord Lieutenant of Ireland was regarded as providing a significant boost to business, whereas a very early visit by Lord Grey, the Lord Lieutenant of New Zealand to the waters of Te Aroha as early as 1849, was considered in hindsight, a lost opportunity (Furlong, 2006; Wells, 2003). Yet both sites also had more dissident political associations. A visit by the 'infamous' leader Te Kooti to Te Aroha, where he was warmly welcomed by local *imi* (Māori tribal groups) was negatively reported in the wider press. A parallel dissident identity was reflected in the use of the Spa Assembly rooms of Lisdoonvarna for a revolutionary speech by Eamon de Valera in 1919 (Dooley-Shannon, 1998).

Early promoters of the spa sought to boost Te Aroha's credibility as a therapeutic space via 'scientific' analysis of the waters and medicalised discourses around their application. As well as the waters, wider place qualities were included in the constructed healing package, with testimonials a significant factor in the assertion of therapeutic effects. The healing benefits of the waters and framings as a therapeutic space were at the heart of tourism that was essential to Te Aroha's earlier days. Subsequent decades saw a decline of the spa and, following the war, the town functioned as a rural service centre, connected into the Waikato's agricultural industry until the end of the 'long-boom' period of unprecedented economic growth in the 1950s and 1960s. It was not until the years following socioeconomic restructuring that the heritage value of Te Aroha's spa era was recognised and became a major aspect of the re-emergence of tourism efforts in the town. A surprisingly similar history was evident in Lisdoonvarna in the 1930s and 1940s, though in its wider economy, Ireland, unlike New Zealand, remained relatively stagnant. While the matrimonial festival kept up some sort of seasonal business in September, it too functioned as a small rural service centre, but without the same richness of agricultural land. But like Te Aroha, there was a recognition of heritage value and various ambitious plans were made in the 1970s to revive the town through the development of a specialist centre for rheumatic disease. Ironically a part of that proposed development saw the town seek, in what might be termed a 'post-post-colonial' move, to rejoin the British Spa Federation (Clare Champion, 1996). In a quite different sense, and after rapid colonisation, spa

development and ensuing decline, Māori are now reasserting the importance of the waters at Te Aroha (Wells, 2003). The connection between healing at different (and holistic) levels, and for groups as opposed to only individuals, is worth mentioning here in both a curative and a commercial sense. The springs' healing qualities are not only sought by Māori for physical comfort, but also to relieve grievances around ownership and the dishonouring of the original partnership agreement regarding the Domain.

Conclusion

In both Te Aroha and Lisdoonvarna, the identification of parallel 'sellings' and 'tellings' of health/place linkages was a prime motivation for the investigation. In considering the historical development of both towns, a commodifying cycle of discovery-authentication –promotion-development was apparent, with the final stage in particular being marked by a parallel social dimension which produced similar identities and narratives of place. We have noted tensions in how health and place were sold in both places and shown that competing narratives were key to place production (Gesler, 2003).

Contested identities of place were also framed by social behaviours and the commercial exploitation of visitors to the sites. Te Aroha never seemed to have the same liminal reputation that Lisdoonvarna had, though perhaps this was in part due to the relatively settled nature of society in New Zealand in the later 19th century. In addition there was an ongoing tension in both settings in the development of a more medicalised hydrotherapy which contrasted with more holistic indigenous understandings of the healing power of water. However, the stories of both spa towns reveal similar trajectories and discourses of contestation around their holistic and biomedical beliefs, as well as between their curative and social reputations and colonial and native inhabitations. Yet even these are often false dichotomies in that the different identities and dimensions of the towns were deeply embedded and intertwined. While the contestations became clearer or were elided over time, they still reflected the fact that the framing of spa towns as globalised therapeutic landscapes was also balanced around these elements. The social identities of the spa were founded on their formative meanings as therapeutic places, while their development could not have been sustained without their being sold as sites of liminality, leisure and pleasure (Towner, 1996; Gesler, 2003; Foley, 2010).

While there were significant variations in the settings, both geographical (one had hot springs, the other cold) and commercial, between the two towns, there were also surprising commonalities around the production of classic colonial watering-places. In this they were identifiably typical and unique. It might be useful to extend this consideration of the colonial spa town to other specific towns in the two jurisdictions though places like Rotorua and Mallow had unique characteristics of their own

(Myers, 1984; Rockel, 1986). It might also be valuable to consider how spa towns were 'sold' and 'told' within the wider colonial cultures where such towns were situated (Gesler, 2003). Finally, the common ways in which spa towns emerged as cultural forms in countries without colonies might be considered in terms of cultural, rather than political, influence. The great European spas of Baden-Baden and Carlsbad remained a model, equally contested in their medicinal and liminal identities, against which smaller spas measured themselves (Porter, 1990). Finally the model of the wider European or Anglophone spa might be usefully considered in relation to other cultural forms of watering-place such as *hammams* or *sauna* which operated in different scales and settings in the Arab and Scandinavian worlds (Aaland, 1978). In revisiting these traditional forms of water-based therapeutic landscapes, more contemporary notions of contestation, inhabitation and performance can be (re)placed within a wider consideration of culture, health and place (Gesler and Kearns, 2002; Williams, 2007).

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CHAPTER 29

POVERTY AND PLACE IN BRITAIN, 1968-99

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Introduction

In recent decades, census data have been the basis for much research into the spatial distribution of disadvantage in Britain as a result of their national population coverage and potential for spatial disaggregation. Although the census is not designed with the explicit intention of measuring poverty, a range of census indicators of wider disadvantage have been used to make inferences about the geography of poverty in contemporary Britain, including worklessness, car ownership, housing tenure, overcrowding, household amenities, occupational class, educational attainment, and ill health (see Champion et al, 1987; Dorling and Thomas, 2004; Gordon and Forrest, 1995; Green, 1994; Philo, 1995). Recent advances in computing and GIS methods have facilitated improved opportunities for data visualisation and analysis using census data, for example, through the use of population cartograms (Thomas and Dorling, 2007), and by applying historical GIS methods to examine long-term patterns of disadvantage (Gregory et al, 2000). These studies convey a very consistent message: the incidence of disadvantage in Britain is consistently highest in geographically peripheral regions, and especially in urban, metropolitan, and (post)industrial areas. However, although spatial inequalities are enduring, inequalities between places have widened further in the period since 1981. In this paper our principal concern is to understand how the geography of poverty has changed. We have combined four decades of census data with poverty survey data to estimate levels of poverty in a consistent way over time.

None of the questions included in recent censuses was intended to measure poverty directly, and the indicators used in existing studies should at best, therefore, be considered proxy measures. In the absence of income data, which have been consistently excluded from the UK census questionnaire, and will be excluded again in 2011, analysis of census data has focused upon the measurement of living conditions. Since deprivation is multifaceted, analyses of singular indicators of 'disadvantage' have rarely been sufficient and an alternative and influential approach has therefore focused upon developing various indices of deprivation using multiple indicators derived from

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administrative and/or census sources (eg Breadline, Carstairs, DETR Index of Multiple Deprivation, DoE Index of Local Conditions, Jarman, Townsend).

Although deprivation indices have been highly influential in shaping our understanding of the geography of poverty, their construction and validation have been subject to intense discussion as a result of considerable differences in the ranking of areas at a local level (eg Carstairs and Morris, 1991; Deas et al, 2003; Lee et al, 1995). Such disparities arise as a result both of differences in the conceptualisation of poverty and deprivation and in their empirical measurement.

Although definitional clarity is essential for accurate measurement, existing indices do not always proceed on the basis of an explicit theoretical model of poverty (eg Carstairs and Morris, 1989; DETR, 1998; Jarman, 1983; ODPM, 2003). Very rarely is the same theoretical model used for more than one point in time. We therefore begin by outlining a theoretical framework for understanding poverty from the perspective of relative deprivation that is applicable over many decades. Similarly, methodologies for deriving census weightings do not always reflect an accurate picture of the social profile of poverty vulnerability within the population it is intended to measure. This is certainly true when a methodology design for just one point in time is applied ten or twenty years later. To solve this problem we build on the approach developed by Gordon (1995), going on to propose a method for deriving longitudinally consistent small-area poverty estimates for the 1971-2001 period. We then present long-term trends in the spatial distribution of poverty for 1971, 1981, 1991, and 2001, on the basis of population-weighted cartograms and measures of spatial polarisation. We conclude by commenting on the changes these new methods have uncovered.

The theory and measurement of poverty

The 'rediscovery' of poverty from the 1960s onwards, associated with the work of Townsend (1974; 1979) and others, reflects the now widely accepted 'relative deprivation' understanding of poverty as exclusion from contemporary living patterns, customs, and activities arising from insufficient resources. Within this perspective, households are said to be poor when they have both a low income and a low standard of living relative to contemporary understandings of the 'necessities of life' (Gordon, 2007). Whilst this approach has been hugely influential worldwide, in Britain, surprisingly there have been only four nationally representative scientific surveys of poverty in the past fifty years which have focused explicitly on direct measurement of living standards (ie material and social deprivation). These were conducted in 1968/69 (Townsend, 1979), 1983 (Mack and Lansley, 1985), 1990 (Gordon and Pantazis, 1997), and 1999 (Gordon et al, 2000).

All four surveys were undertaken by academic researchers and were on a relatively small scale, involving samples of between 1500 and 2000 households. Despite the restricted sample sizes, the aforementioned surveys reflect a comparable relative deprivation approach to the definition and measurement of poverty, that is, relative to contemporary understandings of the 'necessities of life'. Through secondary analysis of these datasets it is therefore possible (for the first time) to derive theoretically consistent national estimates of poverty at the household level over the period 1968-99 based on low income combined with material and social deprivation.

Using a 'synthetic modelling' approach, it is also possible to examine the changing spatial distribution of poverty at a small-area level over this period by applying the resultant sample survey models to national census data for 1971 to 2001. Deriving census weights which reflect the real-world pattern of vulnerability to poverty at a household level is essential to accurate estimation at a small-area level. This can be done using the national poverty survey data, by estimating the multivariate odds of poverty and applying the resultant regression weights to British census data for 1971 (combined with the 1968/69 national poverty survey), 1981 (1983 survey), 1991 (1990 survey), and 2001 (1999 survey). This paper describes the methodology used to derive both theoretically consistent models of poverty as applied to 1971-2001 census data, and presents an overview of the findings relating to the extent and spatial distribution of poverty in Britain over this period. It establishes a method that can be scientifically repeated when the 2011 Census results are released during the year 2013.

Aims and methods

Here, we estimate two different models of poverty: breadline poverty and core poverty. The breadline index reflects a consensual approach to relative poverty measurement which, as discussed above, is now well established in mainstream poverty research. This approach defines deprivation with reference to contemporary public perceptions of those items and activities constituting the material and social 'necessities of life' within a given society (see eg Gordon and Pantazis, 1997; Gordon et al, 2000; Mack and Lansley, 1985; Pantazis et al, 2006). By applying the breadline methodology on a consistent basis to the above surveys, households can be identified as experiencing breadline poverty where they have both a low income and lack, because they cannot afford them, many of those items considered at each point in time (ie in 1968/69, 1983, 1990, and 1999) by a majority of the British public to constitute contemporary necessities of life.

The breadline approach therefore allows for change over time in the public's perceptions of the necessities of life which occur as a result of rising overall living standards and cultural and technological change. This approach involves the construction of reliable, valid, and additive

deprivation indices for each of the four surveys, and the estimation of contemporary poverty thresholds which maximise the statistical fit between material and social deprivation and low income (Gordon, 2007). Using a logistic regression approach the socio-demographic predictors of poverty are then estimated and the resultant regression coefficients are applied to census small-area statistics.

Census-output geography has changed for each census since 1971, making longitudinal comparisons for consistent boundaries difficult or impossible. Here, we therefore apply census-tract geography which has been specifically designed to facilitate longitudinal analysis, with areal units ranging in size between around 5000 and 38 000 households in 2001 (mean 18 600) (see Dorling, 1994; Dorling and Pritchard, 2010).

In contrast, the 'core poverty' model is derived theoretically drawing upon Bradshaw's (1972a; 1972b; 1994) 'taxonomy of need'. Within this perspective, people are said to experience a combination of 'normative', 'felt', and 'comparative' poverty - for example, where people are simultaneously income poor, deprivation poor, and subjectively poor (see Bradshaw and Finch, 2003). The concept of 'core poverty' is therefore applied here to describe households which are simultaneously income poor, deprivation poor and subjectively poor. Income-poor households are those with a net weekly household income less than 70% of the contemporary equivalised household median - this is the income threshold used by the UK government to officially measure child poverty when combining low income and material deprivation. This income threshold is laid down in statute in paragraph 4(2) of the Child Poverty Act 2010.¹

Following Whelan et al's (2001) analysis, households are identified as 'deprivation poor' where they lack any items comprising the Basic Deprivation Index.² Households are therefore defined as experiencing 'core poverty' if they have a low income *and* they are basic deprivation poor *and* they also consider their household to be genuinely poor 'sometimes' or 'all the time' (ie they are subjectively poor). Since the selected deprivation items are the same for each time period, they define an 'absolute' deprivation threshold. As such, we might expect a decline over time in the number of households experiencing core poverty assuming a general (and equitably distributed) increase in living standards.

¹ http://www.opsi.gov.uk/acts/acts2010/ukpga_2010000g_en_2#pt1-pb1-11g4

² These are: in arrears on rent/mortgage, utilities, or hire purchase; buys second-hand, not new, clothes; cannot afford meat, chicken, or fish every second day; cannot afford to keep home adequately warm; cannot afford to replace worn out furniture; cannot afford one week's annual holiday away from home; cannot afford to have friends/family for a meal once a month. Whelan et al (2001) use 'inability to afford to replace worn out furniture'. This variable is not available in the 1968/69 and 1983 poverty surveys, and is replaced with 'Cannot afford chairs for household residents' and 'Cannot afford carpets in living areas', respectively.

In order to facilitate longitudinally consistent measurement of both breadline and core poverty, survey definitions and measures need to be harmonised across time (ie between national poverty surveys), and between data sources (ie between sample surveys and decennial census returns). This is in itself a nontrivial exercise, but also means that the changing geography of poverty described here is constrained by the suitability of census indicators as predictors of poverty vulnerability. Alongside harmonisation of indicators, the survey data themselves must also be reweighted to reflect the population distribution within the relevant census decennial data to which the model weights will subsequently be applied. This can be achieved through poststratification weighting for key demographic variables (in this case: age group, tenure, sex). This is done in order to ensure that survey data are representative of the social distribution of the British population for the relevant census period.

An ideal deprivation index should be preference free, valid, reliable, and genuinely additive (Gordon, 1995), as described below. The construction of such indices is a complex process. The remainder of this section describes the construction of the 'breadline deprivation index' as applied to the national poverty surveys, before going on to describe the construction of breadline deprivation indices in general, the estimation of breadline poverty thresholds, and the application of the resulting models of both breadline and core poverty to national census data.

Defining breadline deprivation indices

Firstly, items to be included in a breadline definition should be defensible on the grounds that the components are items that most people would be unlikely to want to do without (preference free). Within the 'consensual' approach to poverty measurement only items that a majority of the population view as necessities of life are considered as potential deprivation indicators, and households are considered 'deprived' only where they lack items because they cannot afford them rather than through choice. The 1968/69 Townsend survey does not contain data on whether households lack items through choice or because they cannot afford them and, in the absence of such data, only items lacked by a minority of households in 1968/69 were included. Whilst there is some evidence of age variations in public perceptions of necessities within the 1999 survey, which may reflect changing cultural differences and tastes, the general pattern is of a high degree of consistency between social groups in perceptions of what constitute the necessities of life: for example, with regard to gender, social class, and poverty status (Pantazis et al, 2006).

Secondly, the construct validity of the items can be established by determining the extent to which experimental measures correlate with some criterion measure whose validity is known and accepted. This can be done by calculating the relative odds ratios for the index components

against established correlates of deprivation whilst controlling for other known covariates. Here, the following established covariates of deprivation were used to validate the indicators, using logistic regression and ANOVA: limiting illness/general health; subjective poverty/income adequacy; and household equivalised income.

Thirdly, the internal consistency (reliability) of the index and its components can be established statistically using classical measurement theory. Here, reliability analysis is conducted iteratively to select the most reliable subset of indicators for each national poverty survey dataset. Finally, it is important that index components are additive: for example, we should expect that households who lack both central heating and a car are poorer than those who lack only one of these items. To establish additivity, we estimate ANOVA (analysis of variance) main effects and produce interaction plots for deprivation items against equivalised household income. For each pair of items, respondents who lack both items should have significantly lower incomes than those who lack only one item or none.

Tables A1 and A2 (appendix) describe the final harmonised deprivation indicators for the four surveys. Table A1 shows public perceptions of the necessities of life and the proportion of households lacking these items in 1968/69, 1983, 1990, and 1999. Rising overall standards of living are reflected in a declining prevalence for virtually all selected deprivation indicators over the 1968-99 period. However, as items become more widely available, public perceptions of what constitute the 'necessities of life' change to encompass a far wider range of goods, services, and activities. As predicted by the relative theory of poverty, public perceptions of the 'necessities of life' closely reflect the activities and styles of living widely available to the British population at the time.

Table A2 shows the items deleted from the deprivation indices for 1968/69, 1983, 1990, and 1999 with regard to criteria proposed by Gordon (1995), namely: public acceptability, construct validity, scale reliability and additivity. Many items (eg car, dressing-gown, fortnightly night out) consistently lack public acceptability (ie are not considered necessities of life by a representative majority of the general public), and were therefore excluded although, as noted above, the increasing public acceptability of some items (eg telephone, heating, best outfit) reflects their growing availability. Many other items (eg indoor toilet, bath/shower, television, beds for everyone) are now so widely available that their absence is no longer clearly associated with poverty (ie they lack validity), and where they remain valid indicators their inclusion in any case adds little to the precision of deprivation indices (ie they lack reliability). A number of further items (eg three pints of milk per person per week; cooked meals every day; medicines from GP) were excluded because their combination with other deprivation items is not associated with significantly lower mean household equivalised incomes (ie they lack

additivity). Table A3 summarises the indicators selected for inclusion within the models of breadline and core poverty for 1968/69, 1983, 1990, and 1999.

Estimating breadline poverty thresholds

Within the breadline approach, households are considered poor where they are both income poor and lack the necessities of life according to the prevailing standards of the time. Determining optimal deprivation thresholds for the national poverty surveys is therefore of critical importance. Crucially, this involves establishing the level of income below which the incidence of deprivation begins to increase disproportionately (Townsend, 1979). The relationship between household income and deprivation can therefore be modelled formally, using ANOVA and logistic regression techniques which maximise the covariation between variables on the basis of the goodness-of-fit statistics (F -ratio and model X^2 respectively) (see Gordon, 2007). Households are defined as poor where they report both high (above threshold) levels of deprivation *and* have household incomes less than the mean of nondeprived respondent households.³ In line with best practice in income measurement (Rio Group, 2006), estimates are based upon equivalised household incomes, which adjust income by need based upon household size and composition in order to allow for economies of scale.

Here we model the statistical fit between Poverty and Social Exclusion Survey (PSE) equivalised household income and various binary deprivation index thresholds (ie 1+ item, 2+ items, etc) controlling for household composition using ANOVA and logistic regression techniques.⁴ Table A4 presents goodness-of-fit statistics based upon one-way ANOVA (F -ratio) and logistic regression (model X^2) for different deprivation thresholds in order to identify optimal thresholds for the 1968/69, 1983, 1990, and 1999 indices. For example, the optimal deprivation thresholds with regard to the 1990 and 1999 surveys are 3+ items and 2+ items, respectively.

Deriving weightings for census deprivation indices

Based upon the above approach, we estimate the multivariate odds of poverty using harmonised variables common to the poverty surveys and the relevant census, and subsequently apply the model(s) to British census data at a variety of spatial scales. Our dependent variables are:

- core poor: household income less than 70% of equivalised median *and* deprivation poor (Basic Deprivation Index) *and* subjectively

³ The contemporary weekly equivalised household income thresholds for the nondeprived group were £104 (1968/69), £170 (1983), £205 (1990), and £365 (1999).

⁴ Whilst most researchers agree that income adequacy should take account of variation in household size and composition, there is little consensus upon the most appropriate weighting scheme. Here, we adopt the income-equivalisation methodology adopted within the 1999 PSE; for further details see Gordon et al (2000) and Gordon (2006).

- poor 'sometimes' or 'all the time'
- breadline poor: deprivation poor (Breadline Index) *and* low PSE-equivalised household income

With the aid of a logistic regression approach (described further below), the estimated number of poor households in any census areal unit based upon these models can be expressed as an additive function of the model coefficients (see Gordon, 1995). As applied to GB census headcounts for the relevant variables (N), the number of poor households (N_{poor}) is a function of the sum of the model regression coefficients ($\beta_{i\dots i}$). Since the models do not provide a perfect fit with the observed data, they will not correctly classify all cases. The model estimates will usually undercount the actual incidence of poverty, and the regression coefficients must therefore be adjusted by applying a suitable correction factor (w) so that the predicted census estimates match the actual estimates based upon the survey frequencies. The number of poor households in any given area is therefore:

$$N_{\text{poor}} = \sum \left(\frac{\beta_{i\dots i}}{10} wN \right)$$

Results

The extent of breadline and core poverty

Whilst our main focus here is on the changing spatial distribution of poverty at a small-area level, it is important first to examine the characteristics of the synthetic models of breadline and core poverty upon which these data are based. Table 1 shows trends over the 1971-2001 period in estimates of breadline and core poverty and disaggregates these data by household type, tenure, occupational class, and economic status. Table 1 shows that during the 1970s, levels of breadline and core poverty both dropped at fairly similar rates, declining by around a third over the decade. During the 1980s, breadline and core poverty increased substantially, effectively reversing the improvements seen in the previous decade. During the 1990s, breadline poverty rates continued to rise, reaching an unprecedented 28% of households, whilst the proportion of households experiencing core poverty actually dropped to levels similar to those of 1981.

In understanding these overall trends it is instructive to examine the changing pattern of social vulnerability to poverty - for example, with regard to household type, tenure, occupational class, and economic status - as illustrated in Table 1. During the 1970s the proportion of single pensioners living in poverty declined dramatically and, despite a general decline in levels of poverty, breadline and especially core poverty became more concentrated amongst semiskilled/unskilled occupational groups. The 1980s and 1990s witnessed rising rates of poverty but this trend was

especially dramatic amongst single parents (with nearly 70% classified as breadline poor by 2001), and to a lesser extent amongst couples with children. In the 1980s and 1990s, residential tenure became increasingly important, with the 1980s witnessing a significant concentration of poverty amongst council tenants [perhaps as a result of council house sales (see Forrest et al, 1996)]. In the 1990s, breadline poverty rates amongst both social and private rental tenants increased dramatically, which is now believed to be partly as a result of declining housing affordability in the private housing market, the reduced availability of social rental provision and the 'residualisation' of council housing provision. In general, analysis of the nonparametric associations (Cramer's V) presented in table 1 suggests that socioeconomic factors (eg occupational class, employment status) were of greater significance in the 1970s and 1980s, and that housing tenure assumed increasing importance in the 1980s and beyond.

Table 1. Breadline and core poverty (%) by household type, tenure, occupational class, and employment status, 1968-1999.

		Breadline poverty				Core poverty			
		1971	1981	1991	2001	1971	1981	1991	2001
Household type	single pensioner	58	11	29	32	38	10	17	10
	single working age	36	21	24	33	13	10	12	15
	single parent	32	35	62	70	25	42	55	46
	couple, no dep children	23	6	11	16	14	4	7	7
	couple with dep children	15	18	21	26	17	14	12	10
	other	21	16	21	26	16	10	18	7
	<i>Cramer's V</i>	.29	.18	.26	.28	.19	.21	.28	.30
Tenure	owner-occupier	14	7	9	17	12	6	5	4
	LA/HA rental	41	22	48	39	22	17	34	17
	private rental	37	20	28	63	29	5	20	35
	<i>Cramer's V</i>	.28	.21	.43	.40	.19	.17	.36	.38
Occupational class of HRP	non-manual	16	7	7	19	11	16	4	4
	skilled manual	31	13	14	28	23	33	5	13
	semi/unskilled	43	43	40	39	32	51	30	18
	<i>Cramer's V</i>	.25	.33	.37	.19	.21	.39	.36	.18
Employment status of HRP	in work	18	7	13	19	12	3	6	5
	unemployed	[]	43	57	[]	38	39	49	[]
	inactive	45	13	26	18	32	9	18	37
	<i>Cramer's V</i>	.27	.33	.33	.25	.23	.39	.38	.32
ALL	24.9	13.8	21.4	28.2	17.7	9.9	14.1	11.6	

KEY: All Cramer's V statistics significant at .001 level. '[]' Insufficient data to provide reliable estimates. Survey data (in brackets) are re-weighted to census data for: 1971 (1968/9); 1981 (1983); 1991 (1990), and; 2001 (1999).

Table 2. The multivariate odds of breadline poverty regression coefficients and derived census weights, 1968-99.

1971 (n=1,759)	exp(β)	weight	1981 (n=1,168)	exp(β)	weight
Shares use of bath/shower	4.04	.172	Shares use of bath/shower	8.94	.279
No access to a car	7.35	.246	Shares accomodation	6.34	.235
Council tenant	1.90	.079	No access to a car	2.57	.121
Private rental tenant	3.10	.139	Council/HA tenant	3.01	.141
Manual SEG (HRP)	1.66	.062	Private rental tenant	2.15	.098
Overcrowded household	2.13	.093	Unemployed household (HRP)	3.17	.147
Single pensioner household	3.09	.139	3+ dependent children in household	2.71	.127
Pensioner couple household	1.58	.057			
<i>Nagelkerke R Sq.</i>		.411	<i>Nagelkerke R Sq.</i>		.256
<i>% correctly classified</i>		80.8	<i>% correctly classified</i>		87.4
1991 (n=1,389)	exp(β)	weight	2001 (n=1,532)	exp(β)	weight
Single parent household	3.80	.222	Unemployed household (HRP)	2.75	.211
Semi/unskilled manual (HRP)	2.73	.167	Single parent household	3.66	.271
Not owner occupier	3.07	.187	Limiting long term illness	2.17	.161
No access to a car	4.63	.255	No access to a car	2.20	.164
3+ dependent children in household	2.24	.134	Council/HA tenant	3.95	.286
Unemployed household (HRP)	2.65	.162	Private rental tenant	1.86	.130
Single pensioner household	1.72	.090	Overcrowded household	8.06	.435
			Semi/routine NS-Sec (HRP)	1.42	.072
			No central heating/ shared amenities	1.69	.109
<i>Nagelkerke R Sq.</i>		.396	<i>Nagelkerke R Sq.</i>		.304
<i>% correctly classified</i>		85.2	<i>% correctly classified</i>		78.1

KEY: Estimates are logistic regression odds ratios (exp[B]) based upon backward stepwise estimation (likelihood ratio method). All model coefficients significant at .001 level.

The 1980s and 1990s witnessed rising rates of poverty but this trend was Based upon logistic regression, Tables 2 and 3 present multivariate estimates of the odds of experiencing breadline and core poverty for a series of harmonised variables used to predict the incidence of poverty. For each census period, the models identify the best-fitting subset of predictor variables based upon backward stepwise selection. Table 2 shows the multivariate odds (exp β) of breadline poverty for each variable included in the final model (ie taking into account the intercorrelations between predictors themselves). For example, in 1971 private rental tenants are predicted to be more than three times as likely (1: 3.1) to experience breadline poverty in comparison with nonprivate rental tenants. Similarly, in 1971 private rental tenants are predicted to be twice as likely (1: 2.0) to experience core poverty in comparison with nonprivate rental tenants. As expected, the best predictors of poverty change over time, as a reflection of the changing pattern of poverty vulnerability illustrated in Table 1 (eg with regard to indicators such as single pensioner, pensioner couple, and single parent).

Table 3. The multivariate odds of core poverty regression coefficients and derived census weights, 1968-99.

1971 (n=1,759)	exp(β)	wt	1981 (n=1,168)	exp(β)	wt
Shares use of bath/shower	1.54	.070	Shares use of bath/shower	1.29	.127
No access to a car	2.43	.143	No access to a car	0.78	.077
Private rental tenant	1.99	.111	Council/HA tenant	0.94	.093
Manual SEG (HRP)	1.94	.107	Unemployed household (HRP)	1.62	.160
Single pensioner household	2.55	.151	Single parent household	1.66	.164
Pensioner couple household	1.52	.068	3+ dependent children in household	1.18	.117
<i>Nagelkerke R Sq.</i>		.173	<i>Nagelkerke R Sq.</i>		.229
<i>% correctly classified</i>		82.9	<i>% correctly classified</i>		91.3
1991 (n=1,389)	exp(β)	weight	2001 (n=1,532)	exp(β)	weight
Single parent household	5.01	.197	Unemployed household (HRP)	3.49	.074
Semi/unskilled manual (HRP)	3.79	.163	Single parent household	5.57	.101
Not owner occupier	2.06	.088	Limiting long term illness	3.09	.067
No access to a car	3.89	.166	No access to a car	1.59	.027
3+ dependent children in household	2.18	.095	Council/HA tenant	5.26	.098
Unemployed household (HRP)	3.69	.160	Private rental tenant	3.34	.071
Single pensioner household	1.65	.061	Overcrowded household	1.90	.038
			Semi/routine NS-Sec (HRP)	16.31	.165
			No central heating/shared amenities	2.04	.042
<i>Nagelkerke R Sq.</i>		.389	<i>Nagelkerke R Sq.</i>		.362
<i>% correctly classified</i>		90.4	<i>% correctly classified</i>		90.3

KEY: Estimates are logistic regression odds ratios (exp[B]) based upon backward stepwise estimation (likelihood ratio method). All model coefficients significant at .001 level.

The regression models correctly classify between 78.1% and 91.3% of cases, with observed 'hit rates' (correct classifications) well in excess of the proportional by chance (PC) criterion and in most cases also in excess of the proportional reduction in error criterion (see Hosmer and Lemeshow, 2000). Nevertheless, even using the best subset of census indicators available, error rates of between approximately 1 in 5 and 1 in 10 remain as a result of the limitations of existing census indicators in predicting poverty, with substantial variations evident across datasets, over time, and between measures (sadly, no better questions are being added to the 2011 Census form which will, instead, ask many new questions about nationality and immigration status). In general, however, whilst the core poverty models perform better in accurately classifying respondents in comparison with breadline poverty models, this largely reflects the more unequal distribution of the former variable. Based upon the PC criterion, the breadline poverty models outperform the core poverty models for each period, and the overall model 'fit' as indicated by quasi-R² values is better for the breadline measure for every period with the exception of 2001.

The geography of breadline and core poverty

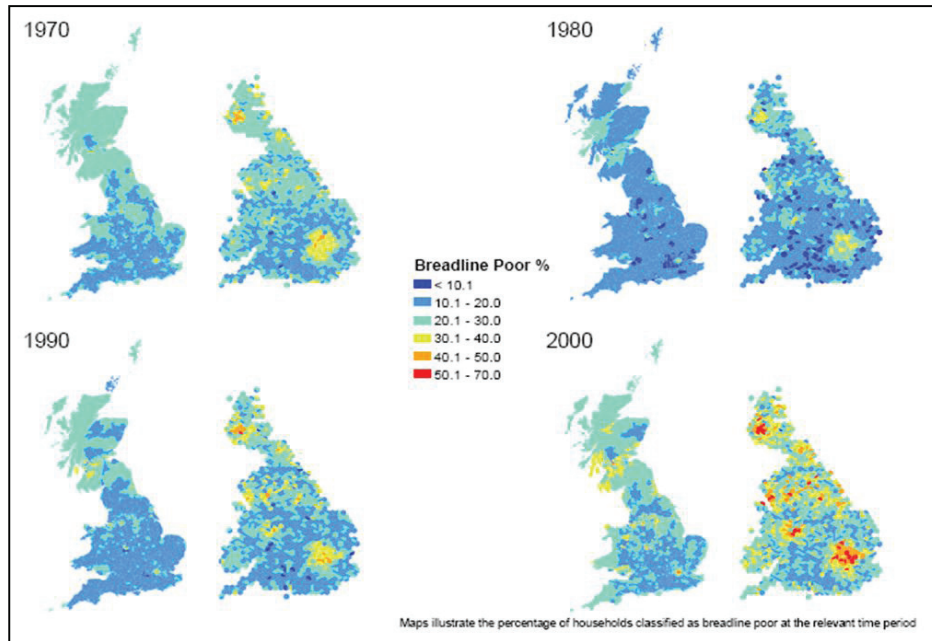
Methodological rigour is necessary, but our main concern in this paper is with the changing spatial distribution of poverty. Here we find that social polarisation declined during the 1970s, prior to a period of further significant growth in the spatial concentration of poverty at the small-area level in Britain in the 1980s. During the 1990s breadline poverty continued to become both more spatially concentrated and more widespread whereas the reverse is true with respect to core poverty. This is illustrated in Figures 1 and 2 which describe the changing geography of poverty in Britain resulting from the use of a universal data mapping approach in which each tract is proportional in area to its population, whilst seeking to keep adjacent units together (see Thomas et al, 2009). Whilst this distorts the traditional cartographic projection of Britain, it gives a much clearer picture of urban poverty. Since tracts are roughly proportionate in size to their populations, the cartogram is also a more 'democratic' view of population geography, effectively according each person the same space on the map.

Figures 1 and 2 show the changing spatial distribution of breadline and core poverty over the 1971-2001 period by applying the models derived from the (re-weighted) national poverty survey data for 1968/69, 1983, 1990, and 1999 to the relevant decennial census tract data. Figure 1 shows that breadline poverty rates generally vary between about 10% and 30%, with higher rates tending to be found in the north of England, Wales and Scotland. Rates of over 30% are only found in inner London, in the cities of the North and West Midlands, in Scotland (especially Glasgow), and in the valleys of South Wales. By 1981, poverty levels had decreased almost everywhere, with high-level pockets remaining in inner London, Glasgow, and some cities of northern England. Areas with poverty levels below 10% are now much more prevalent than in 1971. This trend is reversed during the 1980s, with the map for 1991 resembling that for 1971, with even higher levels evident in places like Glasgow, the West Midlands, and many northern cities. The trend of the 1980s continues through the 1990s, with the map for 2001 showing levels above 50% in a number of cities, and no areas remain with rates below 10%.

As Figure 2 shows, the changing geography of core poverty over the 1971-2001 period is quite similar to that of breadline poverty up to 1991. Although the overall incidence of core poverty is considerably lower than that of breadline poverty, it is again primarily concentrated in (post)industrial areas and the major urban conurbations, including the industrial conurbations of south Lancashire, Liverpool, Manchester and West Yorkshire, in the South Wales valleys, in the West Midlands, and in the central belt of Scotland. However, after 1991, and unlike breadline poverty, core poverty levels decline in many areas, though less so in (post)industrial and metropolitan areas including Glasgow, the North, the West Midlands, and London. Moreover, although overall levels of core

poverty declined somewhat over the 1970 (17.7%) to 1990 (14.1%) period, the geography of core poverty has changed strikingly, with the urban clustering of core poverty being much more pronounced in the later census periods, especially for inner-city areas.

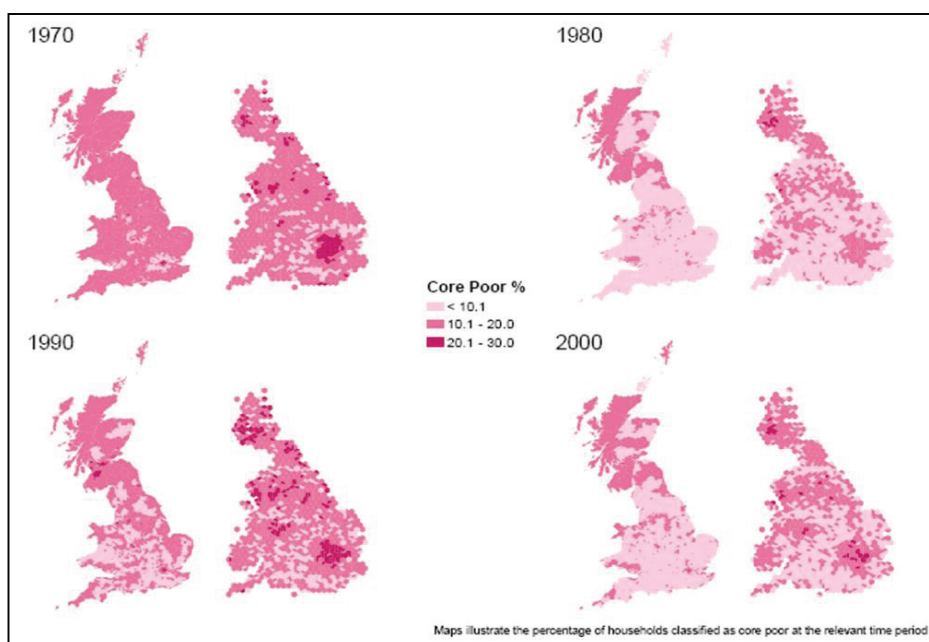
Figure 1. The changing geography of breadline poverty, (a) 1970, (b) 1980, (c) 1990, (d) 2000.



Note: Based upon synthetic estimates derived from national poverty surveys conducted in 1968/69, 1983, 1990, and 1999. Survey data reweighted to census distribution for 1971, 1981, 1991, and 2001, respectively.

The general concentration of poverty in urban and (post)industrial areas is corroborated by other studies examining the spatial distribution of poverty and other indicators of disadvantage (see eg Champion et al, 1987; Dorling and Thomas, 2004; Gordon and Forrest, 1995; Green, 1995; Philo, 1995; Robson et al, 1995). Whilst based upon different methods, datasets, time periods, and geographies, they collectively draw attention to the ways in which the distribution of poverty reflects *spatial* processes of economic marginalisation. Poverty rates are highest in areas experiencing deindustrialisation as a result of the decline of traditional extractive, primary, and manufacturing industries in the major cities and urban conurbations, including inner London, the South Wales valleys, the West Midlands, the North West, the West Riding, Tyneside, and Glasgow. Based upon consistent definitions, methods, and geographies, these data confirm the spatial segregation of these 'poor areas' and also suggest that, unlike the 1970s, processes of spatial polarisation in poverty became more pronounced during the 1980s and 1990s.

Figure 2. The changing geography of 'core poverty', (a) 1970, (b) 1980, (c) 1990, (d) 2000.



Note: Based upon synthetic estimates derived from national poverty surveys conducted in 1968/69, 1983, 1990 and 1999. Survey data reweighted to census distribution for 1971, 1981, 1991, and 2001, respectively.

Poverty and spatial polarisation

Whilst changing headline rates and their social distribution are worthy objects of study in themselves, what these data tell us about the widening socioeconomic gap in living standards between areas is perhaps of greater policy significance. In order to assess the changing degree of polarisation, we replicate a method developed by Dorling and Woodward (1996). Here, we examine the poverty trajectories of census tracts by studying their movement over the 1971-2001 period between fourteen categories defined as proportions relative to two fixed and essentially arbitrary thresholds: breadline poverty (BP)-20%; and core poverty-10%. Table 4 describes the changing distribution of the population between census tracts for each decennial census interval, as well as across the 1971-2001 period as a whole. Positive values in the upper half of the table indicate an increase in the number of households living in relatively affluent tracts. Similarly, positive values in the lower half of the table indicate an increase in the number of households living in poorer tracts. For example, with regard to breadline poverty, Table 4 shows that from 1971 to 1981, the proportion of the British population living in tracts where less than 10% of households were breadline poor increased by about 7%, and the proportion of households living in areas with breadline poverty rates in excess of 20% declined in all cases. Similarly, Table 4 shows that during the 1991-2001 period, the proportion of the population living in

tracts where between 15% and 20% of households were classified as experiencing core poverty declined by around 18%.

As Table 4 illustrates, overall trends with regard to breadline poverty suggest that during the 1970s British households became much less concentrated in areas of high poverty, but that this process was reversed during the 1980s and 1990s with an increasing concentration of British households in 'poor places'. Over the 1971-2001 period as a whole, Table 4 suggests an increasing concentration of households in areas with breadline poverty rates in excess of 30% (ie BP > 1.5): worse-off British households have become increasingly concentrated in enclaves of high breadline poverty. With respect to core poverty, a broadly similar trend is evident during the 1970s and 1980s with a declining concentration of households in areas of high poverty in the 1970s and an equally striking reversal of this trend towards greater social -spatial equality during the 1980s.

Table 4. Change in the proportion of households living in population tracts by breadline poverty (BP) and core poverty (CP) rate, 1971 -2001 (%).

Proportion of threshold value:		1970s		1980s		1990s		1971-2001	
		BP	CP	BP	CP	BP	CP	BP	CP
<i>Less poor</i>	Up to 0.5	7.6	2.5	-6.8	-2.6	-1.1	0.1	-0.2	0.0
	.50 - .67	18.9	16.3	-14.2	-16.2	-8.9	4.4	-4.2	4.4
	.67 - .71	5.1	6.6	-0.9	-6.1	-4.8	2.8	-0.5	3.4
	.71 - .77	4.1	6.3	-2.7	-6.6	-3.8	6.4	-2.3	6.2
	.77 - .83	1.3	5.5	1.6	-4.8	-4.4	3.4	-1.4	4.1
	.83 - .91	-0.9	4.7	-0.2	-2.1	-0.7	4.8	-1.7	7.3
	.91 - 1.0	-2.0	3.0	0.8	0.5	-1.6	1.2	-2.8	4.7
	1.0 - 1.1	-6.6	2.1	1.6	-1.0	-0.2	2.5	-5.3	3.6
	1.1 - 1.2	-6.3	-2.4	3.4	1.0	-0.5	1.3	-3.4	-0.1
	1.2 - 1.3	-5.1	-6.1	2.2	1.6	1.9	1.2	-1.0	-3.3
1.3 - 1.4	-5.9	-7.3	4.4	1.5	0.7	-1.0	-0.9	-6.8	
1.4 - 1.5	-3.5	-8.9	1.5	5.4	5.0	-3.0	3.0	-6.6	
<i>More poor</i>	1.5 - 2.0	-5.9	-16.1	7.7	17.9	10.2	-14.4	12.0	-12.6
	2.0+	-0.9	-6.2	1.6	11.5	8.1	-9.6	8.9	-4.4

KEY: 'BP' Breadline Poverty: threshold value=20%. 'CP' Core Poverty: threshold value=10%. E.g. Values for BP bin category 2.0+ indicate the change in proportion of households living in tracts with Breadline Poverty rates in excess of 40%.

However, Table 4 also shows that during the 1990s there are divergent trends with regard to the profile of breadline and core poverty. Whereas British households became more concentrated in poor areas with regard to breadline poverty (continuing a trend first observed in the 1980s for both measures), of core poverty there is a decline in the concentration of households in poor areas. This is also reflected in divergent trends across

the period of observation as a whole for breadline and core poverty. Over the 1971-2001 period, British households have become more concentrated in areas of high breadline poverty (ie areas with breadline poverty scores in excess of 30%). At the same time, and although the magnitude of overall change is much smaller, households appear to be less concentrated in areas of high core poverty (ie areas with core poverty scores in excess of 15%).

Discussion

How then should we explain these apparently divergent trends in breadline and core poverty since 1991? Do these trends reflect real underlying changes in the incidence and distribution of poverty defined in various ways, or is this apparent divergence since 1991 merely artefactual? Analysis of the survey data upon which these models are based demonstrates a substantial overlap between breadline and core poverty classifications and, since the incidence of core poverty is much less prevalent at every time point than breadline poverty, it may be that core poverty taps 'extreme poverty' as opposed to the broader conceptualisation reflected in the breadline index. Certainly, this is the general interpretation accorded to core poverty by Whelan et al (2001) in their original operationalisation of this concept. Indeed, analysis of chronic and persistent poverty using a comparable methodology is suggestive of such a decline (Gordon et al, 2000). It could be, therefore, that whilst poverty has become more widespread during the 1990s, extreme poverty may have simultaneously become less prevalent.

Alternatively, this divergence may reflect more basic differences in the definition and measurement of poverty. We have seen that core poverty measurement is based upon a set of deprivation indicators which are time invariant. Given rising levels of affluence across the period as a whole, we would therefore expect to find a corresponding general decline in core poverty and in general this conclusion is corroborated by these results. Thus, core poverty declined dramatically in the 1970s and again to a lesser extent in the 1990s. The exception here is the 1980s, when poverty levels rose so dramatically that even absolute indicators record an increase (though of a much smaller magnitude than is the case for breadline poverty). In contrast, the breadline index is based upon a relative concept in which poverty is understood as an enforced lack of socially perceived necessities-necessities which by definition are subject to change across time (see eg Gordon, 2007; Townsend, 1974; 1979; 1987). Whilst the breadline indices presented here are conceptually and methodologically consistent over time this does not therefore imply adoption of a common set of deprivation items. Indeed, since the public's perceptions of the 'necessities of life' change over time, this should be reflected in poverty measurement. On this basis, we argue here that breadline poverty represents the best available approach to the definition and measurement of poverty, the adequacy of which can be formally assessed on the basis of established criteria of validity, reliability

and additivity as discussed above. Research comparing different small-area deprivation indices has reached broadly similar conclusions (eg Lee et al, 1995). However, in times of great and adverse social upheaval such as the early 1980s (and again perhaps today), the core poverty indicator can show when absolute rates of poverty are rising and where such poverty is concentrated.

What then are the substantive conclusions to be drawn from these analyses in explaining the increasing spatial concentration of breadline poverty over the 1971-2001 period? In terms of the overall concentration of breadline poverty, it may be that poorer populations have grown fastest in poor areas, replacing households not classified as breadline poor who have dissolved, left, or died. Alternatively, it could be that more affluent people have been moving out of poor areas and into more wealthy places, though clearly in both respects the underlying mechanisms are likely to vary from place to place. Certainly, earlier analysis of population trends across tracts since 1971 suggests that the poorest decile of census tracts in 1971 (according to the breadline poverty indicator) experienced a substantial decline in population losing approximately one fifth of their population by 2001 - with a corresponding growth in population in the most affluent (ie least poor) decile of census tracts over the same period. Much of the decline in the population of the poorest tracts in 1971 occurred during the 1970s, and to a lesser extent in the 1980s, perhaps suggesting a process of out-migration associated with the decline of traditional extractive and manufacturing industries (as well as higher mortality rates and reduced in-migration in these areas). Nevertheless, earlier analyses suggest that during the 1990s these areas have in fact experienced a modest population increase. This may reflect changes in the impacts of economic 'restructuring' arising from the 1990/91 recession which particularly affected the types of service sector employment more prevalent in relatively affluent areas concentrated in the southeast of England. At the same time, this may also partly reflect the demographic structure of poor areas, which tend to have younger populations such that losses due to deaths and out-migration may also be outweighed by birth and in-migration gains (see Dorling et al, 2007, pages 39-40, for further details).

Conclusions

In recent years an increasing interest in the spatial distribution of poverty has been facilitated by methodological developments associated with the applications of GIS approaches, better availability of suitable spatially referenced data at a small area level, and the growing prominence of area-based initiatives in tackling poverty in Britain and elsewhere. For the first time, it is possible to estimate the spatial distribution of poverty across time on the basis of consistent methods and indicators. That is what this paper demonstrates. Based upon such an approach, we conclude that the overall incidence of poverty at the household level has increased substantially over the 1971-2001 period in Britain, and that poverty has

also become increasingly spatially concentrated during this period. The former finding is very much corroborated by existing research into national trends in the distribution of income inequality and poverty at the household level (eg Brewer et al, 2006; Gordon, 2000; Sefton and Sutherland, 2005). Regrettably, much less work exists on the spatial consequences of these trends with regard to the geographical distribution of poverty and inequality in Britain, though existing research in this area is consistent with these findings (eg Dorling and Rees, 2003; see also Gibbons et al, 2005; Noble and Smith, 1996).

However, before considering the policy implications of these findings it is important also to acknowledge the limitations of this approach, and therefore the potential for further work in this area. Firstly, whilst it is clearly vital to describe accurately the changing spatial distribution as detailed above, it is equally important to explain such trends if we are to develop effective policies directed at eradicating poverty. In the absence of suitable panel data at the household level it is not possible to explain trends in the spatial distribution of poverty over this period definitively. One further extension of this approach may therefore be to take advantage of Census Longitudinal Study data in order to examine patterns of migration at the individual level. At the same time, the importance of local case studies and qualitative research should not be underestimated. Secondly, the modelling approach adopted here assumes that the relationship between poverty and the social-demographic predictors included here does not itself vary across space. For example, lack of access to a car is assumed to have the same relationship to poverty in inner London as in rural Wales. This assumption of spatial homogeneity is unlikely to be correct, and where suitable spatially referenced data are available more advanced approaches such as geographically weighted regression (eg Fotheringham et al, 2002), might be fruitfully applied to investigate and map local variations from the global models presented here.

Thirdly, it will also be instructive in future work not only to examine general trends in the spatial distribution of poverty but also to investigate in much greater detail, and on the basis of local knowledge and studies, spatial outliers within these data, that is, areas which have experienced atypical changes in poverty rates in comparison with 'global' trends across Britain as a whole. For example, what specific local factors and contingencies may help to explain the poverty trajectory of places which have managed to 'buck the trend' by recording lower than expected increases in poverty over time? Related to this point, the significance of place itself in shaping poverty trajectories (as opposed to generic area classifications) is a topic meriting much closer attention both within the research community, and in the development of local and national strategies for reducing inequalities.

What then are the implications of these findings for policies directed at tackling poverty and disadvantage? It is clear from these findings that increasing impoverishment of substantial sections of the British population is a process operating not only at an individual and household level, but is one associated with substantial changes in the prospects of places. It would be tempting to suggest, therefore, that a renewed emphasis upon area-based solutions to poverty is called for. However, the limitations of area-based approaches in tackling poverty have been well documented since Townsend's (1979) trenchant critique of this approach. In particular, despite the increasing spatial concentration of poverty over this period, the majority of poor households do not live in areas experiencing high concentrations of poverty. Equally, within these areas (and depending on the scale of analysis) it generally remains the case that a majority of household are not classified as poor. Moreover, the rationales offered for area-based measures frequently conflate compositional effects (associated with a concentration of poor households) with genuine neighbourhood effects (associated with the specific penalties attached to place) (Powell et al, 2001; see also Fieldhouse and Tye, 1996). Whilst targeted area-based interventions certainly have a role to play in tackling poverty (see eg Smith, 1999), the reform of mainstream policies and provision targeted at individuals and households is likely to be both a more effective and a more efficient strategy. Above all, the enduring nature of these trends suggests that radical policy solutions focused upon a sustained commitment to the redistribution of wealth (encompassing not only those at the bottom of society but also those at the top) will be necessary to reverse these trends (Dorling, 2010).

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Appendix

Table A1 the necessities of life and household deprivation in Britain, 1968-99.

	Necessities of life			Lack item			
	1983	1990	1999	1967/9	1983	1990	1999
Meat/fish (or veg equivalent) every other day	63	77	79	25	9	4	3
A roast meat joint or its equivalent	67	64	56	26	10	7	3
Two pairs of all weather shoes	78	74	64	3	10	5	5
A warm water-proof coat	87	91	85	33	8	4	4
Best outfit for special occasions	..	54	51	..	..	8	4
Appropriate clothes for job interviews	..	..	69	..	..	..	4
A decent state of decoration in the home	..	92	82	..	..	16	14
Two meals a day for adults	..	90	91	..	..	2	1
Medicines prescribed by doctor	..	..	90	..	..	..	1
Electricity for both power and lights	..	..	..	2	..	..	..
Replace or repair broken electrical goods	..	..	85	..	..	..	12
Replace worn out furniture	..	..	54	..	..	..	12
Heating to warm living areas of the home	97	97	94	5	7	3	1
Insurance of dwelling contents	..	88	79	..	..	11	8
Daily fresh fruit and vegetables	..	88	86	..	..	7	4
Fridge	77	92	89	45	[3]	1	<1
Radio	..	..	..	8	..	..	..
Dictionary	..	..	53	..	..	..	5
Telephone	43	56	71	[69]	..	7	1
Toys for children	71	84	84	..	..	1	<1

Leisure equipment for children	57	61	62	..	..	2	3
Bedrooms for every child over 10 of different sexes	77	82	80	..	[?]	2	3
Child's participation in out-of-school activities	..	69	..	..	..	3	2
Weekly outing for children	40	53	..	..	..	4	..
Children's friends round for tea once a week	37	52	59	15	..	2	4
Visits to school, e.g. sports day	..	..	81	..	..	..	2
Collect children from school	..	..	75	..	..	..	2
Regular savings for a "rainy day"	..	68	66	..	..	32	25
Washing machine	67	73	77	41	[7]	4	2
Vacuum cleaner	..	..	..	22	..	..	..
Carpets in living areas	70	78	67	8	4	2	3
Chairs for all plus guest	..	..	..	5	..	..	..
Home free of structural defects	-	-	-	22	-	-	-
Home free of structural defects dangerous to health	-	-	-	7	-	-	-
Celebrations on special occasions such as Xmas	69	74	83	18	5	4	2
Attending family events (weddings, funerals)	-	-	80	-	-	-	3
Visiting friends or family in hospital	-	-	92	-	-	-	3
Visits to friends or family	-	-	84	-	-	-	2
At least one evening/afternoon out in last two weeks	[36]	[42]	41	29	[19]	22	17
Had friend for dinner/snack at home in last four weeks	[32]	[37]	64	36	[13]	11	6
New not second hand clothes	64	65	50	-	7	5	6
Damp-free home	96	98	93	-	10	2	6
A hobby or leisure activity	64	67	78	-	7	8	7
A small amount of personal spending money	-	-	59	-	-	-	13
A week's annual holiday away from home	63	54	55	-	24	22	18
Presents for family once a year	63	69	56	-	7	6	3

KEY: [] Item included for comparison only but excluded from deprivation index. ‘..’ Data unavailable.

Table A2. Public acceptability, validity, reliability, and additivity: deleted deprivation items, 1968 -99.

	1967-9	1983	1990	1999
Television	validity	reliability	validity	reliability
Annual holiday away from home	acceptability	*	acceptability	acceptability
Beds for everyone in the household	..	reliability	validity	reliability
Dressing gown	..	acceptability	acceptability	acceptability
Night out once a fortnight	..	acceptability	acceptability	acceptability
Bath (not shared)	..	validity	validity	reliability
Car	..	acceptability	acceptability	acceptability
CD/record player	acceptability	..	..	acceptability
Dishwasher	..	..	acceptability	acceptability
Fares to visit friends 4 times a year	..	..	acceptability	acceptability
Freezer/fridge-freezer	..	reliability	..	additivity
Friends/family round for a meal monthly	..	acceptability	acceptability	*
Garden large enough to sit in	validity	validity	validity	..
Home computer	..	..	acceptability	acceptability
Indoor toilet (not shared)	..	validity	validity	..
New not second-hand clothes	additivity	*	*	acceptability
Packet of cigarettes every other day	..	acceptability	acceptability	..
Refrigerator	..	reliability	*	reliability
Restaurant meal monthly	..	..	acceptability	acceptability
Telephone	acceptability	acceptability	*	*
Video	..	..	acceptability	acceptability
Washing machine	..	reliability	*	reliability
Air not dirty, smoky, or foul smelling	reliability	..	..	..
Attending place of worship	..	..	..	acceptability
Best outfit for special occasions	..	acceptability	*	*
Cooked breakfast most days	acceptability	..	..	..
Cooked meal every day in last fortnight	additivity	..	..	..

Daily newspaper	..	..	..	acceptability
Electricity for both power and lights	validity	..	..	..
Heating to keep living areas warm	acceptability	*	*	*
Medicines prescribed by GP	..	..	..	additivity
Microwave oven	..	..	..	acceptability
Public transport for one's needs	..	validity	..	..
Self-contained accommodation	..	reliability	..	..
Three pints of milk per person per week	additivity	..	..	..
Tumble dryer	..	..	..	acceptability
Visiting pub once a fortnight	..	..	..	acceptability

KEY: ‘*’ Item included in final deprivation index. ‘.’ Item not included in dataset.

Table A3. Selected breadline deprivation index items, 1968 -99.

	1967-9		1983		1990		1999	
	<i>F</i>	<i>Chi Sq.</i>	<i>F</i>	<i>Chi Sq.</i>	<i>F</i>	<i>Chi Sq.</i>	<i>F</i>	<i>Chi Sq.</i>
1+ item	27.5	24.2	66.8	112.3	20.6	228.6	51.9	185.3
2+ items	113.6	94.0	48.5	98.2	26.7	255.8	70.3	241.3
3+ items	155.0	129.7	41.2	94.9	29.6	217.2	60.3	234.5
4+ items	160.5	149.1	40.1	87.6	15.9	172.9	56.3	221.2
5+ items	197.6	191.2	24.4	67.7	16.2	150.4	47.7	197.2
6+ items	162.2	157.1	16.7	59.8	9.3	136.1	36.3	150.8
7+ items	126.4	125.5	12.6	40.9	..	..	..	..
8+ items	71.5	76.1	..	..	..	..	..	..
N (items)	17		13		27		29	
Scale Alpha	0.723		0.837		0.863		0.883	

KEY: Logistic regression model (Chi Sq.): dependent= deprivation threshold; predictors= PSE income, adults (N), children (N). ANOVA model (F ratio): dependent=PSE income; predictors= deprivation threshold, adults (N), children (N). ‘.’ Not computed. **Bold** Selected ‘Breadline’ deprivation threshold

CHAPTER 30

PERFORMING HEALTH IN PLACE: THE HOLY WELL AS A THERAPEUTIC ASSEMBLAGE

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Introduction: The Holy Well as a Therapeutic Landscape.

‘Who says the well is holy? Why? If there is a fence, or a gate, or a covering over the well, who built them? Who has left these tokens, and how long ago? Are we trespassing? What is expected of us? Is this religion, or magic, or folk-medicine? Is it a Catholic devotion, or something older? Is it unique to Ireland? If this is an ancient site of worship, why are there ashtrays and broken china, canteen chairs and modern statues? Does the water have special properties? Is anyone in charge? If there are stories about the well, where are they written? Who is this saint whose name is attached to it? Should we have come on a special day? (Bourke, 2001: 7)

Holy wells exist as healing and spiritual sites across the globe and reflect wider cultural and phenomenological place connections to other forms of holy and healing waters like lakes and rivers (Bord and Bord, 1985; Rattue, 1995; Foley, 2010). In addition there are commonly found culture-nature expressions of the role of springs and sources as marking the boundaries between the human and spiritual underworlds (Shackley, 2001). Well settings are often framed by streams, stones and trees, which act as markers of a connection between the grounded earth and the sky, spiritual and imagined home of the gods (Jones and Cloke, 2002; Shaw and Francis, 2008).

As ‘hydro-therapeutic’ settings containing a combination of natural and built elements, there are approximately 3,000 holy wells currently dotted across the island of Ireland. While their pagan origins are debated (Rickard and O’Callaghan, 2001; Gerten, 2008), they contained elements of nature worship and hydrolatry which were subtly absorbed into early Christian place hagiography (Carroll, 1999; Logan, 1980; Healy, 2001). After a period of concentrated use between the mid 17th and mid 19th centuries, they fell out of favour after 1850 as a centralising church developed more formal sites to explicitly increase its own cultural power (Harbison, 1991). Yet they retain a presence and power in contemporary society and many of the associated performances and narratives of health have sustained and even recovered in place.

Materially, they range from literal holes in the ground to substantial landscaped sites with a mix of natural and culturally introduced elements. In general, the sites contain the wells themselves, streams, stone crosses and covers, paths, trees and bushes, altars and statues; all of which have physical form but wider symbolic meanings as well (Brenneman and Brenneman, 1995; Foley, 2010). All express Strang's (2004) notion of being 'typical and unique' across horizontal space and vertical time. Holy wells were also subject to deeper cultural and political scrutiny that shaped their dual roles as physical and spiritual curative sites. As geographical settings in which 'faith cures' were enacted, these in turn were interpreted and managed by a range of controlling agents (O'Cadhla, 2002). As sites of liminal behaviour and independent native identity, the gaze of controlling agents such as the Catholic Church and the ruling British colonial government was evident in different historic periods (Carroll, 1999).

Such settings can also be described as therapeutic landscapes, places that have achieved lasting reputations for providing physical, mental and spiritual healing (Kearns and Gesler, 1998). Initially focused on spas and pilgrimage sites, therapeutic landscape research has developed to include settings like gardens and wilderness, as well as formal health sites designed to induce wellness (Gesler, 1992, 1993, 1996 and 1998; Williams, 1999b; Williams, 2007). In seeing natural settings like wilderness as therapeutic, there are strong connections back to early humanist and phenomenological research on person-landscape interactions (Tuan, 1974; Wylie, 2007). These earlier studies also identified that phenomenological and imaginative responses to wilderness were often expressed as manifestations of the sacred, with the nature-religion link often expressed in therapeutic terms (Eliade, 1961; Graber; 1976).

Broad therapeutic landscape classifications have been developed by Gesler (1993) and Williams (1999a) with the latter hinting at a more experiential dimension. A specific definition by Gesler noted that therapeutic landscapes consisted of two key psycho-cultural components:

'Inner/meaning (including the natural setting, the built environment, sense of place, symbolic landscapes, and everyday activities) and Outer/societal context (including beliefs and philosophies, social relations and/or inequalities, and territoriality)' (Gesler, 1993: 173).

How the 'inner/meanings' of such therapeutic spaces are negotiated against their 'outer/contexts' is at the heart of understanding their healing potential and cultural meanings in health terms. How individuals experience healing in place can be studied in a number of different settings, many of which are associated with water (Gesler, 1998). Some watering-places, such as modern spas, have identities of mind-body-spirit

health, linked to a range of new age treatments and contemplative spiritualities (Shaw and Francis, 2008; Foley, 2010). Yet it is an older form, the holy well, which provides a valuable setting to conceptualise more fully a broad range of health performances, enacted within a therapeutic space.

The performative turn and therapeutic space

Current theoretical discussions in cultural and health geographies suggest that the holy well has potential as a valuable representative place within which to study performances of health (Jackson, 1989; Kearns and Moon, 2002). Recent critical discussions on the nature of therapeutic spaces recast them as sites of therapeutic potential (Conradson, 2005). One cannot assume a fixed therapeutic meaning or outcome associated with an individual setting and at times, outcomes may even be anti-therapeutic (Collins and Kearns, 2007; Conradson, 2007; Lea, 2008; Dunkley, 2009). In this contested view, Conradson (2005) suggests that the 'therapeutic landscape experience' can be viewed as a relational outcome:

'In these nuanced interpretations, particular landscapes are found to be not intrinsically healthy or unhealthy; rather they may be used, experienced and perceived differently by different people ... In general terms, a therapeutic landscape experience might then be understood – from a human point of view – as a positive physiological and psychological outcome deriving from a person's imbrications within a particular socio-natural material setting' (Conradson, 2005: 339).

This interest in imbrication suggests a material and experiential presence and practice in such settings wherein individuals can potentially derive physical, mental and spiritual benefits. Yet these imbrications occur in therapeutic settings that are externally affected by wider material cultures and economies that shape their production and meaning.

From recent theoretical debates within cultural geography, discussions around the 'performative turn', framed by phenomenology but developed through post-phenomenological approaches like non-representational theory (NRT) can also be aligned with critical therapeutic landscapes research (Rose and Wylie, 2006; Lorimer, 2006; Anderson, 2010). Early phenomenological research was important in suggesting landscapes as experientially 'lived in', where a 'sense of place' and crucially, well-being, were central (Tuan, 1974; Wylie, 2007). Performative connections were also drawn from the work of Ingold (2000) and Merleau-Ponty (1962) via inhabitations that were: 'embodied, entwined with a lived temporality which is performed and enacted, in an indissoluble connection between person and landscape' (Wylie, 2007: 161). Merleau-Ponty's description of the senses as essentially spatial, 'a spatiality that enacts meanings in the

lived-body's engagements and negotiations with its milieu', further emphasises the embodied nature of such inhabitations (Backhaus, 2009).

Within post-phenomenological theory, the senses and their pre-cognitive dimensions are more explicitly introduced (Rose and Wylie, 2006; Lea, 2009). In thinking through where embodiment and the senses fit within the wider 'performative turn', the word affect also features prominently (McCormack, 2004; Paterson, 2005). Sometimes erroneously used as a synonym for emotion, I prefer to see it geographically as a connective concept between embodied instincts and their expression in a set of 'places of the senses', where emotional, pre-cognitive and subconscious dimensions of healing are triggered and experienced (Anderson and Smith, 2001; Eyles and Williams, 2008; Dewsbury, 2009; Lea, 2009). Affective experiences are also embodied, such that reflexive relationships emerge between bodies, minds, spirits, health and place.

NRT concerns whereby representational approaches to landscape were challenged by more concrete/material engagements in place through bodies and the situated self were also important in reassessing the therapeutic landscape (Crouch, 2000; Lorimer, 2008; Thrift, 2008). Importantly, Lorimer suggested the term 'more-than-representational', as a better expression for NRT that accepted the continuing importance of metaphor, text and symbol, but set this alongside equally important material and inhabited expressions of place (Lorimer, 2005). All of these theoretical shifts towards spaces of performance and inhabitation are directly applicable to the holy well, where relational ownerships and embodied enactments of health are developed and negotiated (Rose and Wylie, 2006; Thrift, 2008).

The potential to more fully apply performative theory to therapeutic landscape settings has been identified as both challenge and potential by Wylie (2007), who suggests the need for a new engagement in these themes by researchers in the field. This challenge will be met, noting that such phenomenological and inhabited concerns have longer histories than are sometimes acknowledged (Dorn and Laws, 1994; Kearns, 1995; Williams, 1999b; Dyck et. al., 2005). Applying these new performative ideas to old or 'special' therapeutic settings might appear retrogressive, given current interests in the contemporary and everyday (Milligan and Bingley, 2007; De Certeau, 1984). But I believe the holy well, a 'somewhere-between-special-and-everyday' place, and one which sustains its historical meanings in contemporary practice, may prove a valuable grounded study setting. As a setting which combines affect (as person-place disposition and spirit-faith presence) and performance (as emotional expression and embodied practice), it sits comfortably with Conradson's (2005) reworking of therapeutic experiences that incorporate physiological and psychological responses to place.

In more fully embedding connections between therapeutic landscape and performance, I propose a template (Table 1) for a 'therapeutic assemblage' which is shaped by specifically material, metaphorical and inhabited dimensions (Deleuze and Guattari, 1987; Lorimer, 2009). While such a concept owes a debt to actor-network theory and in particular the work of Deleuze and Guattari in utilizing the notion of the assemblage as a set of productive connections, these are extended to an empirical setting with a specific therapeutic identity. The *material* would incorporate tangible bricks and water places, flesh and blood people and documented and experienced cures. A sense of 'being in' also emphasises the ongoing significance of an experiential and embodied imbrication within a therapeutic environment (Ingold, 2000; Conradson, 2005). *Metaphors*, so central to the making of therapeutic landscapes, are expressed in cultural narratives, reputations and crucially in a site of spiritual healing, beliefs (Williams, 1999a). Here the ongoing significance across time of a representative take on healthy place remains important (Gesler, 2003). Finally, and a dimension this research aims to foreground more fully, the *inhabitation* of place strongly reflects theoretical ideas drawn from the performative turn with its attention to more-than-representational lived, experiential and performative dimensions of health in place. In considering definitions of health within the assemblage, those used draws from an interest in mind-body-spirit health. This is in turn used alongside a set of theoretical dimensions namely; embodiment, affect and performance, to construct a template of three by three interconnected themes.

In designing such an assemblage, the connective ideas can be read as a definition of therapeutic landscape that emphasises connections, not always necessarily productive, between inner meaning and outer/societal context and the more experiential and relational dimensions required of contemporary work in this area (Conradson, 2005; 2007). More usefully, energies, a term hinted at but under-used in performative texts, is a key ingredient in this spatial stew, especially when associated with health and healing (McCormack, 2004; Lea, 2006; Lorimer, 2006). Material settings and bodies hold within them a range of potential energies, those energies have symbolic healing associations and it is through energetic performances of health in place that productive aspects of the assemblage, wherein affect becomes performance, is expressed. In illustrating these energies of health within the holy well, the deeper potential of the therapeutic assemblage will be proposed and explored.

Table 1. Theoretical Model of the Therapeutic Assemblage

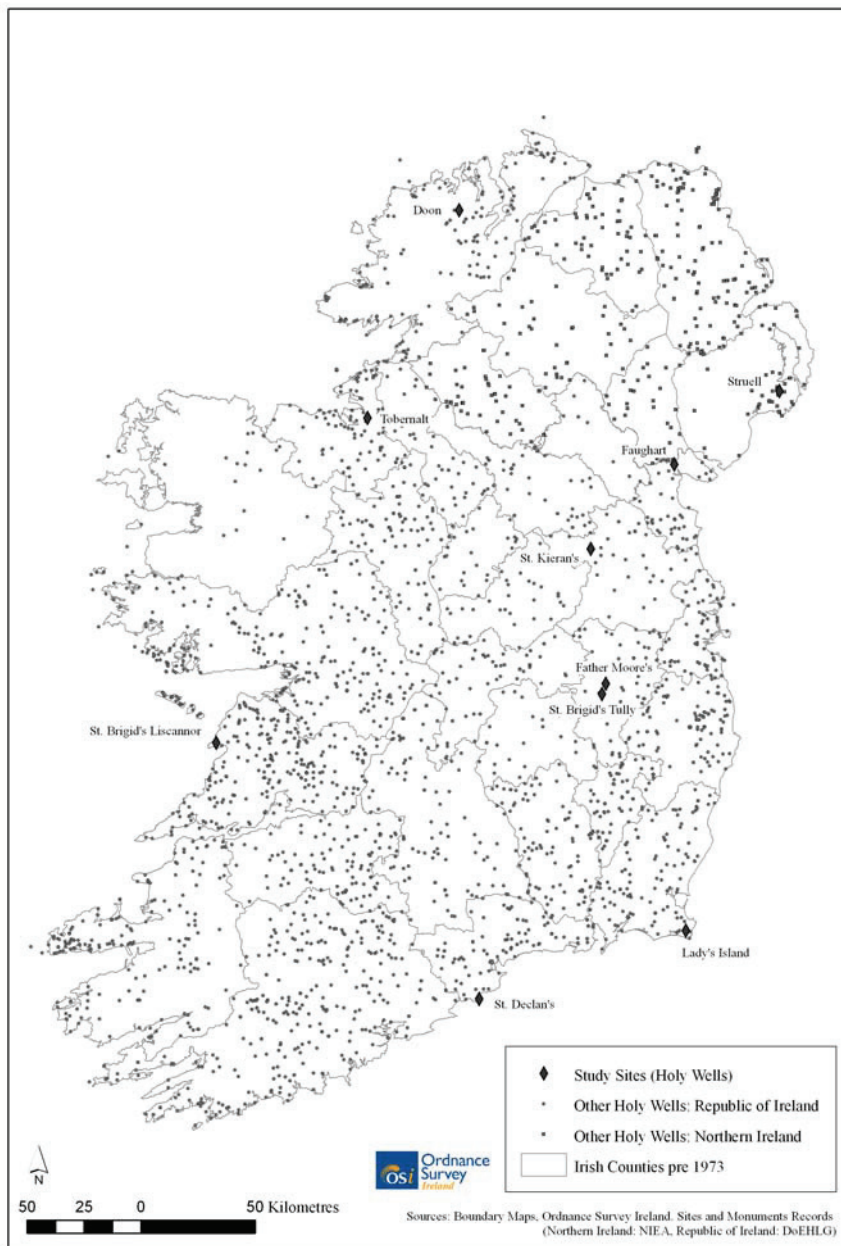
<i>Structures</i>	<i>Material</i>	<i>Metaphorical</i>	<i>Inhabited</i>
Theoretical terms	Embodiment	Affect	Performance
Health and well-being	Body	Mind	Spirit

Data and Method

This work draws the bulk of its empirical material from detailed study of ten representative wells spread across Ireland (Foley, 2010). The choice of wells was based on a number of criteria namely; the presence of well-documented and archival accounts of practices, the existence of contemporary ‘patterns’ for observer participation and a geographical spread across the whole island (Fig. 1). In examining a range of holy wells, inhabitation has been incorporated into the methods employed in the research, through visits to wells, collections of oral narratives, conversations and participant observations. These methods also reflect Nash’s (2000) suggestion that putting theories of performativity to work in discussing specific practices makes for better theory. While a significant proportion of the material was drawn from the author’s own observer participation, this was supplemented by local informants such as members of local parish groups and historical/heritage organisations and by informal encounters with active participants at the wells. A theoretical justification for such an approach would also be rooted in the need to use a range of ethnographic, visual and performative methods to try and get closer to the objects and the practices of people in real time (Lorimer, 2009).

The specific wells included three dedicated to St. Brigid (Faughart, Tully and Liscannor) and wells associated with St. Declan (Ardmore) and St. Kieran (Castlekeeran). Another four wells, Struell, Lady’s Island, Tobernalt and Doon, had less explicit affiliations with a local saint while the last well, Father Moore’s, was named after a nineteenth century healing priest. All wells were visited two to four times including where possible, at official ritual ‘pattern’ days. The historical material on the wells was drawn from archival and historical sources, from which material on performances and medicine/health were extracted. In addition, the deeper secondary material on the cultural meaning of the holy well was identified from wider anthropological, folklore and historical writing (MacNeill, 1982; Taylor, 1995; O’Cadhla, 2002). While much of the material had an implicit relationship with place, it had not been used previously to draw out a deeper critical take on health geographies or as a ‘more-than’ representational engagement with therapeutic landscape.

Figure 1. Location Map of Representative and other Holy Wells.

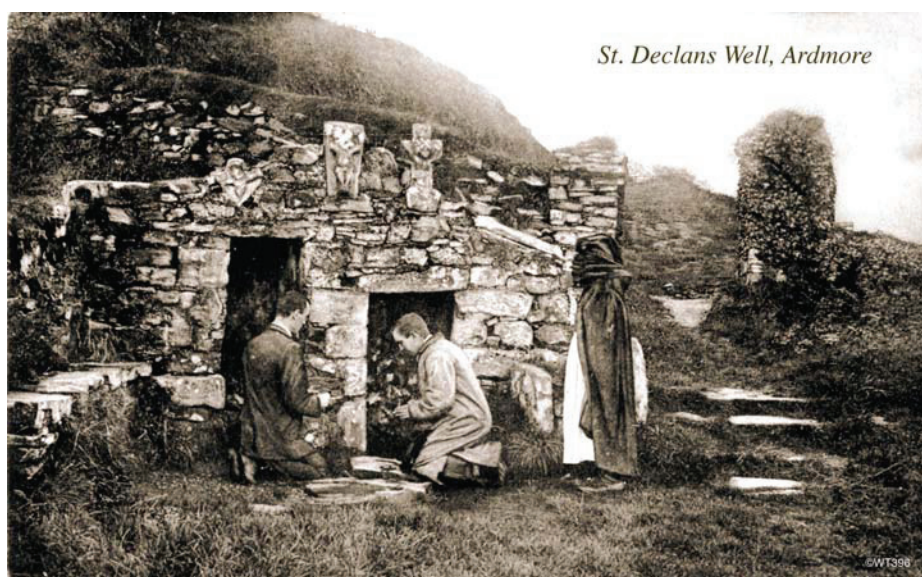


Material Place, Embodiment and Bodily Health

In considering holy wells as material settings, where built/natural environments and human (and occasional non-human) forms interact, it is useful to illustrate these assemblage elements. There are aspects of embryonic therapeutic design implicit in constructions in and around holy wells (Gesler and Kearns, 2002). While for very local wells, this often consists solely of a literal hole in the ground or a small stone covering, in the larger representative wells, there are a range of designed elements. Five of the wells are covered, such as at Ardmore, visibly

housed within a 15th century stone enclosure with carved stone crosses and separate entrances providing access to the supervised well waters (Fig. 2). Both wells at Struell are enclosed within small corbelled buildings, one square (the Eye Well, see Fig. 3), the other circular (the Drinking Well); both rebuilt from previously ruinous conditions. Here the names of the built objects speak directly to specific embodied cures. Other wells, while open to the sky, are surrounded by substantial stone walls, some rough and old as at Tovernalt and Liscannor, others of smoother recent construction as at Tully and Fr. Moore's. At Castlekeeran, the main well setting is partially sheltered by an overhanging tree with a rough limestone rock surround where visitors can bend to drink the curative waters (Fig. 4). At Liscannor, although the well itself is open, it is approached through a tunnel-like cave, about ten metres long within which large amounts of left offerings are piled on ledges and walls (Fig. 5). In these images one can see the affective built settings, containing formal catholic iconography and objects alongside more natural elements of stone, water and wood.

Figure 2. St. Declan's Well, Ardmore



Source: Irish Heritage Giftware, info@ihpc.ie

In considering wider theoretical concerns with embodied health it is also useful to consider that physical body within this particular space. From their foundations, well sites have been used for a mixture of spiritual and curative purposes (Logan, 1980). The holy well is an assemblage within which healthy and unhealthy bodies co-exist. Unhealthy bodies come especially in search of healing and the range of attributed cures for a vast range of illnesses and conditions is an abiding and formative narrative at the well. As a strong discursive and pragmatic driver of embodied utilisations, documented 'cure' treatments ranged from those for sore

eyes (Struell and Faughart) and toothache (St. Kierans's) to more medicalised examples such as lumbago (Ardmore), arthritis/rheumatism (Doon, Liscannor, St. Kierans's) and even cholera at Tobernalt during the 1830s outbreak. While most wells might not withstand biomedical scrutiny, they are sustained by deeper narratives of a curative power and belief is at the heart of these expressions of an embodied 'faith cure'.

Figure 3. Struell Wells: Eye Well.



Figure 4. St. Kieran's Well, Castlekeeran: Main Well.



At many wells, rag trees and bushes mark a visible example of this process at wells such as Tobernalt (Fig. 6) and Lady's Island. Here rags are rubbed on affected body parts and left on the bush or tree. In the act of tying that rag or other object to the tree, that object should be something that touched the body and thereby metaphorically transferred a body part, itself discursively representing a bodily illness, to the natural curative place. Here the wider power of the water acted on the rag to reduce or cure the 'left' symptoms/illness as the rag itself deteriorated over time. At Tobernalt, many of the rags are left for years, yet are also added to on a daily basis. Yet the body is also a site of enactment where

pilgrims kneel in the holes, allegedly left by the saint, as at Faughart (Fig. 7) in a literal embodied act of spiritual cure. As an example of the mobility of embodied practice, it is also common to see pilgrims kneel on the top of this stone as well as in the grooves. In other wells, there are specific instructions to specific body-part cures such as a sign at St. Kieran's identifying a natural curve in the limestone as being good for 'ailments of the back' (National Folklore Collection, 1934; O'Connell, 1957). In addition, the stream in front of the well was used for curing lame horses well into the 20th century.

Figure 5. St Brigid's Well, Liscannor.



Source: Anne Rickard and Liam O'Callaghan

In seeing embodiment as both a physical and imaginative experience, the long history of bodily healing is sustained and reproduced. Many of these curative narratives have a deep provenance and provide a link to a wider notion of health histories in place, even when applied to 'small places' (Andrews & Kearns, 2005; Cummins et al, 2007). In addition, one can glimpse in the material places of the therapeutic assemblage examples of representational objects, via more formal church elements such as altars, crosses and even small oratories on what were previously relatively natural and organic sites as at Faughart and St. Kieran's. At Father Moore's well an informant provided a narrative of a chronically damaged back that 'the experts at the Blackrock Clinic couldn't cure'. He noted however that upon wearing the curative object of Father Moore's hat, brought out once a year to the well, his back healed sufficiently to allow him to return to the well with his grand-children, relatively fully mobile,

within a week. Such objects suggest that as well as the imagined physical cures that are reputationally associated with such spaces, deeper and often contingent healing also emerges.

Figure 6. Rag Bushes at Tobernalt Holy Well.



Figure 7. St. Brigid's Shrine, Faughart: Pilgrimage Stones.



Metaphor, Affect and Mind Health

While the material sites contained the curative waters, it was the therapeutic narratives related to a broad faith cure that cemented deeper health metaphors within the assemblage. There were suggestions that the mineral make up of the well water (they were often mixed-up with spas), provided an evidence base for physiological benefits (Bord and Bord, 1975). But it was in oral traditions of *dinnseanchas*, the Irish term for place lore, that their healing reputations were maintained. While many wells had strong parallel identities as places of pilgrimage, Taylor (1995) noted that wells held stories and existed symbolically as non-silent landscapes. In the 1930s in Ireland such stories were recorded for a national archival collection with a particular attention to wells where a typical narrative for St. Kieran's noted:

‘ ... further away still is a smaller well covered over with rock with an opening on either side. Water from one side is supposed to cure headache, water for the other side cures toothache’ (National Folklore Collection, 1934).

In these deeper symbolic narratives, the waters were also holy and holistic, drawing their power from the sacred and spiritual and applicable to a wide range of ailments and conditions (Varner, 2002). Clearly there are and were contestations of this assumed curative power and rationalist medical responses saw and see the wells as superstitious sites of pseudo-cure inhabited by the credulous and ignorant. A visitor to Ardmore in

1867 noted 'you are expected to drink a glass of water, which is nothing but ordinary spring water' (Ó'Cadhlá, 2002). This contestation of the 'medical' value of the site failed to take into account deeper meanings, many of which were associated with the energies of both the place itself and its affective reputation as a site of renewed energies. A traveller visitor to Lady's Island in 2009 noted in a cautionary sense, that 'you need to be careful with it, there's a great cure in that well', while the healing energies at wells were considered strongest on the night of patterns as noted by a local informant at St. Kieran's. Given the strong religious and spiritual metaphors associated with the well sites, their value in health terms were associated with more holistic understandings of well-being (Bergholdt, 2008, Knott and Franks, 2007).

Cures were also contingent practices, based on a suitable respect for the water and the spiritual identities of the place, wherein anthropological notions of gift-exchange were visible, with the gift of health being repaid by metaphorical offerings and symbols. A failure to meet these requirements was often considered to have an anti-therapeutic effect, reflecting recent concerns with contested health outcomes (Conradson, 2005). These narratives were often punitive moral tales, for example water from wells was not supposed to be used for cooking and those who took it generally came to an unfortunate end, with sudden death within a fixed period of either three days, three weeks or three months being a reputed punishment at Liscannor (Brenneman and Brenneman, 1995). Yet the persistent survival of such stories serves to strengthen an energetic and respectful phenomenological connection between use value and symbolic power (Harbison, 1991).

In considering the function of wells as providing a form of 'mind healing', the place of affect becomes significant. In settings where water, stone, wood and leaf are all present the peaceful connections with nature are sensually enhanced (Figs 2 to 7). These affective aspects have clear links to the foundational ideas of the therapeutic landscape as retreat/restful asylum (Gesler, 1992). This experiential engagement in and with place can be enacted in quiet moments by individuals or by communal performances such as patterns and pilgrimages which also sustain the healing narrative (Turner, 1973). Visitors interviewed at Tobernalt and Tully all spoke of the sites as places 'to reflect and find peace'. Here, the sights, sounds, smells, touches and tastes are augmented by a core 'sixth' sense, feeling. In their capacities as spaces of 'stillness', wells also enhance those more contemplative and spiritual dimensions of a personal mental health (Conradson, 2007). Indeed Tobernalt (Fig. 8) has one derivation of its name as a 'well of the insane', providing a '*loc fás*' or hermitage, for patients and lepers living on a nearby island in Lough Gill in the 17th century. Specifically noted in an archival folklore survey from the 1930s, the water was to be used, 'in all ailments but especially for mental ailments' (Boylan, 2002).

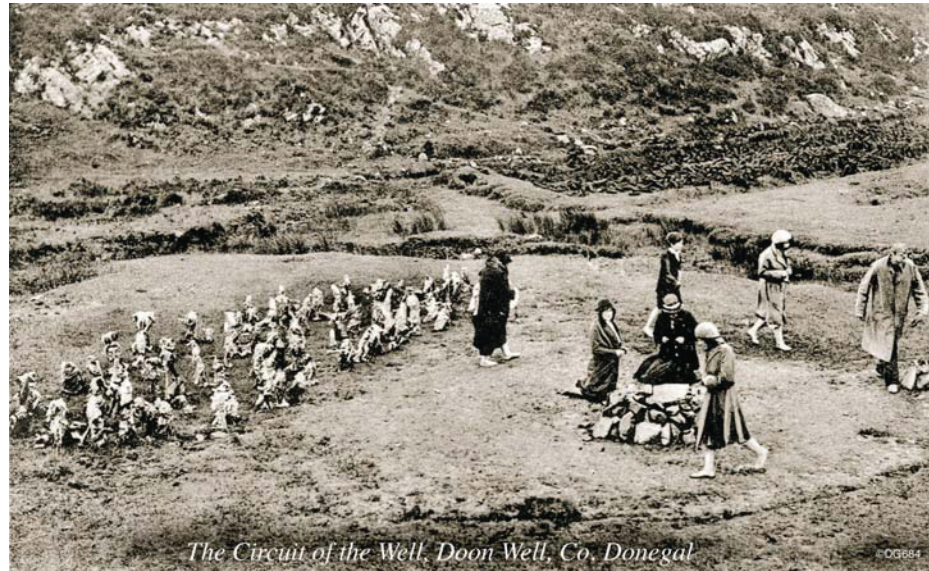
Figure 8. Tobernalt Holy Well



More recently, holy wells have developed new meanings around grief, hope and memorial, exemplified by left offerings marking premature death, serious illness and loss. The cave at Liscannor (Fig. 5) is an especially intense example of this, with Mass cards, childhood pictures and shoes, but similar offerings are found at Tobernalt (Fig. 6). Here the capacity of the visitor to seek, and often find, solace and peace, marks a further affective dimension to the role of the holy well as a site of mental health. While that peace may be ephemeral and momentary, it is an emotional response that can be profoundly affecting and become a

lingering ripple, as with many memorial settings, that resonates beyond the space into everyday lives beyond.

Figure 9. Crutches and Rounding Rituals at Doon Well.



Source: Irish Heritage Giftware, info@ihpc.ie

At sites, both past and present, abandoned shoes or crutches were also to be found as markers of an affective response to place (Fig. 9). The abandoned crutch is of course a global metaphor for the successful cure, as visible in the past at Banff Springs as it is currently in Lourdes (Gesler, 1996). This image of Doon Well at the end of the 19th century shows that in the absence of a physical bush or tree, pilgrims took to embedding their crutches in the ground beside the well, which in turn assumed a new status as an artificial branch around which subsequent visitors wrapped rags and other offerings. Here a material, yet representational act, further played with the sense of an assemblage that was constantly mobile and mutable, as noted by the actions of the pilgrims in the image.

Inhabitation, Performance and Spiritual Health

In considering inhabitation at the well, rituals and daily enactments exemplify the notion of a set of health performances but also reflect a shift from affect into action (Turner and Turner, 1978; Gesler, 2003). In the everyday visits to the wells, the carrying out of stations or, in Irish *turas*, are what Carroll (1999) refers to as rounding rituals, observable in cultures as far apart as India and Sudan. These rituals are carried out by the visitor/penitent in order to access the benefits of the well, both spiritual and physical. They are expressed through sets of specific prayers in specific amounts at specific points within the therapeutic setting. More formally, the pattern day (or week) was based on the patron saint's birthday. While patterns saw a more intense practice of rounding rituals

they were also historically the settings for profane, even anti-health behaviours. In many wells, religious observances were carried out up to midnight on the eve of the saint's birthday and then the rest of the night was given over to socializing, dancing and singing (Hall and Hall, 1843). At St. Brigid's Well in Liscannor, particular attractions were singers from the nearby Aran Islands, who would row over *en masse* to perform through the night.

However, the social aspects also saw lots of drink, which invariably led to a range of liminal and carnivalesque behaviours associated with violence (faction-fighting) and sex (Bakhtin, 1984, O'Cadhla, 2002). These were recorded at Ardmore in 1810 with the arch observation that the penitents had; 'bloody knees from devotion, and bloody heads from fighting' (Hardy, 1836). At Struell, promiscuous naked bathing by both sexes was followed by 'indulging in various gratifications to which the time and place are favourable ... as long as the happy multitudes remain on the sacred ground, they cannot contract new guilt' (Hardy, 1836: 39). Ultimately this led to concentrated 19th century campaigns by both church and colonial state, the former for reasons of morality, the latter due to concerns with public order; which led to the decline of well worship.

Finally, the openness of the holy well site meant, and still means, that individuals are drawn to such sites of stillness to negotiate their own, spiritual, curative and restorative performances in and with place. Though as often places of sociability as solitude, these performative enactments, especially those related to ritual and symbol, show the strong connections between the bodily spaces, the curative metaphors and the inhabitations of the therapeutic spaces themselves (Broderick, 1998; Conradson, 2005).

Considering these as performances of spiritual health provides an additional way for healing and well-being to be conceptualized as an affective practice. Given that the therapeutic aspects of place feature prominently in the literature, the wells express this in settings containing strong natural elements of water, stone, tree and bush. Holy wells, large and small, are quietly affective places. This is in part tied in to the physical settings, often, though not exclusively in remote places (all ten wells were some distance from the nearest town) where the natural and built components are a hybrid mix of earth and stone, light and shade, sounds and silences. In these contemplative spaces, one's one embodied experience can be expressed in those affective dimensions of mood and emotion, linked to a range of health elements of anxiety, hope, belief, grief, but also of wonder, amusement, curiosity and joy. While individualized actions are allowed the need to conform to 'ritual inhabitations' are less strict than they once were. Yet the more-than-representational practices carried out by well visitors extend these connections more deeply in a performative sense as active engagements

by individuals in their own health via transient but repeatable practices (Lea, 2006 and 2008). The image of the decorated interior of St. Brigid's at Liscannor (Fig. 5) shows the intensity of the left offerings but also represent a range of affective and emotional states of hope and despair, characteristic of certain health statuses such as incurable disease or chronic illness (Conlon, 1999; De Val, 2007).

Lest it be thought that the holy well is a relict of the past, it has a contemporary relevance and performance as well. In looking at the resilience of the well through the lens of a therapeutic assemblage, mobilities of meaning and re-tellings of place-health identities all play a role. The mobility of the cure is tied to the waters of the place, both potable and portable, which can be consumed in situ, or equally importantly taken away for use as a general prophylactic in the everyday home place by those too ill to come. Older performances of health have been augmented by new meanings, still with affective health values, as places of memorial, gratitude and supplication. More recently patterns have been revived at Tully and Faughart and are often jointly celebrated by Catholic and neo-pagan groups though not without some tensions and contestations. In a new-age vision of spirituality, a concern with nature and new understandings of the sacred, often expressed in body-landscape-energy terms, find natural expression within holy well sites. At the 2010 pattern at St. Brigid's Well, Tully, a group of female Breton visitors noted that they celebrated Brigid as a neo-pagan goddess and provider of deep spiritual healing and as an embodied energy that could 'light their fire'. Yet throughout holy well histories, wider notions of a faith cure have sustained primarily through inhabitation and narrative, often as much through small everyday visits as the more concentrated pattern day activities. The lingering power of therapeutic place and healing memory deepens this affective and performative connection (Conradson, 2005).

Discussion: The Therapeutic Landscape as Performative Setting

Framing a holy well like St. Kieran's (Fig. 4) as a therapeutic assemblage suggests a holistic description of its position within a time-space continuum. One can see a piece of micro-landscape of healing and wellness which bears *material* objects in a rolling topography (wells, trees, rocks, crosses). One can also see as a second layer on top of that, the complex culturally produced meanings embedded in and shaping those material objects; the identities, especially the health identities, invested in them, and the hue and shade of *metaphor* on the material. Finally one can see a third layer of people, not ghostly, but solid palimpsestic traces of embodied human occupation and the uses and meanings and constructions that those mobile *inhabitations* enacted on the site; through their agreements and dissent from given meanings, their performativities (cultural and curative) and embodied positionalities (as participant, believer, patient, cured, observer, cynic), the filling and emptying of the site, and the material and metaphoric footprints on this healing place.

In considering this description in terms of mind/body/spirit health, the freedom to explore such dimensions of healing are never quite so simple. Across history and into the present day, contestations have shaped practice and meaning at the holy well, linked to a range of 'gazes', clerical, colonial and medical (Foucault, 1976; Foley, 2010). Even now, the different constituencies who inhabit the well occasionally clash and tensions exist around 'othered' inhabitations by nominally excluded groups. Travellers in particular, have a deep and unique set of practices at the well which occasionally brings them into conflict with religious and settled practices. At Tobernalt only travellers walk through the stream in their bare feet or bathe their children as a preventative early-life cure at Father Moore's well.

Holy wells can be described as sites of indigenous health, a concept often discursively understood solely as 'non-white, non-western' (Evans, 1957; Wilson, 2003; Kingsley et. al., 2009). In the vernacular meanings and performances at the holy well, one can see that they also tapped into a deeply felt health need for an indigenous population with few other medical resources (Wilson, 2003). While that need was often hard to diagnose, it was most certainly felt, and that emotional need was in part met in the affective setting of the well or expressed in notes, pleas and votive offerings left behind. A listing of those elements, structures, appearances and crucially for the health geographer, cures, have helped to clarify what wells were, how they were materially constructed and what discursive therapeutic powers they held. Those performances combined healing and spiritual dimensions, but as pragmatic health responses in place they were also simple expressions of actions speaking louder than words (Davidson and Smith, 2009).

In returning to Gesler's definition which balanced out inner meanings and outer contexts, the holy well provides an initial example of a therapeutic assemblage that might be extended to a range of other sites and settings. The individual psyche is engaged with place through a range of affective beliefs, experiences, narratives and embodiments, and as an expressed ownership of self-health. Yet the sites also function as culturally produced settings where wider narratives, customs, meanings and contingent practices are expressed in nominal ownerships of place. It is in the mobile negotiations of these two forms of ownership and inhabitation that the holy well most tellingly speaks and which has wider applicability in other therapeutic settings. This also suggests how other traditional and contemporary therapeutic landscapes might be considered in the future (Bourke, 2001). While Rose and Wylie (2006) see 'landscape as tension', it can equally be examined through a therapeutic lens as an affective place with a charged background (Lea, 2009). This deeper engagement with the notion of energies also reflects Lorimer's (2006) invocation of forces and flows that simultaneously acknowledge vernacular and folk knowledges, in this case through indigenous health practices.

In summary, the paper has introduced a new form of traditional therapeutic landscape and illustrated up to a point, how a theoretical performative lens can be extended to tangible empirical settings. In proposing an assemblage definition of the well one can also make evident Conradson's (2005) notion of a relational outcome, where therapeutic benefits are negotiable, contingent and framed by affective and performative embodiment in place. The assemblage proposed in Table 1 has a specific health brief and in part reflects the established embedding of relationships between culture, health and place within health geography. Yet in developing the model, the incorporation of recent and exciting theoretical ideas drawn from the broad 'performative turn' and the potential, in particular, to apply notions of inhabitation more fully within the study of health/medical geographies has been a strong motivating factor. In particular research which more deeply records and critically studies the places of the senses in a range of therapeutic landscapes seems to me to be a ripe source for future investigation.

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CHAPTER 31

'NO SIGN LANGUAGE IF YOU WANT TO GET HIM TALKING': POWER, TRANSGRESSION/ RESISTANCE, AND DISCOURSES OF d/Deafness IN THE REPUBLIC OF IRELAND

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Introduction

Over the last number of decades, recognition of the fact that Deaf people comprise a Deaf Community which shares a common language, Sign Language, with its own grammar and syntax (Stokoe, 1960), cultural norms and values, and history (Groce, 1985; Bienvenu, 1989; Lane, 1989; Sacks, 1989; van Cleve and Crouch, 1989; Lane *et al.*, 1996; Mow, 2001; Woll and Ladd, 2005) has highlighted the need for a socio-cultural perspective on Deafness, breaking away from the traditional medical view of hearing impairment. This rise of the socio-cultural model of Deafness, sometimes known as 'Big-D Deaf' is signified by the capitalisation of the word Deaf, indicating membership to a cultural and linguistic minority group, as opposed to lowercase deaf which signifies an audiological deficiency.¹ Although those identifying with the socio-cultural model of Deafness do not identify as disabled (Lane, 2002), the progress made in establishing a socio-cultural model must be situated within a generalised shift away from viewing disabilities as inherently personal obstacles towards one which examines the role of the physical, social, economic, or political environment in creating disability (Oliver, 1990). While this shift has occurred within the social and care sciences (including Geography) and Deaf Studies itself, with a transference from a medical model of disability to various kinds of social models, the predominant mode of research concerning d/Deaf people in medical and educational fields still favours the medical model of deafness as a disabling condition best corrected through audiological treatment and speech instruction (as highlighted by research reported in journals such as *Audiology*, *International Journal of Audiology*, the *International Journal of Language and Communication Disorders*, and *The Journal of Speech, Language and Hearing Research*). There is little room for the role of Sign Language or Deaf identity in this medical model, which instead prioritises acquisition of speech and integration with hearing society as the goal of deaf education. While due consideration must be given to the complexities of d/Deaf identity and the difficulties in implementing any

¹ Throughout this paper, Deaf and deaf will represent socio-cultural and audiological interpretations of d/Deafness respectively. When one interpretation cannot be clearly identified, the term d/Deaf will be used. See Skelton and Valentine (2003a).

binary between deaf/Deaf or d/Deaf/hearing (Skelton and Valentine, 2003a) for the purpose of this paper, I will limit this discussion to the 'two dominant constructions of d/Deafness: medical deafness and socio-cultural Deafness (Valentine and Skelton, 2007: 108).

It is clear that this medical model, in Padden and Humphries (1988) terms, has a different 'centre' from that of their d/Deaf adult clients. As a result, d/Deaf children are held to standards of normalisation as designed by medical and educational professionals as opposed to standards set from a Deaf 'centre'. As Davis and Watson (2001) observe, regarding children with disabilities generally:

'The child is forced to fit into already existing educational and social processes and practices, which afford little space for the investigation or understanding of difference. This process is not so surprising when considered in the context that most research with disabled children has been preoccupied with differentiating children on the basis of their impairments, 'measuring children's bodies and minds against physical and cognitive norms' (Priestley, 1998). That is, it is not surprising that adults in schools pathologise disabled children when their lives have also been homogenised in both social and medical research'.

There are a number of possible reasons for the persistence of this medical model in spite of the progress outlined above, which I argue contributes to a hegemonic medical model of deafness. Firstly, there is a great deal of social authority attached to the medical field (Wendell, 1996) which in turn attaches legitimacy to the medical interpretation of deafness. Secondly, there is a notable absence of d/Deaf people themselves from the medical and education fields where their presence could provide a counter balance to the hegemonic medical view of deafness currently prevalent. Thirdly, over 90% of d/Deaf children are born to hearing parents whose first interaction with d/Deafness is likely to be largely constructed by the medical field within which they receive diagnosis and early intervention (Skelton and Valentine, 2002; Valentine and Skelton, 2003). The medicalization of these families and their role or 'duty' in the production of 'healthy' children is also a significant factor in the continued hegemonic medical model of deafness.

One of the most obvious signifiers of the dominance of the medical model of deafness is the tentative position held both historically and contemporarily by Sign Language in early intervention and education with d/Deaf children. This is particularly the case in the Republic of Ireland, the site of this study, where a number of specific policy factors² aggravate

² Irish Sign Language has yet to be officially recognised as a national language by the Irish Government, a move which has already occurred under the British Government with respect to Irish Sign Language use in Northern Ireland. Ironically, the protection

the position of Sign Language over that in other countries. Sign Language lies at the heart of the social model of Deafness, indeed, one of the major instigations for Big-D Deaf was the work of linguist William Stokoe (1960) which proved that Sign Language (in this case American Sign Language, but his finding was generalised to apply to other Sign Languages) is a full language, with its own grammar and syntax. Its acceptance or rejection by hearing parents (as they are influenced by professionals in their midst) can therefore act as a signifier of socio-cultural and medical interpretations of d/Deafness, respectively. I will begin by examining the historical emergence of the social authority of medicine as it relates to deaf education, moving then to empirical evidence of the continuing medical hegemony in the Irish context. I will also examine instances of transgression/resistance to this hegemony from parents of d/Deaf children who implement Irish Sign Language as a method of communication for their d/Deaf children in spite of the medical model within which they are embedded. In light of Valentine and Skelton's (2003: 317) observation that 'it is learning [British Sign Language], and therefore being able to communicate with other d/Deaf people and to access the close-knit Deaf world, that is the most effective way for many young d/Deaf people to overcome social isolation and access the support of social network', examining how parents decide on and implement Sign Language use might contribute to our understanding of how best to foster resilience amongst young d/Deaf people and their families against the negative effects of marginalisation and hegemonic medical discourses of deafness. However, I will conclude by examining why this transgression/resistance is both spatially and temporally limited and unlikely, as it stands to make a significant impact on the system of deaf education.

Situating Irish Deaf Education In Geographies Of D/Deafness, Disability And Power

Skelton and Valentine (2003a) highlight that work on d/Deaf people has been absent from geography (although their research has come some way in addressing this lacuna) and that even within Deaf Studies, d/Deaf young people are frequently marginalised. This is also a dearth of contemporary work on deaf education in Ireland, perhaps owing to the small population of d/Deaf children and the absence of a national deaf education training programme. This paper therefore adds to the field of deaf education as well as to an emerging body of literature in geography and d/Deafness, and will specifically address the absence of work in the latter on issues regarding d/Deaf children. Previous research from geography on d/Deafness, has focused largely on young d/Deaf people (aged 16 and over) and has highlighted transition to adulthood, issues of inclusion and exclusion at home, school, work, and in the Deaf Community itself, identity formation and political participation as issues

of the Irish language (Gaeilge) in government policy also has negative impacts on the Deaf Community, which will be discussed later in the paper.

of key interest (Butler *et al.*, 2001; Skelton and Valentine, 2002, 2003a, 2003b; Valentine and Skelton, 2003, 2007). While this work has flagged the significance of communication methods used during the d/Deaf child's upbringing as well as the influence of the medical model in influencing these decisions, it reflects on young d/Deaf people's views retrospectively of this period. This paper will instead focus on how decisions are made regarding communication, the implications that they have in early childhood, and the issues of power and resistance inherent in the decision-making process.

While the concept of power features in some work from Deaf Studies (Lane, 1992; Baynton, 1996; Branson and Miller, 2002; Ladd, 2003), it rarely extends to literature on communication choices amongst families and how concepts of power and resistance are played out between institutions and individual parents and children (for a notable exception see Komesaroff, 2008). Research is instead overwhelmingly empirical in nature, focusing on the descriptive experience of families as they choose one method or the other (Gregory *et al.*, 1995), the need for a family-centred intervention approach (Bodner-Johnson and Sass-Lehrer, 2003), or the causal relationship between home language and a number of other variables (Musselman *et al.*, 1996; McDonald Connor *et al.*, 2000). The focus on power in this paper, therefore, adds not only to Deaf Studies but also the growing body of literature in the geographies of power and resistance (Cresswell, 1996; Sharp *et al.*, 2000b; Rose, 2002; Allen, 2003; Jessop, 2007), as well as institutional geographies (Philo and Parr, 2000). It makes specific reference to Foucauldian Geographies, which have been a topic of debate in this journal (Legg, 2005; Philo, 2005), as it is Foucault's work on the rise of social medicine which frames this discussion. As such, it responds to Philo's (2005) call to 'enlarge the theoretical coordinates of population geography'. In particular, it examines how language is not only a mechanism through which power is reproduced and resisted (through discourse and ideology) as a means of controlling a particular population but can also be the target of those same tactics of power and resistance.

Furthermore, this paper broadens the current scope of population geographies to question the dynamic temporal and spatial aspects of particular populations, in this case d/Deaf children, and how their micro-movements, such as those between home and school, are embedded within a larger framework of socio-political goals. The educational, and indeed highly spatialised of mainstreaming children with special educational needs in their local school has come under examination from geographers (Kitchin and Mulcahy, 1999; Skelton and Valentine, 2002; Holt, 2003, 2004; Woolley *et al.*, 2006), but the links between this phenomenon and population geographies have, to date, been tentative. The fact that school choice is increasingly becoming a factor in movement and residential location of families (Butler, 2009) highlights the relevance of this area of study to population geographies.

The discussion is supported by findings from a doctoral research project on mainstreaming of deaf education in the Republic of Ireland. The findings presented here are from semi-structured open-ended interviews conducted with either one (usually mothers) or both hearing parents from 20 families with deaf children. At the time of the first interviews these children were aged between 18 months and 16 years with an average age of 8 years. While there has been much work recommending the inclusion of children's voices, especially marginalised children, instead of consulting parents or teachers on their behalf (Rose and Shevlin, 2004; Porter and Abane, 2008; Schafer and Yarwood, 2008), the consultation of parents in this research is justified in this context since the use and non-use of Irish Sign Language is largely due to decisions made in early intervention, when d/Deaf children are still infants. Subsequently, parents are the best sources of information regarding the issues surrounding communication choices in this early phase of their child's life. Parents were recruited through schools, contacts with the Deaf Community, and a series of five information nights held across the country aimed at promoting the research. Interviews with these parents ranged from half an hour to 2 hours and were conducted in spoken English, recorded using a Dictaphone, with the recordings transcribed and coded for analysis. Three of the families interviewed had migrated to Ireland while the remaining families all had at least one parent who was Irish.

The vast majority of children involved in the research were profoundly deaf. Approximately half of them used cochlear implants³, while the other half used hearing-aids. All of the families, with the exception of one, began with an intervention path to provide speech to their children through medical intervention as opposed to using Irish Sign Language, with several warned outright against its use (discussed in detail below). Nonetheless, several of them went on to introduce their children to Irish Sign Language on their own initiative by learning through evening classes run by d/Deaf organisations. This is similar to findings from Gregory *et al.*'s (1995) longitudinal survey of parents with d/ Deaf children in the UK conducted in the 1970s and again in the mid-1990s. They observed that in spite of the fact that all of the children involved in their research began on a speech-only route, 39% of parents went on to learn British Sign Language and 38% of their child-participants (interviewed now as adults) stated that British Sign Language was their preferred language, with a further 16% nominating Sign Supported English.⁴ The fact that Gregory *et al.*'s (1995) study included parents using a speech-only route in

³ A cochlear implant surgically implanted device which allows people with sensorineural deafness to access sound. Surgery must be accompanied by intensive therapy if speech is to be acquired.

⁴ Sign Supported English refers to using speech that is combined with signs following English word order for clarification of meaning. It provides a visual reference for the English language and, unlike Sign Language, does not have its own grammar or syntax. Nonetheless, it indicates that a form of signing is used by these d/Deaf people in Gregory *et al.*'s (1995) study.

the 1970s however highlights that Ireland is still a good deal behind the UK in terms of policy and practice of deaf education.

The UK, amongst other countries has reintroduced Sign Language to some degree in the wake a resurgence in the use of Sign Language during the 1970s and 1980s following research into the success of Deaf children with Deaf parents (and thus Sign Language users) compared with deaf children with hearing parents (non-users) (Easterbrooks and Baker, 2002). This gave rise to the bilingual-bicultural movement in deaf education which seeks to establish Sign Language as the first and natural language of d/Deaf children before progressing to teaching a second language (e.g. English) through Sign Language. This system has been implemented in some schools across Scandinavia, the UK and the US to name a few. Skelton and Valentine's (2002) work highlighted that these bilingual policies in the UK have dispelled the negative myths about d/Deafness and Sign Language and aided a shift in attitudes in deaf education. This movement has yet to make much ground in Ireland, however, the causes of which will be discussed later.

Subsequently, while the medical model may have been more overtly challenged elsewhere, its prevalence is still very much felt in the Irish context, particularly in the organisation of early intervention services in relation to the use and non-use of Irish Sign Language. The Irish health and education systems may therefore provide a more visible example of how a hegemonic medical model is reproduced, and these overt examples may still have relevance elsewhere where the medical model, though challenged, still holds significant (though more covert) authority, in particular since the increase in cochlear implantation could once again see a rise in speech-only recommendations.

Power And The Social Authority Of Medicine

There has been re-emergence in discussions around institutional and organisational geographies in recent years (Crang, 2000; Del Casino *et al.*, 2000; Philo and Parr, 2000) as well as an analysis on the complexities of power relations embedded within those spaces (Crang, 2000). Throughout these debates, it is now widely recognised that power is a relative concept, contingent on temporal and spatial conditions rather than being something that is intrinsically held within institutional spaces. Furthermore, the reproduction and contestation of discourses emerging from those spaces involves an intricate negotiation between processes of power and resistance. These processes, complex in nature, are contingent, relative and productive forces, in a continuous state of 'becoming' through the various contexts in which they are embedded. Power, in this complex nature, cannot be understood simply as an all-encompassing dominating force over an oppressed populace. Nor can it be examined as 'centred' (Latour in Allen, 2003), something intrinsically 'held' in institutional spaces, or by high-ranking professionals. Rather, it must be examined as a relational effect of social interaction where power

in its various guises (domination, coercion, manipulation, seduction, inducement, negotiation, persuasion) is engaged in a constant struggle with resistance in its numerous forms (non-consent, non-cooperation, disobedience, protest, persuasion) (Allen, 2003), producing a complex entanglement of power/ resistance (Sharp *et al.*, 2000a).

Nonetheless, organisations (or institutions) ‘are productive of certain meanings rather than others, and in this sense one can select them as candidates through which to view the operation of social power that limit what is thought, as well as a what is thought to be possible’ (Del Casino *et al.*, 2000: 526). In the case of the institution of medicine, and the organisations/hospitals embedded within that institution, their power to measure, diagnose, and categorise d/Deaf children’s hearing impairment gives them priority with hearing parents who must obtain this diagnosis if they are to acquire any services for their child. This also applies to other children with disabilities. This power to measure, know and explain hearing impairment is embedded within a long history of the social authority of medicine. As Foucault states:

‘In the patient eyes, the doctor becomes a thaumaturge; the authority he has borrowed from order, morality, and the family now seems to derive from himself; it is because he is a doctor that he is believed to possess these powers ... [the patient accepts] entirely and in advance all his prestige’.
(Foucault, 1965 in Rabinow, 1984: 163)

As a result, the social authority of medicine and the subsequent respect and trust that parents place in doctors is the starting point for examining how a hegemonic medical model of deafness is established and reproduced. This social authority gives legitimacy to the medical model and can be contrasted with the lack of legitimacy afforded to the Deaf Community (for examples on this lack of legitimacy in the public media see Winterson, 2002; Young, 2006). In examining this issue, I will focus on the work of physician Jean Marc Gaspard Itard at the National Institute for Deaf-Mutes in Paris to exemplify the origins of the medical model of deafness, and the authority of the doctor in steering deaf education (Lane, 1976).

Itard began working at the Institute in 1800, at a time when the field of medicine had been firmly established across Europe. Foucault traces the development of the social authority of medicine and doctors in particular during the previous century stating that medicine ‘assumes an increasingly important place in the administrative system and machinery of power, a role constantly widened and strengthened throughout the 18th century’ (Foucault, 1980 in Faubion, 2002: 100). Much of this authority is embedded in the fact that from the 18th century onwards, science places an increasingly significant emphasis on the normalisation of bodies, and doctors are the chief individuals responsible for identifying, categorising,

and eradicating deviance amongst those bodies. This culminates in the fact that

‘the doctor becomes a great adviser and expert, if not in the art of governing at least in that of observing, correcting, and improving the social “body” and maintaining it in a permanent state of health’. (Foucault 1980 in Faubion, 2002: 100)

This social authority meant that, in spite of the fact that Itard never learned Sign Language in his 40 years working at the Institute, and that he consistently worked with very small numbers of the school population for a limited time each day, the claims he made about deafness carried great legitimacy not only in the running of the Institute but in the implementation of deaf education across much of Europe and the US (Lane, 1976). Most controversially, and relevant to the discussion at hand, Itard predicted that better success could be achieved in oral training if students were isolated from Sign Language, signalling the beginnings of a negative discourse of Sign Language:

‘[We must] allow no means of communication other than spoken language between the hardof-hearing child and the people who take care of him; failing this, the first means of training [by speaking loudly and slowly to the child] becomes ineffective’. (Lane, 1976: 204)

‘exclude the use of sign language and ... oblige the students and the professor to communicate among themselves only by speaking or by the intermediary of writing. It is of the greatest importance that, at this final stage of instruction, the deaf-mute should *cease thinking on his inherently defective and abbreviated language* in order to translate his ideas into our own, as he is in the habit of doing this’. (Lane, 1976: 240 emphasis mine)

While Oralism swept across Europe and the US throughout the late 19th and early 20th century, it was much later when the Irish education system came on board. While the slow uptake of Oralism has been attributed to the isolation of the Catholic orders involved in deaf education (Crean, 1997) as well as economic factors (McDonnell, 1979), it is also very likely that the dominance of Catholicism as a social authority over that of medicine in early 20th-century Ireland was a significant factor in maintaining Sign Language as a means of instruction for d/Deaf students, a method which was always favoured by religious orders (Baynton, 1996). Nonetheless, Oralism gained ground around the 1950s and soon tactics such as surveillance, segregation, negative discourse were being used to discipline children (Saunders, 2004 lists signing as a ‘sin’ to be confessed in the school for d/Deaf girls in Dublin). The fact

that those students throughout this Oralist period who could not acquire speech were segregated from their classmates, labelled as ‘oral failures’, and kept in the junior section of the school highlights the negative attitude towards Sign Language during this time (personal communication Deaf Community). Failure to acquire speech was also at times attributed to perceived intellectual disability (Department of Education, 1972) as opposed to any fault with the methodology of instruction. The Oralist system implemented in the 1950s continued with little challenge up until the 1980s when a limited amount of Sign Language began to reappear, out of necessity, in the schools for the Deaf (personal communication, teacher of the deaf).

In spite of this minor resurgence in Sign Language, the deaf education system in Ireland is still for the most part an Oralist system, and has not seen the benefits of bilingual education policies instigated elsewhere. Oralism remains particularly strong since the overwhelming majority of d/Deaf children are in place in mainstream schools, where access to Irish Sign Language is very limited (discussed further below). Since Oralism is entrenched in the medical model, doctors and other medical professionals (such as audiologists, speech and language therapists and psychologists) continue to hold great authority regarding educational interventions for d/Deaf children. These professionals are now the first port of call regarding not only diagnosis, but the means of early intervention to be pursued, appropriate educational placement, and communication choice. These services are framed within a medical discourse of deafness, prioritising the acquisition of spoken language, to which Sign Language can be seen as a threat.

Silencing Deafness: The Exclusion Of Deaf Adults

The prevalence of the medical model of deafness and the legitimacy of this model is aggravated by the absence of Deaf adults from the medical and educational (Moore, 2008) professions internationally. Ireland has particular difficulties in this area whereby policy measures mean there is almost a complete absence of teachers who are themselves d/Deaf working in the primary deaf education system. Proficiency in the Irish language (Gaeilge) is required to become a qualified teacher at primary school level. However, d/Deaf people are exempt from learning Irish while at school, subsequently disqualifying them from enrolling in many teacher training programmes later on. Gaeilge is not required for second level teaching, and a small number of d/Deaf people have succeeded in becoming teachers at this level. However, since this research focuses on early and primary education, the presence of these teachers at second level is not examined. Subsequently, hearing professionals not only overwhelmingly outnumber d/Deaf professionals in the medical arena (as they do in most other countries), but also almost completely within the early education sector.

As well as the absence of d/Deaf teachers, hearing teachers are not required to have Irish Sign Language to work in this profession, nor are qualified Irish Sign Language interpreters provided in schools. While several teachers may take some evening Sign Language classes (usually only to intermediate level) they would by no means qualify as Sign Language role models to the extent that native/fluent signing Deaf adults would. As a result, the use of Sign Language in classrooms across the country is limited to the haphazard training acquired by hearing teachers. As a tokenistic recognition that this situation is unsatisfactory, Deaf adults will occasionally be employed in the capacity of special needs assistants to work with d/Deaf children who need access to Irish Sign Language in the classroom. However, this role as assistant carries with it a distinct power dynamic whereby Deaf adults are subservient to the hearing teachers with whom they work.

Several hearing teachers interviewed over the course of this research spoke of tensions between themselves and Deaf staff as the teacher felt their authority was being undermined:

[My principal tells me] “you just have to put the foot down and say it” and I go “I know” ... “you have to show her *you’re* the teacher, *you’ve* been trained.” [The special needs assistant] “didn’t study, didn’t go to college. You’ve done all of this.” (Teacher 13)

As a result, while the hearing teacher may have difficulties communicating with their d/ Deaf students who use Sign Language, and may have no experience or training in deaf education, the Deaf adult must concede to their authority because, unlike the hearing teacher, they do not have a university degree to legitimise their role in the classroom.⁵ As a result, the value of having a native Irish Sign Language role model in the classroom, as well as someone with first-hand experience of Deafness and the deaf education system is undermined in favour of a model which prioritises spoken language, hearing professionals and the authority of the medical model.

This absence of Deaf adults allows for the monopoly of the medical model to continue. It also limits the potential impact of international developments in deaf education, such as the bilingual movement mentioned above. Since bilingual education for d/Deaf children requires native or fluent Sign Language role models, and these are absent from the Irish education system, this model has yet to make ground in Ireland.

⁵ It might be of interest to note that a number of Deaf special needs assistants do not have degrees in education but hold third level qualifications in other areas, occasionally to Masters level, but these qualifications do not entitle them to teach. They are subsequently on a significantly lower salary than paid teachers and hold authority in the school.

It also leaves families of d/Deaf children in a position whereby they are very unlikely to encounter a Deaf professional while making decisions for their children's communication, a situation aggravated by gate-keeping of information and the creation of a negative discourse of Irish Sign Language by hearing professionals.

Gate-Keeping, Power Relations, And The Negative Discourse Of Irish Sign Language

‘The family is no longer to be just a system of relations inscribed in a social status, a kinship system, a mechanism for the transmission of property; it is to become, a dense, saturated, permanent, continuous physical environment that envelops, maintains, and develops the child's body’. (Foucault, 1980 in Faubion, 2002: 96)

In *The Politics of Health in the Eighteenth Century*, Foucault (1980 in Faubion, 2002) cites childhood as problematic, a phase within which to secure an optimal and healthy development. It is the family which becomes the pivotal source of securing the production of healthy children, as set down by the (Medical) State. Foucault refers to this move as ‘the privilege of the child and the medicalization of the family’ (1980 in Faubion, 2002: 96). The family environment became one which is ‘dense, saturated, permanent, continuous ... that envelopes, maintains, and develops the child's body’ with the health of children becoming ‘one of the family's most demanding objectives’ (1980 in Faubion, 2002: 97).

It is the hearing family, through the advice of medical and education professionals (from which Deaf people are excluded) that steer the ‘healthy’ development of d/Deaf children. For the vast majority of hearing parents, the birth of their d/ Deaf child will be their first interaction with deafness. Therefore, as Gregory *et al.* highlight ‘advice from professionals carries a lot of weight, especially with a group of parents of deaf children who may not know other parents in a similar position and thus have nothing with which to compare the advice they receive’ (1995: 49). In addition to this, to counteract parents accessing information through their own research or chance encounters with the Deaf Community, gate-keeping of information, as well as tactics of power such as seduction, inducement, and coercion used by these professionals through the creation of a negative discourse of Sign Language all come into play. It is important to highlight that this exercising of power as it relates to deaf education is heterogeneous and context dependent, with individual variation across professionals and parents causing variation in the advice/ direction given, the manner in which it is given, and the reaction from parents. However, general observations can be made indicating the tactics used to maintain the hegemonic medical discourse on deafness.

Citing Lipovetsky, Allen (2003) stresses that the central component of seduction is that the subject can opt out of a particular action through the presentation of choice, thus framing decisions as subject-made. In Ireland, parents are officially provided with the ‘choice’ of teaching speech or Irish Sign Language to their child with speech and language therapy and Irish Sign Language Home Tuition services provided respectively. However, while parents are officially given these ‘options’ this research saw evidence of gate-keeping of access to information about Sign Language. Many of the parents involved in this research were not informed of the benefits of using Sign Language with their deaf children:

‘I don’t think we were even, I can’t even remember if they even asked me “do you want Sign Language?” ’. (Parent 02)

Instead, early intervention services revolve around the continuous use of hearing aids, the possibility of cochlear implantation, and the provision of speech and language therapy. *All* of the parents receiving a diagnosis in Ireland were immediately provided with hearing aids, advised regarding cochlear implantation when appropriate, and referred for speech and language therapy (although long waiting lists for this service persist). Parents are seduced into the medical model with the sometimes misleading promise that their child will acquire speech:

‘You know, you were just sent home with hearing aids on and ... you just have to get him talking and that’s it. I didn’t really realise, when they give you hearing aids, you have to teach them to talk. I didn’t realise that until later. I just thought “oh right, he’ll probably start talking once he keeps wearing these hearing aids.” ’ (Parent 02)

On the other hand the Irish Sign Language Home Tuition service was often not promoted or even advertised by those responsible for informing parents (the Visiting Teacher of the Deaf). Over 25% of the parents interviewed for this study had never heard of this service at the time of the interview. Of the remaining 75% of parents who knew about the service, only two of them had been told by the visiting teacher about the service with the remainder finding out through their local Deaf organisation which they approached independently:

Interviewer: How was communication in the house then at that point, were you all, em, learning Sign Language?
[Mother nods] Was that the way that, is that what the Visiting Teacher Service again sort of recommended?

Mother: No, I did this off my own ... And it was actually a girl, she’s a Special Needs Assistant who used to look after Noel, her friend eh, was looking after a girl who was deaf

from [name of town]. And it was through her that we found out. Otherwise we wouldn't have known anything about classes or anything. (Parent 09)

Subsequently, the 'choice' that parents make to use speech over Sign Language is often guided by limited access to information on the benefits of Sign Language and information regarding services available in Sign Language.

For many parents however, when the reality of the time and effort needed to teach speech, as well as the frustration of having a young child with whom you cannot communicate becomes a reality, the power of seduction wears off. Also, as their shock after diagnosis wears off and parents begin to proactively research deaf education, perhaps engaging with their local Deaf organisation, the use of Sign Language becomes more of an option. To maintain non-use of Sign Language, a second tactic, inducement, becomes implemented. Here we begin to see a small element of force, often appealing to common sense on the practicality of speech, and parents are won over to the advantages of their 'choice' and subsequently cease to resist and fall into line (Allen, 2003: 101):

'And eh ...o they were recommending that we didn't teach Hazel⁶ Sign Language because Hazel would become reliant on sign, and where she was living in a hearing world, it was better that she develop her oral [sic] as much as possible'. (Parent 17)

This is combined with coercion, whereby if parents continue to resist, negative sanctions are threatened or imposed until they comply (Allen, 2003: 31). The negative sanctions in this case are implicit and psychological, by incorporating a negative discourse of Sign Language whereby parents run the risk of 'damaging' their child by introducing them to Sign Language.

'They said to me that they were against Chris getting Sign Language because he is still gaining, he is still trying to gain language and it could set him back a lot, that's what the new teacher for the deaf was telling me'. (Parent 02)

Sign Language, instead of being upheld as a valuable mode of language acquisition for d/ Deaf children is instead labelled as a 'crutch', making children 'lazy' in their use of speech and causing deterioration in English grammar.

'They said she'll use it as a crutch'. (Parent 04)

⁶ The names of children and parents in this research have been replaced to conceal their identities.

‘I think somebody told [my husband] at some stage you know that they could get lazy using sign and that it can prohibit the speech coming’. (Parent 10)

‘[Using Sign Language], the grammar can just go straight downhill, that they just go from here (gestures downwards), [the visiting teacher] said definitely not at the moment [. . .] I remember they were just saying “No Sign Language if you want to get him talking”’. (Parent 02)

This causes an internalised self-disciplining amongst parents who wish to provide their children with the ‘opportunities’ available through speech in a hearing world and avoid jeopardising that through use of Irish Sign Language. For parents who are struggling to implement the speech-only route, yet aware of the negative sanctions of using Sign Language, there are a number of tactics provided to help prevent signing, such as ignoring their child when they signed, encouraging them to speak instead of sign, or restraining themselves while they communicated with their child:

‘It was terrible ignoring her ... you know she’d ask me for a drink [demonstrates sign] and we were like “ah, what? I can’t hear you.” Ah, it was horrible’. (Parent 04)

‘I can remember at the time being distinctly told ... I was to hold my hands behind my back when I was talking to Hazel because I could not help using my hands ... so the way that we were to sort of counteract that was to, when we talked to her, we found that we were using our hands, to put our hands behind our back and just, just use the verbal, rely on the verbal only. And so we did that ...’ (Parent 17)

Many of the parents recounted stories like this, signalling the relative success of the hegemonic medical model in implementing a speech-only route. It is interesting to compare these findings once again to those mentioned by Gregory *et al.* (1995) in their research during the 1970s, which found parents being warned off Sign Language as it caused ‘laziness’ and prevented speech from developing, indicating the use of similar tactics in the UK almost 40 years ago. However, it also emerged that there was an element of resistance to this system. In spite of the fact that almost all of the parents in Gregory *et al.*’s study started on a speech-only route, only one family continued on that route without ever learning Sign Language with all other families using Sign Language at some stage in their child’s development.

Resistance/Transgression And The Necessity Of Irish Sign Language

Acts of resistance, as Rose (2002: 383) states ‘strategically subvert, appropriate, and contest hegemonic spaces and the dominant relations they stand for’, subsequently the use of Irish Sign Language by parents in spite of the hegemonic medical model within which they are embedded could qualify as such an act. However, Valentine and Skelton (2003: 314) problematise the notion of resistance stating that ‘it conceals a diverse range of practices, degrees of intentionality, and reflexivity that might be more effectively differentiated’. Similarly, there is the danger of romanticising resistance (Cresswell, 1996), viewing *any* incidents of parents using Irish Sign Language as an act of resistance when in fact they frequently lack an intentional motivation to ‘strategically subvert’ the medical system. These acts could instead be viewed as transgressions, unintentional in nature yet with a visible result that counteracts the intentions of the dominant group, in this case medical and educational professionals (Cresswell, 1996). As Rose highlights,

‘unintentional resistance encompasses acts that have subversive and potentially emancipatory effects but which are not conceptualised in terms of conscious ideological struggle ... whereas the first form [intentional] of resistance is a direct response to power, the second [transgression] is motivated by interests and desires that lie outside the purview of hegemony’. (2002: 385)

Therefore, while strategic acts from the Deaf Community such as organising protests, Sign Language pride marches, or active promotion of the use of Sign Language amongst parents might be considered resistance, the actions of parents is often framed, not as an ideological struggle but rather out of practical necessity within the home. It has, nonetheless, the potential to develop into resistance. Therefore, I refer to these as acts of transgression/resistance signalling not only the difficulty in distinguishing between these acts, but also the fluidity from acts of transgression to acts of resistance over space and time since these acts are frequently spatially and temporally limited, often being confined to early childhood before spoken language has developed and occurring only in the family home. For this reason, as a counteraction to the hegemonic medical model, their success is limited because they lack the intentional and collective action that would more likely cause an overhaul of the system. Nonetheless, these acts are of significance in that they affect the daily lives of parents with d/Deaf children as they try to negotiate the everyday implications of a hegemonic medical model.

The forms of transgression/resistance evident in this research were non-compliance, protest, and public revelation. Non-compliance was frequently cited on the grounds that following a speech-only route with their young d/Deaf child simply was not practical, with frustration cited

as the most common reason for opting for Sign Language.

‘We went to the Sign Language classes, just to have a means of communicating because obviously you couldn’t go through life without being able to communicate. And if he wanted something out of the press [cupboard] I’d end up emptying the whole press to see what it was he wanted’.
(Parent 07)

Parents did not conceal their use of Sign Language from medical professionals, although a few of them did speak of feeling guilty or concerned about the lack of approval they would meet from professionals. However, pragmatic resistance was often accepted by medical professionals, although it was usually seen as a short-term measure until cochlear implantation or other services were in place, once again undermining the long-term role of Sign Language in the development of d/Deaf children. In the case of the mother quoted above who implemented Sign Language out of frustration, the cochlear implantation of her son saw a change from the medical professionals in their acceptance:

‘So then Michael, well once he got the implant they said “that’s it you’re not allowed to sign any more”. And we were like “what are we going to do, he can’t, he doesn’t understand this?”’. (Parent 07)

Outright protest was less common amongst parents, but tended to emerge as a characteristic with those who had contact with the Deaf Community and saw their child as part of that community:

Interviewer: Have you had any sort of conflict with, with going to [hospital name], I’m not saying conflict in the, sort of you know, them fighting with you sense of the word . . .

Mother: (anticipates question) not to use Sign Language?

Interviewer: yeah, have..?

Mother: (interrupts) no.

Interviewer: have they been supportive of it?

Mother: (speaking assertively) I put my point across; ‘I use the baby sign with her and that’s it’.

Interviewer: mmm.

Mother: (continuing in an assertive manner) I say it and I

sign it, but I mean the way it was with Elaine we'd no way – we'd *no* communication [. . .] with her at all, and people just accepted that that's the way ...

Interviewer: so they [the cochlear implant team] had no problem with it at all?

Mother: oh no problem with it whatsoever (Parent 05).
'I want him to have Sign Language because I feel he's going to be a part of the Deaf Community in some way at some stage in his life, in some way. I just, em, I want him to have it'. (Parent 10)

As a tactic of resistance, this seemed to be the most successful with parents encountering little in the line of coercion or inducement from medical and educational authorities. Nonetheless, there are negative implications felt by parents who use Sign Language as a method of communication. Most notably, the choice of educational placement becomes limited as Irish Sign Language interpreters are not provided in mainstream schools.⁷ The only Deaf parent interviewed for this research recounted her experience in trying to secure a mainstream education for her child. She was refused a Sign Language interpreter on the grounds that she could send her son to the school for d/Deaf children if she wanted his education to be conducted through Irish Sign Language. With only one residential school for d/Deaf boys in the country, this is a difficult decision to make and places restrictions on those parents wishing to use Sign Language as the primary mode of communication with their child.

Parents of older d/Deaf children in this research were more likely to resist in an intentional and collective fashion, informing other parents of the value of Irish Sign Language or campaigning for access to and information about Irish Sign Language, perhaps out of growing confidence as parents of a d/Deaf child as well as recognising difficulties their d/Deaf children are experiencing. Several parents with older d/Deaf children spoke of using the research itself as a means of resistance:

'Now, I have all Hazel's books kept, because I hoped and prayed one day this day would come, where somebody would come and ask me what happened'. (Parent 17)

⁷ As was mentioned earlier, occasionally a d/Deaf person will be employed as a special needs assistant to work with deaf children who use Sign Language in mainstream environments. However, this is not directed by or guaranteed in policy, and is actually contrary to the requirements of special needs assistants that they refrain from engaging in any educational role. Furthermore, with the recent educational cutbacks special needs assistants are being removed from d/Deaf children. Subsequently, the place of Irish Sign Language continues to be undermined in the deaf education system.

A number of these parents with older children were quite adamant and angry that they had been misled about the use of Sign Language, yet they had not directly tackled those responsible.

‘[Y]ou know, that was a complete, that was a huge mistake. She should have been helped, she should have had Sign Language right, all the time’. (Parent 17)

‘We can’t help thinking we’ve made all the wrong decisions we should have left [him] as part of the Deaf world. He doesn’t have any d/Deaf friends and he has nobody he can communicate with who understands his plight . . . who can empathise with him really . . . I mean he doesn’t have that group, that’s the worst’. (Parent 07)

‘As soon as I saw the children [at an event for d/Deaf children] using all the different [modes of communication], I just said “that’s ridiculous!” . . . you know what’s the point of trying to force something [speech-only] on her if it’s not going to work?’ (Parent 05)

‘Em, I have spoken to [the visiting teacher] about this and she feels that I’m going down the wrong route by going down the sign language route. And I don’t agree with her after what I’ve seen in [an event for d/Deaf children]’. (Parent 06)

Once again, Gregory *et al.*’s study also highlighted a great deal of resentment from those parents who had been badly informed in the 1970s regarding the benefits of Sign Language. One father of a Deaf adult man said ‘We ought to have been taught to sign and we ought to have been encouraged to sign from the word go’ (Gregory *et al.*, 1995: 51). While it could be argued that advances in technology make comparisons between those raised in the 1970s and the children in this research unfair, it should be observed that three of the four parents quoted above have children with cochlear implants, suggesting that cochlear implantation does not negate parental regrets at not learning Sign Language as their children grow.

Noticeably, however, none of the parents directly challenged the medical and educational professionals whose advice they felt had been biased and inappropriate, signalling again perhaps the power embedded within the authority of the medical model. The fact that these parents did not directly confront the system may be due to the fact that all of the hearing parents interviewed are still within medical and educational services, and may be uncertain about challenging the system upon which they are so reliant, signifying the authority held by these services in their ability to grant or deny easy access to services. Therefore, while parents use trans-

gression/resistance to implement Sign Language within their own homes, and often extend this to networking with other parents, there was little in the way of systematic challenge from the parents interviewed. The overall feeling was one of trying to achieve a balance of not confronting the system so directly that it would jeopardise their child's access to services. For some parents, this was a daunting and worrying task:

'It's very difficult to confront a system when you are not professional and nobody, you don't really, you don't really have ... It was like, it was like being out in the ocean, and . . . And it was like there was nothing there around to help except you were in a small wee life-raft, and I found it incredibly difficult, and I remember going home, I remember going home different days from school and I was very, you know I was very upset by all of the things that we had experienced in school. And, I remember praying continuously for about two weeks that God would give me guidance on how to speak to the teachers in a way that it wouldn't offend them but that it would get the best outcome for Hazel'. (Parent 17)

Overall, while there are individual acts of transgression/resistance from parents, these acts are often spatially and temporally constrained and lack a collective and intentional challenge to the system. Where parents feel they have been let down by the system, and there is the possibility of their actions to develop into resistance through intentionality, they are reluctant to bite the hand that feeds them, implying a fear of negative repercussions from service providers. Parents rely a great deal on the scant services provided by medical and educational professionals, and the authority (actual or perceived) held within those services, either through their ability to provide or deny speedy services, acts as a great deterrent to parents to challenge the system within which they are embedded.

Conclusion

While power is complex, heterogeneous and context dependent, and any seeming hegemony is unstable and comes with the possibility of resistance, the Irish deaf education system in its present state is characterised by a robust hegemonic medical model. This is in spite of calls from the Deaf Community to be recognised as a cultural and linguistic minority group and to accept and promote the value of Sign Language in the social and academic development of d/ Deaf children. The hegemonic medical model must be viewed within the context of a long history of the social authority attributed to medical and educational professionals, which legitimises their goals, in spite of their limited knowledge of Sign Language, or interaction with the Deaf Community. The result is a view of deafness as a deficient condition which can be remedied through the use of speech instruction and by avoiding the most obvious signifier of Deafness: Sign Language.

Several tactics are used to reproduce and maintain this hegemony, including gate-keeping access to information about Sign Language, seduction, inducement and coercion of parents into using a speech-only approach, and excluding Deaf professionals through policy measures thus maintaining a monopoly of power amongst hearing professionals. Thus, as Allen (2003: 26) observes 'some people and some groups have more power than others, not by accident or by a series of fortunate events, but by virtue of the structure of relations of which they are part'. However, Allen also states that power is relative and is frequently met with resistance.

In spite of the system within which they are embedded, and the tactics described above, many hearing parents of d/Deaf children in Ireland still continue to choose Irish Sign Language as a means of communicating with their child. This transgression/resistance initially indicates some hope that the future of deaf education in Ireland will be guided more by the social model of Deafness than it is at present. However, the fact that this transgression/resistance is temporally restricted (often only taking place in early childhood) and spatially limited (confining itself to the family home) decreases the potential impact that this move could have on the overall system. This is more so the case now than before because of the mainstreaming movement taking place. Subsequently, the nature of transgression/resistance from parents in introducing Irish Sign Language to their children has a somewhat fractured result, preventing intentional collective action that might truly challenge the hegemonic medical model currently at play.

This is further aggravated by the fact that the overwhelming majority of d/Deaf children (90%) are in place in mainstream schools, limiting their interaction with d/Deaf peers as well as the interaction of their parents with other parents of d/Deaf children. This lack of collective action is changing the potential geographies of resistance within deaf education. While residential schools for d/Deaf children have long been heralded as bases of resistance where Deaf Culture and Sign Language is transmitted from one generation to the next, often in spite of anoralist philosophy in place within the school (Ladd, 2003), the mainstream environment limits this intergenerational contact. Furthermore, deafness is usually only one generation thick, with most d/Deaf children having hearing parents, and most d/Deaf parents having hearing children. Subsequently, collective resistance through family networks is restricted to the 10% of d/Deaf people born into d/Deaf families. It is for this reason that mainstreaming, rather justifiably is often viewed as '[destroying] the embryo of the Deaf Community' (Crean, 1997: 128), as it limits not only the interaction of d/Deaf children amongst each other, but denies the development of information networks and collective action possible amongst their parents.

The long-term implications of this hegemonic medical system are unclear, but it is likely that d/Deaf children will continue to struggle in their identity formation as young adults while a medical model prevails which forever views them as ‘not quite hearing’. As Davis and Watson (2001: 673) highlight

‘[i]n the case of some children the imposition of medically defined and adult-imposed notions of difference and normality lead to their identity only being described in terms of labels derived from the field of educational psychology,’

and in the case of deaf children – audiology. While it was out of the scope of this paper to examine in detail concepts of identity, others have noted the complex nature of d/Deaf identity and the important role of Sign Language as it ‘opened up the Deaf world for them to enter and become a part of’ (Skelton and Valentine, 2003a: 456). While parents of d/Deaf children may be able, to some degree, to shield their children from learning Sign Language, as these children grow up, they are likely to question those communication decisions made by their parents when they were younger. While there will be those who remain in the hearing world, using speech for communication, there will be others who will transition to the Deaf world (Valentine and Skelton, 2007), learning Sign Language and identifying as Deaf. For those making this transition, their relationship with their parents may suffer (Gregory *et al.*, 1995; Skelton and Valentine, 2002) owing to the gap in communication between them. The persistence of a medical model which provides biased and inaccurate information to parents, therefore, could be damaging for many more years to come in terms of identity formation, parent–child relationships, and for the successful uptake of the Deaf Community’s call for a socio-cultural model of Deafness.

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CHAPTER 32

WOUNDED CITIES: MEMORY-WORK AND A PLACE-BASED ETHICS OF CARE

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'Project Prometeo: Acts I & II', downtown Bogotá, December 2002 and 2003

A man in his late thirties wearing a tuxedo walks onto a stage with a lit torch. He sits down, sentinel-like as if at a doorway stoop, and begins to light matches. We are seated outdoors at night in downtown Bogotá; candles and spotlights illuminate the figures of the performers who move across a 'stage' in a very large empty field. Furniture brought in or improvised by the actors suggests rooms in now empty houses that once were occupied. Around the 'stage', former streets are marked out with candles in white paper bags. Behind the performers, two very large screens, each more than three-storeys high, project images and sound recordings of the neighborhood that once existed here, known locally as El Cartucho, as well as images of *Project Prometeo: Act II* as it is being performed (Fig. 1). The videos and sounds of El Cartucho include on-site interviews with residents, historical images, maps, and scenes of destruction.

The performer does not speak but continues lighting matches; the sounds and images of a taped recording of an interview of him describing his experiences in the neighborhood runs on one of the large screens behind him. Other performers begin or continue to enact their own interpretations of Heiner Müller's *The Liberation of Prometheus*.² (In addition to the basic story – Prometheus brings fire to the humans and is consequently banished by the gods for his transgression, lashed to a remote craggy rock where his liver is pecked at by an eagle for eternity – Müller added a twist: After hundreds of years, Heracles offers to let Prometheus go, who is unsure if he wants to leave his horrible situation because he has become codependent on the eagle and fears what freedom might mean.) We see a married couple sitting throwing matchbooks like dice on the dining room table; a woman in a pink gown eating fire (Fig. 2); a woman dressed in white silk carrying candles to the stage to create a makeshift altar; a man standing up from a seat, silently pointing out

¹ The author wishes to extend her deep thanks to Phil Steinberg for organizing this plenary issue, and to Rob Shields, Jeff Garmany, and Kevin Ward for their generous and thoughtful responses. A special thanks also to Mapa Teatro, the District Six Museum, the residents of Roanoke, and Mindy Fullilov.

² Heiner Müller was an East German dramatist, poet, writer and theater director. He is, after Berthold Brecht, considered Germany's most important dramatist of the twentieth-century. His work contributed to postmodern drama and postdramatic theater. See Kalb (2001) and Kushner (2001).

where he used to live and what used to be in his neighborhood in real- and recorded-time; a little boy sitting in a chair, dangling his feet, while in a video track he proclaims ‘I am Heracles!’; a clown puts on makeup and releases white doves from his magic box.

These residents are performing amidst the ruins of their former homes, in a historic part of downtown Bogotá. By the late 1980s, with economic restructuring, suburbanization, refugee movements resulting from the rise of drug cartel-paramilitary warfare, and from other reasons, the neighborhood El Cartucho had become a dangerous place, known for its informal economies, sex work, and drug trade.

Figure 1. *Project Prometeo: Act II. Former residents of El Cartucho perform in downtown Bogotá, December 2003.*



Photograph: Courtesy of Mapa Teatro Laboratory of Artists.

The mayor of Bogotá from 1998 to 2001, Enrique Peñalosa Londoño, called the neighborhood ‘a symbol of chaos and of government impotence’; part of his successful mayoral campaign included the promise to ‘reclaim El Cartucho for the public’ (Mance, 2007). Replacing a ‘symbol of chaos’ with the promise of a public park reinforced Peñalosa’s claim to clean up the city by making it ‘green’ and ‘sustainable’.³ Twenty

³ As I describe elsewhere (Till, 2010a), Peñalosa initiated five mega-projects between 1998 and 2001: the bank of lands; a parks system, including a bike paths network; a system of libraries; the Transmilenio mass transit system; and road construction, maintenance and renovation. Not all were completed under his tenure, but his ambitious initiatives were made possible, in part, because of former mayor Jaime Castro’s financial reforms; a relatively independent city council; and existing traditions to encourage a sense of safety in public spaces (such as Domingo Ciclovía (Cycling Sunday) launched by Augusto Ramierz in

hectares (200,000 square meters), or the entirety of historic Santa Inés, was razed from 2000 to 2004, including historical buildings, streets, place-bound local economies, homes, and social networks; tens of thousands of residents were displaced without compensation. In 2005, not long after the performance of *Project Prometeo: Act II*, the new ‘Park of the Third Millenium’ was unveiled.

Figure 2. *Project Prometeo: Act II*. Former residents of El Cartucho perform as a place-based act of care; downtown Bogotá, December 2003.



Photograph: Courtesy of Mapa Teatro Laboratory of Artists.

Implicit in such urban renewal projects is a both a fear of the ‘other’ as well as a desire to clear out the untidy elements of the ‘informal city’ and to shape a developed, ordered postindustrial city (compare Sandercock, 2003). Yet projects such as these continue to fail by their own self-proclaimed ‘progressive’ goals, such as the claims to take back the city for ‘the public’ or to ‘green’ the city, as well as by its not-so-progressive unspoken agendas of preventing squatting and relocating the homeless from the center of the city. Although the Third Millenium Park in Bogotá, for example, received architectural awards, it is now a rather sterile space and considered unsafe by many of the city’s residents. Because this ‘solution’ did not address the needs hundreds of thousands of residents who continue to live in impoverished conditions, moreover, by 2010 marginalized citizens occupied the park for protest actions, creating a ‘tent city’ of squatters to demand more public housing and care

1982 and followed in other cities worldwide; and the Ciudadana Cultura public art projects initiated by Antanas Mockus (who was mayor prior to and following Peñalosa).

for the city's homeless for more than three months (Mapa Teatro, personal conversation, 2011).

As Lefebvre (1991 (1974)) reminds, the discourses, practices, and the desires tied to urban pasts, presents, and futures are inherently political because they inform how individuals make and justify their decisions and actions. At a conceptual level, it is important to document both the structural problems that lead to urban inequities as well as the urban imaginaries and managerial strategies that result in these projects and their failures. Yet when critical analyses of urban space privilege representations of the city as property or according only to development trajectories, we, as scholars, ignore the complex spatialities and temporalities of the lived city for most residents in the world, thus limiting our appreciation both of the possibilities for urban change and the prospects for more just urban futures. A deeper appreciation of the lived realities of inhabitants of the city – including cultural identities, dynamics of the everyday and symbolic worlds – would enable planners, policy makers, and urban theorists to consider more appropriate and sustainable urban transformations than those that continue to legitimate disciplinary forms of governmentality.

Should not we, as urban and political scholars, consider performances such as *Project Prometeo* – as well as the ways that residents talk about and care for places and the city more generally – as more than merely 'subjective', 'biased', or 'ill-informed', but as significant data challenging the current models of the city that pathologically designate districts as either good or bad, and entire cities as ordered or chaotic? Indeed, the actor-residents of *Project Prometeo*, through their performances and stories, raised ethical questions about the politics of place-making in the name of progress and called attention to the significance of art, memory, and imagination in understanding and creating a more just city. The memory-work and creative practices of these displaced residents offer significant lessons about retheorizing the city and thinking differently about the possibilities of urban politics in at least three ways. First, residents performing in *Project Prometeo* challenged city authorities' understanding of them as invisible; they called attention to the fact that official claims to build a 'sustainable' city did not include all of its residents. Through their stories and performances, residents documented their presence (how they used, moved through, and made their neighborhood and city), thus asserting basic individual, collective, and temporal claims to having rights to their city. Second, they communicated and enacted their experiences of place and the city as inhabited, an understanding based upon psychic attachments, materialities, bodily and social memories, and fragile social ecologies. Performing atop the ruins of their former homes in the historic Santa Inés-El Cartucho neighborhood, their interpretations of the Prometheus myth also invited the audience to consider the tensions between the acceptance of everyday violence in their city as well as the fears of the unknown that most residents face when trying simply to

survive. Finally, *Project Prometeo* resulted in acts of witnessing, not so much of so-called ‘slum clearance’, but of remembering life in an otherwise previously marginalized community in the city. As Abderhalden Cortés (2006) of Mapa Teatro testified: ‘the community’s stories were a substantive part of the architecture of the neighborhood’s memory. A form of resistance in the face of oblivion, a potential footprint among the ruins’ (np). Residents worked collaboratively with the artistic group Mapa Teatro Laboratory of Artists and other former residents on *Project Prometeo* over a number of years. Rather than treat the audience as spectators, they called upon guests and residents to attend to their city as an inhabited place by considering how the unfolding and open-ended pathways of memory might offer possibilities of shared belongings. At the end of their performance, the performers invited all of the guests to dance atop the ruins to live bolero music.

Inspired by the stories, actions, and creative practices of ‘local experts’ who live with violent histories of displacement, in this article I offer an alternative way of understanding the city that challenges dominant Western models. By considering cities as ‘wounded’, urban space cannot be understood as property only. If cities and their inhabitants are understood as having been wounded by state and dominant social-political practices, other imaginaries of place, temporality, and the city might focus attention on why places, peoples, groups, environments, and non-human natures continue to be injured. Through memory-work and what I call a place-based ethics of care, historical and current resources might sustain more just possible futures. In this paper, I use examples inspired from my ethnographic research about activist and artistic projects in Bogotá, Colombia, Cape Town, South Africa, and Roanoke, Virginia USA to illustrate how attending to, caring for, and being cared for by place and those that inhabit place are significant ethical and political practices that may work to constitute more democratic urban realms.

I intend that this article might open up a conversation about why political and urban geographers need to do more work in theorizing and teaching about the city in ways that are recognizable to the inhabitants of the city. In the following section, I review recent scholarly discussions about postcolonial urban theory, memory politics, and the right to the city to situate my arguments. Next, I discuss the concept of root shock as tied to my concept of wounded cities, drawing upon my ethnographic research and upon theoretical work by social psychiatrists, urban social ecologists, and medical anthropologists. I then discuss memory-work and outline a place-based ethics of care, drawing upon feminist political theory and creative and ethnographic research practices. Through ethical, creative, and ethnographic practices, residents, scholars, and global citizens might begin to explore pathways of belonging based upon the multiple pasts and possible futures that move towards creating and taking care of more socially and environmentally just cities.

Rethorizing urban politics

In recent years, postcolonial scholars researching cities in the so-called global South have called for radical retheorizations of 'the city' to understand how to transform structures of inequality and recognize the lived realities of most urban residents (Bayat, 2000; Holston, 2007; Pieterse, 2008; Robinson, 2006; Simone 2010). With some urbanists and planners analyzing North American and European cities (Healey, 2006; Sandercock, 2003), they challenge the inherent Western bias of models and theories of modernity, urbanization, urban development, and governance.⁴ They argue that within a number of Western-based models of urban transformation is a fear of the 'other' and a desire for order. Western-based models of urban development either 'tame' or 'romanticize' the messiness that is so central to the mobilities, spatial practices, and connectivities of the lived city. Underlying such models is a belief in the power of rational planning to solve 'problems' by ordering space and thereby flattening out, separating, and drawing boundaries around the complex spatialities, temporalities, and potentialities of the lived city. From a postcolonial perspective, therefore, the real challenge is 'to rethink epistemic categories' (Pieterse, 2008, p. 111) and develop theories about cities that conceptualize the urban spaces and realities of most of the people living in the world as 'ordinary' not 'other' (Robinson, 2006).

When models of the city that implicitly assume that neighborhoods are parcels of property circulating through networks of the global economy are privileged, inhabited places are treated as empty stages upon which the drama of conflict over future development potential takes place; residents, at best, are treated as victims. Perhaps for this reason, a number of scholars maintain that so-called slums, as well as suburbs, central business districts, and retail spaces, must be theorized as constitutive of, not aberrant to, the city (Bayat, 2000; Holston, 2007; Pieterse, 2008; Simone, 2010). To address the persistent problems of urban inequality, privileged network infrastructures, and unequal forms of citizenship, Pieterse (2008) argues that the everyday 'must be the touchstone of radical imaginings and interventions' (p. 9). For example, the numerous, often contradictory, everyday processes, mobilities, and practices that residents living cities of the global South use to 'just get by' are what Simone (2010) calls 'cityness'. Bayat (2000) similarly describes 'the encroachment of the ordinary' in Middle Eastern cities as including such quiet and pervasive advances that people make upon the propertied and powerful elite to survive and improve their lives.⁵ Through silent encroachment, sometimes alone and sometimes through collective action, residents gain cultural and political autonomy from the state, as well as

⁴ While these postcolonial theorists advocate new ways of thinking about urban and political theory, they also draw upon a range of theories, in particular Western poststructural theories, to think about urban space as postmodern, relational, and/ or as assemblages and rhizomes.

⁵ My overview of Bayat is taken from Pieterse (2008), Chap. 6-7.

redistribute social goods and opportunities. Holston's (2007) detailed ethnographic study of more than thirty years of land struggle and home construction in the outskirts of São Paulo also suggests that silent encroachment may result in emancipatory practices. Most Brazilians live 'illegally' as a result of a history of 'inclusively inegalitarian' citizenship (p. 41) that barred most citizens from land rights. Rather than accept privileges under 'clientelistic relations of dependence' (p. 235), however, after years of home auto-construction and conflicts over land use and ownership, residents have demanded legal rights to more inclusive and differentiated forms of citizenship. Microlevel forms of creative politics and what Holston calls 'insurgent' forms of citizenship operate at the interface between social mobilization (direct action) and symbolic politics (discursive action) according to Pieterse (2008), challenging hegemonic understandings of who and what constitutes the urban public. (I return below to a discussion of who constitutes the public.)

Rethorizing the city from a postcolonial perspective thus means to pay attention to forms of urban political life, everyday survival, insurgency, and creative practice that animate the city and make it liveable for most people who inhabit and move through the city. I draw upon and add to these discussions about alternative models of the city by introducing and/or developing the concepts of wounded cities, memory-work, and an intergenerational place-based ethics of care. By exploring how cities, as places of inhabitation, may be understood as 'wounded' yet as also providing environments of care, urban space must be understood as inhabited worlds infused with many forms of value, rather than as property or according to capitalist forms of exchange-value only.

Wounded cities

Following Lefebvre (1996 (1968)), I understand the city as *oeuvre* (p. 101), as constituted by its inhabitants through ongoing acts of making places. As human and non-human lives move, interact, and engage with others through complex temporal and spatial pathways, the symbolic and material places they make also become part of their bodies-selves-environments, a point I develop in the next section. I define 'wounded cities' as densely settled locales that have been harmed and structured by particular histories of physical destruction, displacement, and individual and social trauma resulting from state-perpetrated violence. Rather than harmed by asingular 'outside event', these forms of violence often work over a period of many years – often decades – and continue to structure current social and spatial relations, and as such also structure expectations of what is considered 'normal'. Such legacies are typical of many postcolonial societies but also haunt Western cities. In this respect, my definition is quite distinct from definitions of cities as 'wounded' or discussions about 'resilience' that describe the city as damaged following singular, while extreme, 'outside' events, from so-called 'natural' forces to war (defined in a traditional sense) to forms of globalization. In the edited collections *Wounded Cities* and *The Resilient City* (Schneider &

Susser, 2003; Vale & Campanella, 2005), for example, the city is understood organically, according to bounded territories or as a systems model, such as the body politic metaphor, or as a ‘a site where powerful external forces intersect’ (Schneider & Susser, 2003, p. 1), or, again, as a node through which power, capital, things, and people flow.⁶

My use of the term ‘wounded’ signals far more complex temporalities than the approaches to the city described above, which tend to circumscribe urban space-time according to either a before/after events-oriented model or a dependent-pathways systems model (that has pre-defined starting points) (compare Till, 2011). Rather than adopt a Western systems model of the city, such as the ancient notion of city as a circulatory system, or a model that suggests spatially-bound and managed forms of life, such as the body politic metaphor that legitimates the juxtaposition of political territory with state sovereignty and forms of governance, the temporally and spatially dynamic metaphor of the ‘wounded city’ works metonymically (the daily mazes and social ecologies of places also constitute urban processes) and psychosocially (individuals and groups have intimate relationships with places and the city). As I describe in the next section, if individuals and neighborhoods are wounded through displacement, material devastation, and root shock, so too is the city and its inhabitants. Moreover, cities become wounded in very different ways, as tied to the particular histories, processes, and traumas of displacement. These differences matter, particularly in terms of intergenerational relations and silences, and the individual and group capacity for repair. At the same time, urban social environments and inhabited and formerly inhabited places – as simultaneously material, metaphorical and imaginative, experiential and perceptual – do not deny its residents the possibilities of care and healing.

My use of the organic metaphor of wounded cities draws inspiration from both activists and artists (Till, 2005). During the 1980s in former West Berlin, activists who opposed the construction of a highway across the former site of the National Socialist Reich Security Service and Gestapo Headquarters, engaged in a protest action. They dug up the ‘forgetful’ layers of grass and denial that covered up a shameful national past and were surprised to find artifacts and cellar building remnants. (The city reclaimed that the area, after dynamiting this and other buildings following the war to expunge all of the physical traces of the former Nazi power center as the American Allies had requested.) The exposed landscape seemed to reveal physically the refusal of the state to come to terms with its violent past in the attempt to become a ‘good’ democracy through economic recovery. With the rubble of the former Gestapo cellars now present in the urban imaginary, the urban development plans were revoked. As part of the 750th anniversary of the

⁶ David Harvey’s (2003) discussion of the city as body politic offers a more complex and nuanced understanding of the city than Schneider & Susser.

Berlin, historians and activists involved in this protest action created a temporary exhibition that later became the international documentary center and landscape known as 'The Topography of Terror'.

The terrain uncovered and preserved was described by activists as the 'open wound' of the city. I believe their use of this concept was inspired by the work of German artist Joseph Beuys who was one of the first artists to directly discuss German responsibility for the crimes of National Socialism. Beuys promoted an 'expanded idea of art', meaning that art applies to human work in general, thus unifying artistic thinking with human action (Lerm Hayes & Walters, 2011). His artistic environment, '*Zeige deine Wunde (Show Your Wound)*' (1974-1975), was created to be installed in a bleak pedestrian underpass in the city of Munich and included pairs of: mortuary dissecting tables under which stood two glass-covered galvanized iron boxes containing fat; lamps; test tubes; preserving jars with gauze filters; bird skulls; clinical thermometers; the heads of two iron agricultural tools (chisels) mounted on bark sticks; two double-pronged pitchforks with cotton scarves placed atop two pieces of slate; wooden planks; two chalkboards; and two issues of the Italian *LOTTA CONTINUA (The Ongoing Struggle)*, a newspaper published by the far-left, militant Italian organization of the same name, founded in 1969 following a split in Turin's student-worker movement) mounted in white wooden boxes (Städtische Gallerie im Lenbachhaus und Kunstbau München, nd; Tate Modern Museum of Art, 2005). The wound is a recurring theme in Beuys' work and refers to personal, social, and political traumas, decay, and death. (The installation alludes to his personal injuries suffered during and after World War II; the injuries Germany perpetrated on its own citizens and others under National Socialism and after the war through denial; and the political division of the state into two Germanies as a consequence of National Socialism.) Stachelhaus (1991) writes that 'when Beuys was asked what he really meant by this environment, he answered that his primary concern was "to make visible the death zone toward which today's society is rushing with great speed"' (pp. 161-162). The doubles, as double identities, reflect opposition and unresolved conflict, yet the chalkboards and Italian newspapers may be interpreted as a call to action to confront the past critically and accept responsibility for past crimes, to engage in the difficult work of mourning (which entails a transformation of the self), and to imagine and create a new society.

Drawing upon these activist and artistic notions, I understand the moment of the wound as unfolding, as neither singular nor inevitable, nor coming from an outside source. Through mourning and memory-work individuals and groups may confront and take responsibility for the failures of the democratic state and its violences. Moreover, multiple pasts and futures are resources for residents, providing the possibilities to imagine more socially just cities through place-based practices of care.

Memory-work

My work on wounded cities contributes in significant ways to the vast interdisciplinary literature on memory politics in the city. The scholarship on the politics of memory demonstrates how stories about the past are always ‘entangled’, to use Marita Sturken’s (1997) concept, with already existing memorial topographies of a city and national histories (Boyer, 1996; Crang & Travlou, 2001; Huyssen, 2003; Till, 2003). Groups and individuals often struggle with one another for authority to represent their version of the past in the built environment, the media, and in legal arenas. When social groups inscribe their particular perspectives and stories about the past onto and through a public space, the results are contentious. For example, to make repressed stories more tangible in the built environment groups and individuals may establish places of memory at historic sites of cultural trauma to reclaim national pasts and imagine more just futures. Political, postcolonial, and historical geographers writing about the politics of memory have examined official commemorative practices and sites of memory (statuary, streetscapes, memorials, monuments, stamps, tourist attractions, urban renewal projects, bodies), as well as contestations to claims to national identity (DeLyser, 2005; Dowler, 2001; Duncan, 1990; Dwyer, 2004; Foote, 2003; Forest & Johnson, 2002; Hoelscher & Alderman, 2004; Johnson, 2003; Kearns, 1993; Raento & Brunn, 2005; Till, 2005; Whelan, 2003). The politics of memory thus includes the processes of negotiation about whose conception of the past should prevail in public space. Because the meanings of a city are not stable in time or space, the politics of memory also refers to the practices and motivations whereby groups attempt to ‘fix’ time and identity by deploying the material and symbolic qualities of particular places and landscapes. Indeed, some memorialization projects attempt to close off public discussion by bounding time through place, while others seek to keep open the process of historical reflection through dialog, changing landscape forms, and community capacity-building.

Paying attention to the politics of memory is significant for any understanding of the city, particularly in postcolonial or post-authoritarian societies that have experienced difficult national histories of state-perpetrated violence and are undergoing political and social transition (Bosco, 2004; Forest, Johnson & Till, 2004; Jelin, 2003; Nuttall & Coetzee, 1998). However, much of the work on memory in political geography has been limited to an approach that I have described as the ‘biography of a site’ (Till, 2006). Such an approach draws from concepts in key works, such as Foucault’s (1975, 1980) ‘counter-memory’, Hobsbawm’s (1983) ‘invented traditions’, Nora’s (1996-1998) ‘*lieux de mémoire*’ and Halbwachs’ (1992 (1952, 1941)) ‘social frameworks’ and ‘topographies’ of memory, and provide detailed descriptions of how national histories, memorial cultures, and shared stories are remembered and forgotten within a given country. Site biographies, however, are often narrow in their analyses of social exchange and power relations, typically

framing contestation as ‘resistance’ to dominant forces. Research is often limited to print media coverage (without critical analyses of the role the media plays in the process of public memory) as supplemented by public documents (city plans, competition guidelines) or the occasional interview to provide evidence of coherent group or political agendas. Ethnographic, phenomenological, or psychoanalytic approaches are rarely used to analyze how transgenerational encounters, performances, and rituals transmit and circulate understandings about the past across historical and lived times and through social spaces.

Places and sites of memory have meanings that exceed their forms as authored representations of the past because of the ways individuals and social groups experience them affectively, a point I examine in detail in the next section. Indeed, debates about difficult pasts often emerge in wounded cities at zones of transition through those very places where the city becomes out of joint in terms of Cartesian space and chronological time (Till, 2005; Till & Jonker, 2009). In and through the neighborhoods that were razed for ‘future development’, former residents who have inherited what Fullilove (2004) calls the ‘root shock’ of forced removal (see below), encountering and confronting the violence, injustice, and trauma of displacement throughout the city.

More attention therefore needs to be paid to artistic interventions such as *Project Prometeo* that advance the difficult ‘work’ of memory in wounded cities marked by particularly violent and difficult pasts. In cities undergoing political transition, memory-work signifies more than past and ongoing resistance to the status quo or conflict-resolution approaches to land rights and other disputes (although memory-work does indeed include that political work; compare Jelin, 2003). Such projects also may offer possibilities of place-based mourning and care work across generations that build self-worth, collective security, and social capacity (Till, 2008). Materially, memory-work motivates the creation of social capital, provides a range of memorialization activities, creates new forms of public memory, and is committed to intergenerational education and social outreach (Till, 2011). This capacity-building work can, in some instances, provide individuals with a kind of ‘social shell’ (Kearns, 2006) that offers social stability and security, despite the ongoing ruptures of geographies of displacement and exclusion. I consider memory-work as a form of what Pieterse (2008) calls ‘recursive political empowerment’ that enhances individuals’ capacity to act in ways that may be transformative and are embedded in collective possibilities across and through time and space.⁷ Place-based and collaborative memory-work may also create new forms of governance through what Healey (2006) describes as a needed combination of ‘hard infrastructure’ that challenges, constrains, and modifies dominant centers

⁷ According to Pieterse (2008), ‘People’s sense of possibility is closely tied to culturally shaped assessments of opportunities and threats . Such calculations, in turn, are intertwined with a sense of being and self in relation to place and particular communities’ (p. 7).

of power, with ‘soft infrastructure’ that develops ‘*social, intellectual and political capital*’ based on mutual learning (emphasis in original, p. 200).

Those engaged in memory-work often demand public visibility, political transparency, and accountability, demands that implicate residents’ rights to the city. Residents’ calls of ‘never again’, to ‘give voice’ or ‘make visible’ their stories indicate the ways that past forms of injustice constitute the present and imagined possible future. The right to represent the past therefore can be considered a right to the city and is intricately tied to the processes of democratization. Following the English-language translation of Lefebvre’s collected *Writings On Cities* (1996), scholars have explored the idea of the ‘right to the city’ by examining the ways that democratic states deny residents equitable access to resources in their city, including housing, public space, free speech, voting rights and, as I have suggested here, the right to narrate pasts through legal and material means (Dikeç, 2002; Mitchell & Staehli, 2007; Till, 2011; Wastl-Walter, Staehli & Dowler, 2005). Further, the idea of urban rights as related to inhabitation fundamentally questions understandings of political community based upon liberal understandings of citizenship as defined by the state (Attoh, 2011; Azoulay, 2008; Holston, 2007; Purcell, 2003).

Questions about the fair access to resources often lead to examinations of where and by whom the ‘public’ is constituted in democratic states. Sandercock (2003) notes that with the enhanced awareness and/or fear of differences in postmodern societies, urban inequality (and segregation) has intensified rather than decreased; social classes follow distinct pathways and occupy different zones of the city so that the privileged rarely encounter their ‘other’. Within cities, ‘unwanted’ groups, such as the homeless, potential terrorists, ‘dirty’ or ‘irresponsible’ mothers, radical hippie types and others, have been discursively and physically excluded from the city (Cresswell, 1996; Dowler, 2002; Mitchell, 2003). This fear of the other, as well as images of the necessity of a strong-armed state to protect its citizens from the other beyond state boundaries, has changed dominant understandings of ‘the public’ to legitimate new forms of urban forms surveillance and war, particularly following September 11, 1991 (Graham, 2004). As Mitchell (2003) argues, ‘to assure that public spaces remain “public” rather than hijacked by undesirable users ... the solution to the perceived ills of urban public spaces over the past generation has been a combination of environmental change, behavior modification, and stringent policing’ (p. 4). While Mitchell’s discussion is based upon his research in U.S. cities, his argument resonates in the case of Bogotá and elsewhere. Existing ‘problems’ as defined by urban elites are cleared away from sight and blamed on ‘unwanted peoples’; solutions are drawn upon Western visions of the city, as promoted and sold by city management strategists and economic development players located in ‘global cities’. In Bogotá, for example, city authorities casually referred to the residents of El Cartucho

as ‘disposables’ (Abderhalden Cortés, 2008). Most residents of the area were displaced as a result of the park project without compensation, perhaps because they ‘didn’t exist’ according to the state. In the early stages of the project, some residents were temporarily housed, so that they could be ‘processed’ and ‘receive’ a state-sanctioned identity. In the later stages of the project, other residents were located in a nearby slaughterhouse when the vast scale of displacement resulted in increased homelessness and a public fear of encountering those who once lived in El Cartucho in middle-class neighborhoods and downtown areas. As I have suggested above, however, through *Project Prometeo* the memory-work of displaced residents gave voice to supposedly invisible citizens and called attention to their rights to the city.

A place-based ethics of care

Much of the discussion about the right to the city has been made according to first generation rights such as civil and political rights. Pieterse (2008) argues that second-and third-generation rights – to peace or a clean environment – are as significant because they are tied to larger political concerns about social and ecological sustainability. Jones (2005), for example, describes how the right to health and socio-economic rights may lead to socially enabling environments, critical political spaces, and inclusive forms of governance. He offers a successful case of ‘rights-based development’ achieved through social mobilization to demand people-driven institutional access and health rights for individuals with HIV-AIDS in South Africa. These multi-generational rights, even as they are grounded in liberal values such as justice and equity, challenge liberal understandings of universal rights as first generational rights only, and thereby offer a ‘normative anchor’ to ground political struggles towards more sustainable urban futures (Pieterse, 2008). I contribute to these discussions about multi-generational rights to the city by introducing what I call a place-based ethics of care, a concept I develop in section four of this paper.

Although there has been much work about care in human geography in recent years (Barnett, 2005; Lawson, 2007; McEwan & Goodman, 2010; Milligan & Wiles, 2010; Popke, 2006; Smith, 1998), inspired initially by feminist political theory (Gilligan, 1982; Tronto, 1993; see also Garbardi, 2001), very little has been published on the politics and ethics of care in this journal. For example, the two articles that have been published in the last fifteen years in *Political Geography* have examined the restructuring of the welfare state through housing markets (Smith, 2005), and therapeutic and health policies (DeVerteuil & Wilton, 2009). As Smith (2005) has rightly argued in one of these articles, the scarcity of work on care represents a conspicuous silence on this topic within debates about the marketplace, the spaces of the state, and the social contract (and I would add the city). Not only has the political theory of an ethics of care been relegated to the gendered realms of the home and community, Smith also argues that it has not been used to theorize democratic

citizenship. She draws upon Sevenhuijsen's (2000) critique of Giddens' 'third way' politics to argue that citizenship should also include 'equal access to the giving and receiving of care'(p. 10; see also Sevenhuijsen, 1998).

I agree with Smith's (2005) reading and argue that a place-based ethics of care offers possibilities to create and plan for more socially just cities. I draw in particular upon the work of Tronto (1993) who argues that care, unlike interest, duty or obligation, is an ethical practice and attitude that implies a reaching out toward something other than the self. Tronto outlines four types of care-giving that can result in ethical qualities – and I would add geographies – that I discuss in detail in section three of this paper. I add to Tronto and Fischer's work by including practices of attending to, caring for, and making place, what I call a 'place-based ethics of care'; these practices are grounded in memory-work and are fundamental in the establishment of differentiated and active forms of belonging and political community that might constitute more just and equitable democratic societies. Indeed, as Smith (2005) argues, 'place caring as an activity and a set of social relations [should be] at the heart of social policy'(p. 10).

Wounded cities, root shock and the social ecologies of place

I venture to propose that displacement is the problem the twenty-first century must solve. Africans and aborigines, rural peasants and city dwellers have been shunted from one place to another as progress has demanded, 'Land here!' or 'People there!' In cutting the roots of so many people, we have destroyed language, culture, dietary traditions, and social bonds. We have lined the oceans with bones, and filled the garbage dumps with bricks (Fullilove, 2004, p. 5).

Contemporary cities in different parts of the world continue to be structured by histories of settlement clearances, geographies of displacement, and state-perpetrated violence. In her study of the urban renewal program from the 1940s to the 1980s in the United States, Fullilove (2004) examined the devastation wrought on the fabric of cities and across African American communities through multiple generations. Between 1949 and 1973, 2500 neighborhoods were bulldozed in 993 American cities, displacing at least a million people. Today, in cities such as Roanoke, Virginia, neighborhoods such as Gainsboro that were affected by waves of urban renewal beginning in the late 1940s – and that did not get the improvements or housing promised by city planners – have streetscapes with many empty lots, buildings held by absentee landlords, and decaying infrastructure (Fig. 3). Except for a few community centers, in particular the library, an important focal point of political resistance and intergenerational learning, the landscapes of this

neighborhood do not communicate healthy social webs maintained through everyday use. Despite its central location and its historic centrality and vibrancy for the city as a whole, the neighborhood has become what Marcuse (1997) calls an 'outcast ghetto', an area of the city that is even more segregated from mainstream political, social, cultural, and economic urban life than was the case in the 1950s to 1970s.

Roanoke is what I would consider a 'wounded city'; the social, cultural, and political histories of institutional racism that underlay the national policies of urban renewal in post-World War II America, and how they were interpreted and implemented in this city in a Jim Crow Southern region, continue to structure the larger urban geographies of Roanoke as well as the more particular attitudes toward this neighborhood and its inhabitants more than fifty years later. To understand my notion of wounded cities as working metonymically and psychosocially, it is important to describe the complex interface between bodies, memory, social groups and the lived city, and affect.

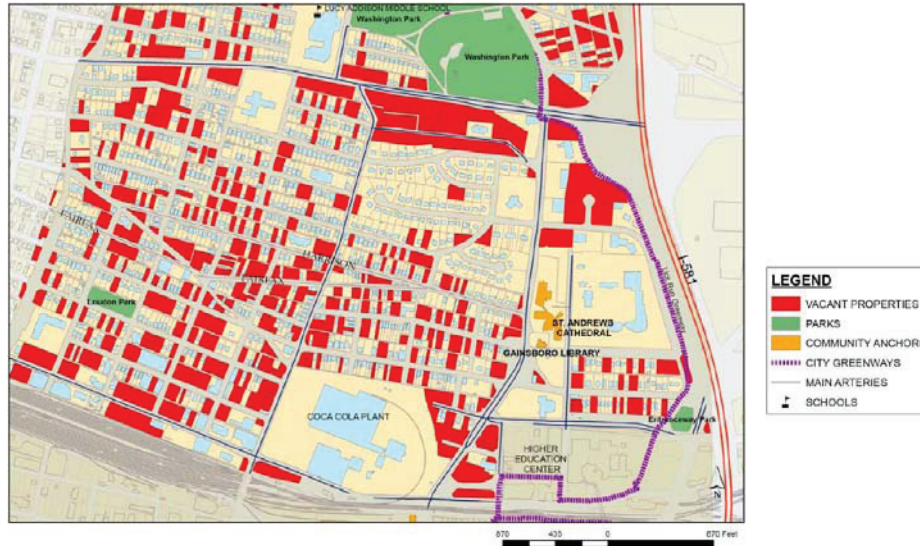
Fullilove (2004) interprets the history of urban renewal and African American displacement according to her concept of 'root shock'. Root shock is 'the traumatic stress reaction to the destruction of all or part of one's emotional ecosystem' (p. 11). Fullilove draws a parallel of root shock to the physiological shock experienced by a person who loses massive amounts of fluid as a result of injury, a shock that threatens the whole body's ability to function. Citing geographers such as Doreen Massey, planners such as Jane Jacobs, and social psychologists such as Kai Erikson, Fullilove describes place as having a central function in an individual's emotional and social ecosystem (compare Tuan, 1977). For Fullilove, place is a kind of exoskeleton (personal conversation with author, 2009). As such, we can understand place as always becoming, as within and beyond us, and as functioning as a kind of social protective shell, an understanding that has resonance with some Native American philosophies of human-environment relations.

When we move through and navigate our environments according to unlimited possible pathways, our patterns of movement are a kind of 'mazeway' that also provides us with security: 'Just as the body has a system to maintain its internal balance, so too, the individual has a way to maintain the external balance between himself and the world' (Fullilove, 2004, p. 11).

Similarly, according to medical anthropologists Arthur and Joan Kleinman, bodily memory is often limited to discrete analyses of the brain, body, mind, or person only (Kleinman & Kleinman, 1994). They introduce the concept of 'enacted assemblages' to account for the 'interconnected cognitive, affective, and transpersonal processes' of body-social memory (p. 719). Drawing upon Chinese conceptions of everyday life and social relations, the Kleinmans argue that the local

interpersonal world is the primary means through which sociosomatic processes shape the body and bodily processes shape social space.

Fig. 3. Map of vacant properties in the Gainsboro neighborhood in Roanoke, Virginia, 2010.



Note: GIS and image courtesy of Josephine V. Arbaugh.

I understand Fullilove's (2004) notion of mazeways and the Kleinmans' concept of enacted assemblages helpful in understanding how embodied social spaces provide a personal and social shell (compare Kearns, 2006); when individuals are forced to leave their neighborhoods and their protective mazeways are destroyed and/or cannot be made, root shock, according to Fullilove, may stay with a person for a lifetime. Fullilove argues, moreover, that the physical fabric of the neighborhood one grows up in also provides the cues and opportunities for the intergenerational transmission of stories, and as such root shock may affect multiple generations. Thus root shock can be inherited through social, bodily, and place memory. Places, even when materially demolished, remained haunted by what Casey (2000) describes as the 'unresolved remainders of memory'. For Casey, memory traces are 're-discovered' with evolving circumstances through time (belatedness). These unresolved remainders 'do not consist of depositions laid down – as is assumed in theories preoccupied with leaving marks and traces in an unchanging material base – but in pathways that branch off every more diversely into a multiple futurity' (p. 277). At some moments in time and in some places, we might encounter those residuals and move through pasts to possible futures and return differently to presents. Places are thus both personal and social, made of human and non-human lives. Through making and maintaining places, individuals sustain the mazeways and enacted assemblages created through personal, bodily, social, and material worlds.

Maintaining built environments, social relations, places, and everyday routines is also significant in maintaining what Klinenberg (2002) describes as healthy social ecologies of place. For Klinenberg, the distinctive nature of urban life lies in its spatially distributed structures and textures. *Ecological characteristics* provide structure for individuals and social groups, and may include places of worship, schools, marketplaces, and parks. Social institutions that are located throughout neighborhoods offer regular activities and rhythms for local and social communities. The *morphological qualities* of place are the material and social environments that nurture inhabitants and offer support through familiarity, routine, aesthetically comfortable spaces, and a sense of belonging and security. Taken together, these social ecologies of place include everyday routines, social institutions, material landscapes (the fabric, taste, sounds, and scents of places), symbolic systems of meaning and identity, and shared memories. When those ecologies are damaged, individuals or groups will most likely experience root shock.

Finally, the metaphor of wounded cities works psychosocially according to the intimate relationships individuals and groups have with places, and hence the city. In my ethnographic research, residents, former residents, and some of their children in cities as distinct as Roanoke and Bogotá, refer to particular places and to the city more generally as a kind of meta-subject. I believe this is the case because, as I have argued above, places become part of us, even when held in common, through the intimate relationships individuals and groups have with places (Till, 2008). Yet these familiar resonances are not about territorial forms of marking or claiming ‘my’ spaces, but rather these attachments form the affective networks that give thick meaning to an inhabitant’s experience of place and the city. Rather than treat affect as emotions writ large, I follow Bennett’s (2005) understanding that ‘affects arise in places rather than human subjects’ (p. 10). This means that rather than analyze affect according to ‘identificatory relationships’, an approach that assumes that the origins of affect lie within individual human subjects, it makes more sense to understand the functions of affect according to its motility (Ibid). Such an understanding resonates with the ways that residents and artists speak about places, as having distinct presences – material, sensual, spiritual, and psychic – yet also acknowledges that places are also shared.

While these everyday, embodied knowledges of inhabited places may be taken for granted, when residents are forcibly relocated to other parts of the city, individuals may become aware of the intensity of their place-based attachments which have become severed, which may give rise to another level of loss that is deeper-seated and more chronic than the immediate losses resulting from destruction and/or displacement. When places are physically demolished, not only is the stability of the taken-for-granted rhythms destroyed, an individual’s personal and intrasubjective emotional ecosystems become damaged. At the same time, Fullilove notes that when individuals try to reconnect after root shock, their

personal understanding of structural and institutional violence and injustice might result in the creation of healing places. I understand such place-making activities as a form of memory-work that may offer opportunities for relatedness – what psychiatrists call ‘milieu therapy’ (after Fullilove, 2004) – and forms of care.

Towards a place-based ethics of care

In June 2003, the skeletal remains of about 3000 slaves and members of the colonial lower classes were unearthed by construction workers at the historical area known as Prestwich Place in Cape Town, South Africa.⁸ The 2800 square meter plot was once part of a much larger set of seventeenth and eighteenth century informal burial grounds. It is now located in the inner city precinct Green Point, where the highest priced real-estate in the country existed at the time of the unearthing. For more than a year, activists claiming descent from those buried at Prestwich Place halted the construction of a high-end boutique apartments, hotel, restaurant, and conference center, The Rockwell, by protesting the heritage authorities’ failure to provide an adequate public consultation process. The ‘Hands Off Prestwich Place’ protest resulted in a compromise solution, whereby the bones were exhumed and reburied in a more central memorial and exhibition complex in the city (Jonker & Till, 2009). As one activist reflected:

SA: .We kept candlelit vigils there [at Prestwich Place], letting the bones know we were there, that we were present, we were with them. As we stood, with the wind coming down from the mountain, the candles flickering, it was as though the bones were speaking to us.

KT: And what did the bones say?

SA: That they should not be forgotten again. They acknowledged our presence, grateful that we were with them (Abrahams, interview with author, Cape Town, 2005).

Stan is a highly educated and experienced person, whose experiences under the apartheid regime and following democratization would qualify him as a wise elder. Rather than cast away his comment as subjective or not meaningful, I understand Stan’s comment as a way to talk about the significance of places in societies that have experienced extreme forms of violence. The memory-work of citizen groups and the ancestral dead that haunted Prestwich Place shifted the taken-for-grantedness of urban space in the city. No longer only considered real-estate to be marketed to foreign investors in the ‘new South Africa,’ activists claimed this place as belong to them as citizens of a larger society. Through candlelit vigils,

⁸ My discussion of Prestwich Place is largely taken from Jonker and Till (2009).

legal challenges, public processions, public hearings hosted by community groups, and other actions, new political organizations were formed and national heritage legislation challenged. Activists' protests and memory-work communicated their claims in terms of ancestry and the social right to determine the city's future (Fig. 4).

Fig. 4. 'Hands Off Prestwich Place' citizen protest actions, Cape Town, South Africa, 2003.



Image courtesy of The District Six Museum.

Their attentiveness to Prestwich Place also indicated a powerful spatial imaginary, one that clearly communicated that present and past are not inevitable. As part of us and yet socially shared, places may act as thresholds through which the living are able to make contact with those who have gone before, with human and nonhuman lives born and yet to come. Residents thus felt a moral and ethical set of obligations to this place and each other across multiple generations. Indeed, many activists, including Stan, were forcibly displaced from the homes during apartheid and relegated to extreme forms of hardship in marginal lands in the townships of the Cape Flats. Through their personal experiences of displacement and state-perpetrated racial violence, they connected with their ‘ancestors’ histories of displacement during the colonial era. In other words, residents’ actions and voices communicated an experience of the city – their city – as inhabited by both the dead and the living, as a reservoir of multiple histories and stories, and as offering a range of possible futures, many of which are not yet ‘visible’ in dominant representations of the contemporary urban landscape. They also

understood their obligation to care for this place as a means to take care of each other.

If one takes root shock seriously, then caring for place is a way to repair our worlds that may help create socially sustainable cities across generations (compare Spelman, 2002). According to Tronto (1993), and drawing upon her work with Fisher, care is a type of engagement with the world that is both rational and affective. It is a ‘species activity that includes everything that we do to maintain, continue, and repair our “world” so that we can live in it as well as possible’ (p. 103). There are four types of care that Tronto identifies. First, ‘caring about’ someone or something asks individuals to recognize need in others, thereby resulting in attentiveness. Here I would include ‘caring about places’ as a type of care that encourages attentiveness in the ways that places are both deeply personal as well as socially shared. Second, ‘taking care of’ someone or something – and here I add place – means that one realizes he or she can get something done and sets that realization into action. Place-based caring can be as simple as picking up trash on the beach to hosting a neighborhood potluck to organizing political protest actions; such feelings and actions produce responsibility to oneself, to others, and to places, neighborhoods, and social communities. Third, ‘giving care’ means that the feeling of responsibility for doing the work of caring oneself and getting that work done produces competence in caring work. For example, as I have found working with residents in Roanoke, individuals may gain self-confidence, leadership skills, and social respect when collaborating over months and years, and successfully creating a neighborhood community garden, particularly when confronting hostility or racism from city officials, environmentalists, and outsiders, and/or apathy amongst fellow neighbors. Fourth, ‘receiving care’ means that one makes sure the care work has been done and it has made things better; such a commitment produces responsiveness. This fourth type of care I would argue is not only the most difficult; receiving care also means that one must allow others to share in the responsibility of caring for oneself. To do this means to recognize the ‘other’ as different than the self in ways that might allow for an inclusiveness and openness, including also listening to others, enhancing one’s own sense of self-worth, and crafting new social shells. The responsiveness tied to accepting care means to engage from the standpoint of the other, but by not simply presuming that the other is exactly like oneself.

To illustrate a place-based ethics of care I return to the opening performance of *Project Prometeo* to describe creative practices based in what I would call an ethnographic responsibility of giving back to those who share their stories and understandings about place. *Project Prometeo* was one of five multi-year collaborative projects that constituted the series *Art, Memory, and the City* by the artistic collaborative Mapa Teatro Laboratory of Artists and El Cartucho residents during 2001-2005, during and after homes and neighborhoods were razed (Mapa Teatro

Laboratoria des Artes, nd). The initial stages of *Project Prometeo* were tied to a larger initiative by the City of Bogotá Mayor's Office, commissioned by Antanas Mockus who was mayor from 2001 through 2003.

When he was elected mayor in 2000, he could not stop the park project underway, but once in office secured United Nations Development Programme (UNDP) funds and provided local funding for what became known as '*Cúndua*', a series of collaborations and projects with anthropologists, historians, and artists working with local residents from two 'slums', including El Cartucho (Abderhalden & Aristizábal, nd). While this liberal approach to recognizing past wrongs did not resolve larger social and structural inequities in the city, nor did it provide direct economic assistance to displaced residents, there were unexpected collaborations and outcomes resulting from these projects with local citizens. When Mapa Teatro's creative practice of working with residents on open-ended projects that had no stated clear 'outcomes' clashed with official demands, they began to work independently and raised their own funds to continue their collaborations. Rather than create projects that were limited by external demands, either to work within locations and timelines dictated by developers or according to government outcomes-based criteria, Mapa chose instead to let the creative practice guide outcomes and processes, thereby exploring new spaces of imagination with residents that resulted in performances, exhibitions, and installations in different public spaces in the city.

The many years of collaborative engagement involved in the place-specific performances of *Project Prometeo* included all the types of care and ethical qualities previously discussed (Till, 2010b). Caring about places and inhabitants began at the outset when Mapa confronted their own biases and stereotypes about the neighborhood, and later developed relations of trust with a small group of residents initially at their homes (before demolition) or visiting displaced residents in temporary housing structures. According to Abderhalden Cortés of Mapa Teatro (interview with author, 2008), the realization that the city's patrimony was to be materially lost initiated a creative and relational artistic process. That realization was tied to 'taking care of' and 'giving care' to residents, their stories, and their neighborhood being razed. After getting to know some residents, listening to their needs and offering what assistance they could, they began to work with residents on documenting their stories, memories, and experiences of their neighborhood in transition, recording on-site interviews, developing memory walks, locating historical images, creating mental maps, and videotaping scenes of destruction. They later organized workshops at an old building that they were later to purchase, where they met for group meals (a social ritual), bodywork, brainstorming, developing writing and acting circles, and facilitating support sessions; through these regular workshops, residents 'received care' as well as cared for each other during their transitions.

According to Tronto, care challenges the Western Enlightenment assumption that individuals are autonomous and self-supporting, forcing us to recognize that not all humans are treated equally in society. Mapa Teatro acknowledged and honored the expert knowledges of locals and of inhabited places, and explored those situated knowledges through open-ended and intuitive creative practices. Even as residents were unfairly and structurally excluded from accessing the central spaces and resources of the city as a result of urban renewal, the artists created a shared symbolic space and later offered a temporary material place for displaced individuals to return. As they worked in teams of different capacities in unanticipated ways, residents could share their fears and memories with others; they could feel unsettled about their loss and unwanted transition as they explored their attachments to a place that would always be within them. Both artists and residents thus ‘received care’ in unexpected ways, changing how they worked and interacted with others and the city. Some of those relationships continued beyond the life of these projects. Moreover, not only did the performances ask other residents, politicians, and audiences to ‘care about’ the stories, lives, and places attached to El Cartucho, their creative work with residents was a form of ‘taking care of’ a neighborhood and larger city that was wounded, even as they were experiencing root shock. By performing their myths and stories, residents gave and received care by sharing their intimate relationships with place.

The outcomes of Mapa Teatro’s collaborations with residents made the quotidian textures of place visible to a more general public through city mappings and walks; domestic installations; video projections on exterior walls of buildings and in public squares; street, body, and landscape ethnographies; intergenerational memory books; and post-demolition archeologies. Through multi- and mixed-media, site-specific and traveling installations, exhibitions and performances in different settings and with different audiences, the artist-resident teams invited guests and performers alike to move between realms of the real and symbolic, the material and the metaphorical, the perceived and remembered, the experienced and imagined. Significantly, these artforms should not be interpreted as art according to ‘crude empathy’ that exploits embodied perception to promote critical awareness (after Bennett, 2005). The performances of place by former residents had the potential to transform memories of violence to shared stories of relevance and critical self-reflection through the co-construction of what Mapa call ‘temporary communities of the imagination’ (Mapa Teatro webpage, nd). I understand these temporary communities as a form of political witnessing. For performance theorist Talyor (1997), witnessing is an active, not passive, role for audiences. Drawing upon the history of the Greek chora, it is the witness’ job to challenge the plot, interrupt actions, and reinterpret events. Speaking of Latin American theater, Talyor notes that witnessing demands an acceptance of ‘the heavy weight of sorrow’, but it may also ‘broaden the scope of the possible, expand the audience,

and allow for a wider range of responses' (p. 265). The performances of *Project Prometheus* thus did not invite empathy grounded in affinity, such as indicated with the phrase, 'I feel for you', a response based upon imagining what it would be like to be another person, to occupy another's situation and life experience. Rather, the performances offered audiences what Bennett (2005) calls 'empathic vision', or affective and critical forms of awareness based upon 'a *feeling for* another that entails an encounter with something irreducible and different, often inaccessible' (p. 10). *Project Prometheus* conveyed shared traumas and memories – as inhabited by different people – and offered moments, through art, imagination, experience, and reflection, of collective witnessing rather than spectatorship (compare Ranci re, 2009).

Concluding notes

What would it mean to think about cities marked by past structures of violence and exclusion as wounded but also as environments that offer its residents care? What the artists and residents in wounded cities teach us through their memory-work and practices of care-giving and -receiving is to respect those who have gone before, attend to past injustices that continue to haunt current planning and governance styles, and treat the past as a dynamic resource in imagining different urban futures. Casey (2000) suggests that in body memory, place memory, and social rituals these unresolved residuals of memory find refuge. People need to be recognized and recognize themselves in their social and physical environments to be able to give and accept care across generations. When individuals return to places that have witnessed pain and violence, but are now being cared for and may offer care, they can be again surrounded by living memory and emotional attachments, providing a safe space for personal self-reflection, discovery, and change.

I began this paper asserting the need to retheorize the city across theory, inhabitation, and praxis, and why such an approach and attitude must inform urban political agendas. North American urban geography has tended to emphasize economic and Marxist interpretations of the city when seeking to imagine possible political change and more just urban futures. As Lefebvre has reminded us, however, a class-based revolution is not enough. We also need love and play (after Shields, 1999), which is why Lefebvre turned to Nietzsche to negotiate Marx. While this paper has been a more modest discussion than Lefebvre's about the city as oeuvre, there are some similarities. It is informed by philosophy, social psychiatry, and creative practice, and is grounded in an ethnographic and ethical sensibility that I believe needs to be at the heart of retheorizing the way we, as political geographers, think, write, and educate about urban politics, about what the city means, and about more socially just futures.

Neighborhood transition must be considered as both loss and opportunity. When some parts of the city become disconnected from

other social spaces, one approach to creating more socially sustainable neighborhoods in the future might include artistic experiments with communities and interim spaces of encounter (compare Till, 2011). Through experimental communities, residents, city professionals, and visitors can explore the lingering and possible pathways of remnant landscapes, material objects, forms of belonging, and transgenerational revenants that exist in and through place. Interdisciplinary teams (that should include residents, practitioners, and artists) should be required for conceptualizing, designing, and implementing particular planning and development projects. These teams would acknowledge different forms of expertise. I have suggested here that artistic practices may enable a place-based ethics of care that also respects unfolding and open-ended pathways of memory and belonging. Memory-work thus contributes to what Pieterse (2008) describes as ‘radical incrementalism’, a ‘sensitivity of ethical searching’ that trusts ‘deliberate actions of social transformation through ‘a multiplicity of processes and imaginations’ (p. 7-6). The projects that result from these open-ended exploratory practices, moreover, honor and encourage residents’ right to the city by respecting the particular histories and social networks of neighborhoods and cities as already-lived-in places, and encourage responsibility and responsiveness to the city and other inhabitants. If, as citizens, we understand that part of our rights and duties include a responsibility to each other and to the places we inhabit, then we may move from audience to witness to care-giver. This place-based ethical responsibility, tied to a sense of active citizenship and radical democracy, also demands a new way of understanding urban planning, policy, development agendas and transformation, a point that I leave for future conversations.

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CHAPTER 33

THE GEOGRAPHICAL IMAGINATION OF LUKA BLOOM

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There are very many geographical themes and metaphors in the songs of Luka Bloom. If we take Geography as being concerned with, to paraphrase Alexander von Humboldt (1769-1859), the study of the Earth as our home and if we follow the common practice of identifying Space, Place, and Environment as the fundamental building blocks of geographical theory, then, Luka Bloom's art is profoundly geographical.

Let me begin with environment or nature. About half the songs written by Luka Bloom have nature as a direct concern or a central metaphor. Antinuclear politics are evident in several songs including, 'Rainbow Warrior', a celebration of the Greenpeace campaign to end French nuclear testing in the Pacific Ocean. There is also a surprising commentary upon the environmental damage wrought by consumerism expressed in a song of respect for a homeless man whose 'CO² emissions are pretty much zero [...] a model urban citizen' unlike the singer for 'if everyone lived like me, we'd need about four planets just to keep it all going' ('Homeless'). Metaphors drawn from nature are ubiquitous from the contemplation of endless change in 'Here and Now', to the comparison of the fever of love to the rush of a rain in 'Love is a Monsoon'. There are dozens more and certain motifs return. For a child of the Midlands, Bloom has a perhaps surprising love of the sea. 'Moonslide' treats the plunge of commitment as akin to swimming while 'Salt Water' treats swimming in the sea as perhaps an activity out of time that releases someone, at least for a time, from the claims of history. There is something pagan and pantheistic about the reverence for nature in these songs. It is '[o]utside the churchyard walls' that one Sunday, the singer offers the sacrament of song, for '[e]very note is sacred | Every word's a little prayer | As the blackbird's call | Or the last leaf's fall' ('Sunday'). In 'The shape of love to come,' the singer remarks that '[p]eople are leaving God's houses | Looking for footprints in the sand' and goes on to anticipate a love of nature celebrated in the open air of a circle rather than the cloistered space of a church.

If place is a sort of effect produced by people being in each other's presence, then, as we know, this can produce a strong sense of rootedness although that is certainly not the only form of place that matters. Luka Bloom was born in Newbridge, Kildare. The region features in several of his songs. I just described as a broadly pagan account of the worship of nature, 'The shape of love to come,' yet the

song also recalls Brigid with her ‘cell of oak’ and Luka Bloom has shown a particular reverence for the memory of the patron saint of Kildare. In 1995 he was involved with a music festival associated with St Brigid’s feastday, ‘singing The Curragh of Kildare to accompany the lighting of St Brigid’s flame on the Hill of Allen’ although in talking of this event he made a fairly secular pitch for tourism: ‘[t]he fire has been lit and there’s no going back [...]. From now on we have to make sure that Kildare is seen as a place to come to rather than to come through.’¹ More recently, in praise of Maura ‘Soshin’ O’Halloran (1955-82), a young Irish-American woman who trained as a Buddhist monk in Japan but who then died in a coach crash while on her way back to Ireland to set up a Zen centre, Luka Bloom offered that ‘She could have become a 20th Century Brigid.’² The Brigid that he cherishes in ‘Don’t be afraid of the light that shines within you’ has more to do with nature and the seasons than with any specifically Christian witness and it is perhaps the goddess Brigid who rather presides over his prayer: ‘[o]ut of the cold, dark winter space | We come together, looking for Brigid’s grace | We dip our open hands deep into the well.’

Kildare as a place is championed in the very funny, ‘I’m a bogman,’ a song which challenges what the singer feels as the condescension of so many towards the Midlands, a place with ‘[n]othing to do for the body | Nothing to do for head.’ For Luka Bloom, though, the bog promises ‘[t]urf smell’ that ‘warms hearts | ’Til the huggin’ and kissin’ starts | Bog love surrounds you | A beautiful place to come to.’ He even called one of his albums, ‘Turf’ (1994).

There is an achingly beautiful evocation of place in another song that relates place to memory, to death, and to continuity. In ‘Sanctuary’, Luka Bloom contrasts the ‘calm’ of the Kildare fields with the ‘shock’ of time passing, as registered in the ‘loss’ of someone very dear to the singer. But he can ‘leave daffodils where you lie’ and be warmed by a memory that is as ‘[a]n easy voice making everything all right | Sanctuary.’ A sense of rootedness is produced by the association of one’s co-presence with someone very dear in that place, and then of one leaving that person’s body into the soil of that place. Yet, not all is dead and interred with their bones. In another arresting elegy, ‘The man is a alive’, he sings of being ‘brought up near the riverside | In a quiet Irish town | An eighteen-month-old baby | the night they laid my daddy down.’ This did indeed happen³ but in the song Luka Bloom finds that his father is yet alive, ‘[a]live and breathing | The man is alive in me.’ If the son brings the father with him, so will home, place and people also travel. In ‘Tribe’,

¹ Katie Donovan, ‘Kildare festival remembers St Brigid,’ *Irish Times* (3 February 1995) 2.

² Quentin Fottrell, ‘Reviews, cues and predictions,’ *Irish Times* (3 January 2009) B16. Luka Bloom has himself written a song in her honour, ‘Soshin.’

³ Andrea Smith, ‘Brothers striking a chord: Christy Moore and Luka Bloom have inspired each other through lives filled with music,’ *Sunday Independent* (9 August 2009).

Luka Bloom asserts that '[h]ome's a place inside, I take it with me | I meet my tribe wherever I may be.' This conclusion was wrested from the strict schoolmaster of the open road and it recalls directly the central chapter in James Joyce's *Ulysses* where another Bloom, Leopold, the Irish-Jewish man, is baited with the question, 'But do you know what a nation means?'⁴ In the song, Luka Bloom is dissatisfied with those who 'stand saluting, saying this is who I am | A piece of cloth, a field, an island' and recalling that 'Joyce lies in Zurich, Beckett lies in France' asks '[w]hat anthem has the tune to their dance' before posing the rhetorical question, '[w]ho is my tribe, is it only green | Or is it the rainbow of my dreams.'

Those dreams were, in large part, 'Dreams in America.' The wisdom of 'Tribe' comes from travel, diversity of experience, and the different lessons to be learned from the various ways of living of different people in different places. Recalling among other things perhaps, W. B. Yeats criticism of the fanatic that '[h]earts with one purpose alone | Through summer and winter seem | Enchanted to a stone,'⁵ an early song about leaving Ireland used the image of the 'Treaty Stone', to represent Ireland.⁶ Although the Treaty Stone recalls the conquest of 1691, the notion of an Ireland ossified by an inglorious treaty could as easily apply to the state of politics in the Republic at the time that the song was published (1978) with the contending parties of national politics claiming to distinguish themselves from each other on the basis of their attitude towards the Treaty that created the Irish Free State in 1921. In the song, he promises soon to 'leave the treaty | Say goodbye to the stone' admitting only that he is 'sometimes sad to go.' In another early song, 'Mother, father, son', a son tells his parents that he has no wish to go back to their home, '[n]o I won't go back there | Not this time' for '[c]hasing wealth and discipline | Have been your only goals' and he can no longer live with the injunction to '[h]ide your feelings.' In his mid-twenties he spent time in Holland but in his early thirties, he left Ireland for the United States and Barry Moore now became Luka Bloom, after the affecting Suzanne Vega song about child abuse, 'My name is Luka,' and the pacifist hero of James Joyce's *Ulysses*, Leopold Bloom.

Using the relations between how life is lived at different locations to think about proper conduct is certainly to invoke the geographical framework of space. One of the songs on his first album as Luka Bloom concerned a Chilean exile, 'Rodrigo', living in the United States but who is drawn home by fond memories. But he arrives to find the place turned into a charnel house by the vicious military and '[o]ne young Chilean soldier smiles to his friends | And douses Rodrigo's body in gasoline.'

⁴ James Joyce, *Ulysses* (London: Bodley Head, 1986 [first edition, 1922]) ch.12, l. 1419.

⁵ W. B. Yeats, 'Easter, 1916' [1916], ll 41-3, in idem, *The Poems* (London: Everyman, 1990) 229.

⁶ The Treaty Stone is in Limerick and is reputedly the surface on which the treaty of 1691 was signed.

Nostalgia is a treacherous siren. Safe in New York, Luka Bloom took pleasure in being ‘An Irishman in Chinatown’: ‘[s]he says “I come from China” | I says “I’m from Ireland” | And “Isn’t this a fine small world.”’ A ‘fine small world’, indeed, and several songs from this period give a sense of comparisons being made. In ‘100,000’, he explains why illegal Irish workers want to stay in the United States since back home in Ireland is no place for ‘a young lad | there is only bitching and begrudging and there’s no jobs.’ In ‘Colourblind’, he sings of ‘[a] rainbow of faces’ that ‘walks alongside me, right beside me.’ The melting pot of New York promises a chance to ‘let go of all the pain I left behind,’ to ‘leave my Irishness at home,’ to ‘leave all sense of race behind | To be among you colourblind.’ But four years in the United States was enough and he sang in ‘This is your country’ of feeling a ‘tug [...] | Inside your heart’ which recalls the happy days of youth ‘[b]efore the age of the cruel and the unkind’ and which ‘is your country waiting for you | Come back home.’

But a mind enriched by life in Europe, in the United States, and soon nourished also by extended stays in Australia, would not confront Ireland in quite the same way as before. Local engagements could now be nourished with foreign experience.

Thus in ‘Freedom Song’, the attempted eviction of a Dublin traveler community is resisted by one woman who stood her ground to assert her dignity and her dream that her children should be ‘loved | As Irish brothers and sisters by and by’ and in the song Nan Joyce is inspired directly by the example of Rosa Parks with her comparable fight for fair treatment on behalf of African-Americans through the bus boycott in Montgomery, Alabama: ‘[s]he lit the flame and the fire is still burning | Inside every heart that’s longing to be free.’⁷

In ‘Gypsy music,’ he turns the comparison around and uses the freedom and mobility of the traveler lifestyle as a new paradigm for the post-1989 Europe where ‘[a]ll the old walls are tumbling down | Bringing us freedom for moving around.’ The mobility of movement in space is a very important imaginative resource in Luka Bloom’s songs. In ‘Change’, he enjoys ‘the moment of change [...] when the road is clear.’ Just as he celebrates freedom as movement, so that means he accepts the immigrant as readily as he does the emigrant. With the brilliant phrase, ‘No matter

⁷ Nan Joyce is a traveller woman who has collected songs and stories and whose life story has been published: *Nan Joyce, Traveller: An autobiography* (Dublin: Gill and Macmillan, 1985). There is a discussion of this book in Paul Delaney, ‘Sean Maher and Nan Joyce,’ *Studies: An Irish Quarterly Review* 93:372 (2004) 461-472. Rosa Parks (1913-2005) was a civil rights activist in the United States who began a boycott of local buses in Montgomery, Alabama, when, on 1 December 1955, she refused to move out of a seat in the whites-only (front) part of the bus when asked. You can watch an inspiring interview with her at the following address: http://eclipse.wustl.edu:7070/iml04/iml04_vid_parksI2.mp4.

where you go, there you are,' Luka Bloom knits together space and place. In this marvellous song, a young Muslim forced out of his country by his refusal to go to war, finds a new home in the sound of the Irish music he first hears in Paris and that he follows to Galway, '[f]or the music in his spirit, is his shelter and his home | Mohammed's fir ignited with the ancient jigs and reels.'

These connections and comparisons between here and there might be thought of as a sort of spatial moral imagination. With 'I am not at war with anyone,' Luka Bloom insists that he doesn't 'need to be friends with everyone | But I'd like to live in peace with everyone | This rush to war is wrong | And so I sing this song | I am not at war with anyone.' In 'Listen to the hoofbeat,' Luka Bloom sings of a Native American 'medicine man' who brings the tribes together, calling for '[s]haking off ancient pains', 'a wiping of tears' and thereby 'mending the sacred hoop.' The relevance to Ireland was only implicit in that song but has been explicit in some of Luka Bloom's newer songs about Irish history. He invites people to set past hurts aside for there is little to be gained in '[c]ounting our sins on the path to forgiveness | Hoping we're heard by a merciful witness.' Far better, as in the title of the song, to engage with 'Right here, right now.' Making peace with the past is the only way to engage fully with the present and in 'Forgiveness' he sings of the '[o]ne word' which '[b]rings freedom home at last': 'Forgiveness ... | For the ancient wounds still hurting | For the wrongs I've never known | For all the children left to die | Near fields where corn was grown.' In 'The miracle cure,' he promises '[n]o losers, no winners | In forgiveness | Together we're free.'

It may be that only someone who spent time away from Ireland could put forgiveness and the famine in the same song, only the imagination of space and not just place could recognize that much hurt is indeed for wrongs that the present generation has never truly known. This fierce adherence to nonviolence has been nurtured by the travels of Luka Bloom. It has been fed by his appreciation in the United States of the achievements of the civil rights movement there, and has also been watered by Buddhist teaching. Luka Bloom has great respect for the Dalai Lama and has not only written a song about him, 'As I waved goodbye,' but also has performed the song as the curtain raiser for the monk's Australian concerts. In 'Primavera' Luka Bloom continues with his reflections upon the need to cultivate an ethic of nonviolence as the only salve for 'this cold, dogmatic world | Where the righteous are on song | They talk God on every side | And all humility is gone.' Cultivating humility through experience is part of this troubadour's métier and while 'Background Noise' dramatizes doubt – '[w]hat the hell do I know– | Crying out for love,' it also gives the reassurance of lofty ambition – '[w]e all need a new speech– | The words of love.' There is true grandeur in the geographical imagination of Luka Bloom.

CHAPTER 34

THE ROLE OF HYDROLOGICAL MODELLING UNCERTAINTIES IN CLIMATE CHANGE IMPACT ASSESSMENTS OF IRISH RIVER CATCHMENTS

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Introduction

Conceptual Rainfall Runoff (CRR) models forced with regional climate change scenarios downscaled from Global Climate Models (GCMs) are widely employed to assess the impacts of climate change at the catchment scale. This approach is subject to a range of uncertainties associated with future emissions of greenhouse gases, the response of the climate system to these changes at global and local scales, and uncertainties associated with the impact models. These uncertainties then cascade through the climate change impact assessment methodology with potentially large uncertainties associated with critical future impacts at the local scale where key decisions are required in order to increase the resilience of water supply management and infrastructure to future changes. Given that uncertainty in modelling will not be significantly reduced in the short or medium term future, ensuring that potentially expensive and irreversible adaptation decisions made now are robust to the uncertainty in future climate change impacts means that considerable effort is required in investigating and quantifying sources of uncertainty.

Output from GCMs are based upon the fundamental laws of physics embodied within models and assumptions on the concentration of greenhouse gases in the atmosphere. As these GCMs differ in the way they simplify the climate system, and aggregate the process in space and time, future projections of water resources are dependent upon the choice of GCMs employed (Prudhomme et al., 2003). Utilization of information from different models has been widely used to address these uncertainties. Giorgi and Mearns (2002) introduced the Reliability Ensemble Averaging (REA) method for calculating uncertainty ranges from ensembles of different Atmosphere-Ocean General Circulation Models (AOGCMs). Similarly, Tebaldi et al (2005) extended the REA method and proposed a Bayesian statistical model that combines information from a multimodal ensemble of AOGCMs and observations to determine probability distributions of future temperature change on a regional scale. Several studies have used the output archived in Coupled Model Inter-comparison Projects to account for uncertainty in GCMs (e.g., Solomon et al., 2007), while several others have used the output from perturbed physics ensembles to evaluate the uncertainties arising from GCM model formulation (e.g., Murphy et al. 2007).

Output from GCMs reproduce the global and continental scale climate fairly well, however, they are inadequate in impact studies due to the differences in the spatial scale of the GCM and the output needed for impact studies (Wilby and Wigley, 1997). This limitation has been widely addressed through the use of regionalisation techniques to downscale large scale simulations from GCMs. In the last decade a number of methods have been employed, particularly empirical statistical downscaling and the deployment of Regional Climate Models (RCMs), with techniques differing in the way they reproduce various statistical characteristics of observed data (Wilby and Wigley, 1997, Khan et al., 2009).

In an attempt to quantify major sources of uncertainties associated with climate change impact assessment, New and Hulme (2000) presented an approach to quantifying uncertainties associated with the estimation of future greenhouse gas emissions, the climate sensitivity, and limitations and unpredictability in GCMs. Similarly, Horton et al. (2006) analysed the uncertainty induced by the use of different state of the art climate models on the prediction of climate-change impacts on the runoff regimes of 11 mountainous catchments in the Swiss Alps.

However, most of the studies utilized a single hydrological model and ignored the modelling uncertainties associated with the structure of such models. Hydrological models are inherently imperfect because they abstract and simplify real patterns and processes that are themselves imperfectly known and understood. Furthermore, experiences with the calibration of hydrological models suggests that their parameters are inherently uncertain. Though many studies have addressed the issues of parameter uncertainty, very few have looked at the uncertainties related to model structure, particularly in the context of climate change assessments.

Since the role of uncertainties derived from hydrological modelling in impact assessment has received much less attention, this study attempts to identify the role of the selection and parameterisation of hydrological models on the overall uncertainty envelop involved in evaluating the impact of climate change on water resources at the catchment scale. The paper is structured as follows: Section 2 considers the sources of uncertainties in rainfall runoff modelling and techniques employed to quantify prediction uncertainties. Section 3 provides an overview of the study basins and climate scenarios, the hydrological models employed and methods employed to account for the different uncertainties that are associated with studying the impact of climate change on water resource. Results are outlined in section 4.

Uncertainties in CRR Models

Despite their acknowledged limitations, CRR models continue to be widely used for assessing the impacts of climate change on water resources and

for projecting potential ranges of impacts from scenarios of future change. CRR models use relatively simple mathematical equations to conceptualize and aggregate the complex, spatially distributed, and highly interrelated water, energy, and vegetation processes in a watershed. Due to the randomness in nature and the lack of complete knowledge of the hydrological system, uncertainty is an unavoidable element in any hydrologic modelling study (Beven, 2000; Gupta et al., 2003). In hydrological modelling, uncertainty stems from a variety of sources such as; data uncertainty, parameter uncertainty, model structural uncertainty and state uncertainty.

An extensive review of the causes of uncertainty in hydrological model and various methods for assessing the uncertainty can be found in Melching (1995). The climate change/hydrological modelling literature has mostly focused on the prediction uncertainty arising from model parameters (Kuczera and Parent, 1998; Steele-Dunne et al. 2009), despite the fact that uncertainties resulting from dependence on a single conceptual-mathematical model are typically much larger than those introduced through the inadequate choice of model parameter values (e.g., Carrera and Neuman 1986). Larger differences in the model results are likely to occur when different model structures are used to simulate the hydrological impact of the postulated climate changes thereby increasing the uncertainty of the future discharge prediction considerably (e.g., Jiang et al., 2007).

To examine the impact of model structure error and complexity on model performance and modelling uncertainty, Butts et al., 2004 used multi-model ensembles for the Distributed hydrological Model Inter comparison study watersheds. Their work suggests the importance of considering uncertainty for streamflow forecasting and the utility of multiple model ensembles to consider model parametric and structural uncertainty. A review on the range of strategies for assessing structural uncertainties in environmental modelling is available in Refsgaard et al., 2006. These strategies can be broadly grouped into two depending upon whether or not target data is available. In the application of hydrological models in climate change impact assessment, the structure of the hydrological model cannot be assessed directly using observations. Therefore, the main strategy to account for modelling uncertainties is to extrapolate future conditions with multiple conceptual models.

Methods for assessing uncertainty

Among various methods for assessing the uncertainty of hydrological models, the Generalized Likelihood Uncertainty Estimation (GLUE) method (Beven and Binley, 1992) has been extensively used (e.g. Freer et al., 2004). The GLUE method is based on the premise that for a physically based hydrological model, no single optimum parameter set exists; rather a range of different sets of model parameter values may represent the process equally well. Different model structures, as well as

different parameter sets in a particular model structure, can be easily combined within this framework. The technique is based on Monte Carlo simulation where a model is run a large number of times with different parameter sets. In GLUE, it is assumed that the error associated with a particular model (parameter set) will be similar in prediction to those found in calibration. More details on GLUE can be found in (Beven and Binley, 1992; Freer et al., 1996; Montanari, 2005). The major output of the GLUE method for assessing uncertainty is the prediction interval at each time step bounded by the lower prediction and upper prediction limit. To examine the capability of the prediction intervals to capture the observed values, an index defined as the ratio of the number of the observations falling within their respective prediction intervals to the total number of observations is normally used (e.g., Montanari, 2005). If prediction bounds are large enough to include most of the observations, it means that parameter variability alone can compensate for other sources of error, such as measurement and model structure errors and thus it can account for the total output uncertainty. The performance of median values Q50 is also usually judged using the Nash Sutcliffe criterion. Furthermore, an average prediction interval defined by the average prediction bounds of a particular confidence level can be used as a measure to reflect the uncertainties in the modelling process.

Bayesian Model Averaging (BMA) is a standard statistical post processing tool. It can be used to account for model uncertainty by combining predictive distributions from different sources (Raftery et al. 2005). The application of BMA is growing in a multimodel ensemble of AOGCMs to produce mean and probabilistic climate change projections (e.g., Tebaldi et al., 2005; Min et al., 2007). In BMA the predictive probability density function (PDF) of any quantity of interest is a weighted average of PDFs centered on the individual forecasts, where the weights are equal to posterior probabilities of the models generating the forecasts and reflect the models' relative contributions to predictive skill over the training period. The BMA weights can be used to assess the usefulness of ensemble members, and this can be used as a basis for selecting ensemble members for prediction. Duan et al., 2007 explored the use of the BMA scheme to develop more skilful and reliable probabilistic hydrologic predictions from multiple competing predictions made by several hydrologic models. Duan et al showed that the BMA scheme has the advantage of generating more skilful and equally reliable probabilistic predictions than the original ensemble.

Methodology

Study region and data

The area of focus for this study is Republic of Ireland (Fig. 1). In particular, the impact of climate change on water resources at the catchments scale is investigated using four Irish catchments (see Fig 1), namely the river Blackwater at Ballyduff (2302 km²), the river Suck at

Bellagill (1219 km²), the Moy at Rahans (1803 km²), and the Boyne at Slane (2452 km²). These four catchments were selected so that they represent the diverse hydrological responses of different catchments located throughout the Republic of Ireland. Table one provides an overview of key catchment descriptors.

Figure 1. Location of case study catchments

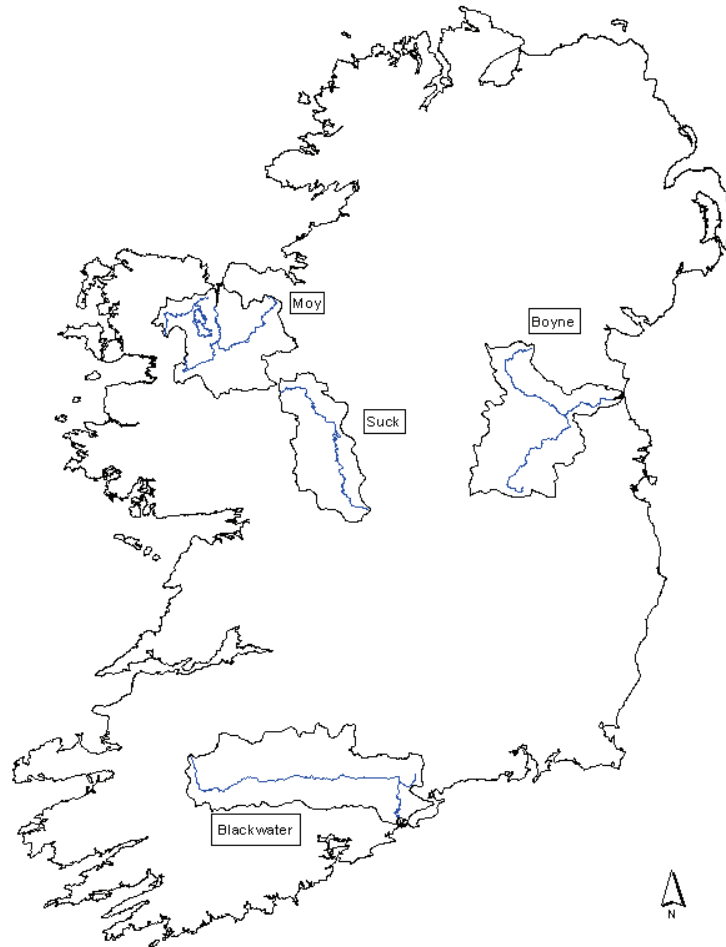


Table 1. Catchment Descriptors

<i>River & Gauge</i>	<i>Area (km²)</i>	<i>S1085</i>	<i>S-LAIR (mm)</i>	<i>S-LAPE (mm)</i>	<i>Forest %</i>	<i>Peat %</i>	<i>Pasture %</i>	<i>BFI soils</i>	<i>Altibar</i>
Boyne at Slane Castle	2452	0.68	890	504	0.04	0.05	0.89	0.69	90.90
Moy at Rahans	1803	0.74	1323	461	0.09	0.32	0.51	0.76	81.20
Suck at Bellagill	1219	0.39	1046	466	0.08	0.21	0.69	0.58	75.60
Blackwater at Ballyduff	2302	1.34	1200	516	0.14	0.05	0.79	0.62	165.60

Six sets of statistically downscaled climate scenarios derived from three GCMs and two emission scenarios, namely A2 and B2, downscaled for Ireland by Fealy and Sweeney (2007) were used to characterise future climate evolutions. The GCMs considered included: HADCM3 from the

Hadley Centre for Climate Prediction and Research (Met Office, UK); CCGCM2, from the Canadian Centre for Climate Modelling and Analysis (CCCMA; Canada) and CSIRO-Mk2 from the Commonwealth Science and Industrial Research Organisation (CSIRO, Australia). The A2 and B2 scenarios represent future emissions levels that could be considered 'medium-high' (A2 emission) and 'medium-low' (B2 emission). Though A2 and B2 encompass most of the range of the Special Report on Emissions Scenarios (SRES), the inclusion of A1F1 and B1, the high and low scenarios would allow a larger proportion of the range of future emissions to be included. A fully probabilistic assessment of future regional climate change and its impacts requires more scenarios of radiative forcing. However, they are not readily available, because no climate modelling centre has performed GCM simulations for more than a few emissions scenarios for Ireland. Though this limitation can be partly addressed using pattern scaling methodologies, which have been widely used to provide climate change projections for time periods and emission scenarios that have not been simulated by GCMs, the assumption is only weakly valid for precipitation (Mitchell, 2003), a primary input to hydrological models. Therefore in this study we only utilized the time series of downscaled data derived from three GCMs forced with two scenarios (e.g. A2, B2). The future potential evapotranspiration used is not a direct output of GCM, but is estimated based upon present climate using Hargreaves method, a radiation based empirical model popularly used for the simulation of potential evapotranspiration, for each of the GCMs. Furthermore, observed stream flow data from the Office of Public Works (available at <http://www.opw.ie/hydro/>), and observed precipitation and temperature data from Met Éireann, the Irish National Meteorological Service were used.

CRR models selected

From among the large number of models that can be used for the purpose of modelling flow in catchments, we selected the following four conceptual rainfall runoff models:

a). TOPMODEL; a variable contributing area physically-conceived semi-distributed hydrological model. In TOPMODEL distributed predictions of catchment response are made based on a simple theory of hydrological similarity of points in a catchment. These points of hydrological similarity are identified by an index that is derived from catchment topography. TOPMODEL uses several assumptions to relate, in a simple way, the down slope flow rate at each point and the discharge at the catchment outlet which are as follows: (1) the water table is approximately parallel to the topographic surface; (2) the saturated hydraulic conductivity falls off exponentially with depth; and (3) the water table is recharged at a spatially uniform, steady rate that is slow enough, relative to the response timescale of the watershed, to allow the assumption of a water table distribution that is always at equilibrium. These assumptions permit

reconstruction of the spatial variability of catchment response to meteorological forcing solely from modelling of the response of the mean state. This quasi stochastic approach is at once computationally efficient while still permitting dynamic representations of physical processes within the system. Detailed descriptions of TOPMODEL and its mathematical formulation can be found in Beven et al. (1995), and a review of TOPMODEL applications can be found in Beven (1997). It is referred as TOP hereafter interchangeably.

b). NAM; a conceptual lumped rainfall–runoff which was originally developed at the Institute of Hydrodynamics and Hydraulic Engineering at the Technical University of Denmark. The model has been applied in a large number of engineering projects covering various climatic regimes. The NAM model describes, in a simplified quantitative form, the behaviour of the different phases of the hydrological cycle, accounting for the water content in different mutually interrelated storages, namely surface zone storage, the root-zone storage, and the groundwater storage. The surface and interflow component of total runoff is routed through two linear reservoirs and the base flow is routed using a single reservoir. Each linear reservoir is characterized by a specific time constant. In the present application, the nine most important parameters of the NAM model were determined by calibration. The detail on the parameters and more detailed information regarding the NAM model can be found in Madsen (2000).

c). The HYdrologic MODel (HYMOD); also a conceptual and lumped model, was originally proposed by Boyle (2001) in order to address the need for the development of models with complexity levels suitable for capturing typical and commonly measured hydrologic fluxes. The objective of HYMOD is to provide a research tool for scientific evaluation purposes (e.g., Wagener et al., 2001; Vrugt et al., 2003).

d). The TANK model; a conceptual model comprised of four vertical tanks with primary and secondary storage. For each basin, processes of infiltration, unsaturated and saturated flow, and through flow, are represented using a simple 'non-linear tank model' approach (Sugawara, 1995). A total of 15 parameters require to be estimated through model calibration

Each of these models varies in the way they conceptualize the key hydrological processes and in complexity, primarily related to the number of parameters requiring calibration. Among the four selected models, NAM and TANK describe the behaviour of each component of the hydrological cycle at the catchments level by using a group of conceptual elements. Conversely, TOPMODEL and HYMOD are both variable contributing area models. In TOPMODEL the spatial variability is taken into account through indices derived from topography whereas in HYMOD, the model spatial variability within basin is modelled using a

probability distribution function. All four models employ a single linear reservoir to model groundwater.

Estimation of prediction uncertainty

In order to examine the role of model uncertainty in climate change impact studies and include a full consideration of impact model uncertainty, we explored two methods, namely the Generalized Likelihood Uncertainty Estimation method (GLUE) and Bayesian Model Averaging (BMA).

GLUE

In the GLUE framework a set of behavioural predictions are extracted from the simulation based on the selected goodness-of-fit measure. The most common goodness-of-fit measure is based on the sum of squared errors (Eq. 1).

$$L(\theta_i | Y) = (1 - \sigma_i^2 / \sigma_{obs}^2)^{N1} \quad 1$$

where $L(\theta_i | Y)$ is the likelihood measure for the i th model conditioned on the observations, Y, σ_i^2 is the error variance for the i th model (i.e. the combination of the model and the i th parameter set) and σ_{obs}^2 is the variance of the observations. The exponent $N1$ is an adjustable parameter that sets the relative weightings of the better and worse solutions.

The GLUE scheme, which is widely used to account for parameter uncertainty, is used to handle both parametrically and structurally different plausible models. A desired number of behavioural predictions from the entire selected hydrological models are ranked and likelihood weighted to characterize the parameter as well as structural uncertainty propagated through each of the hydrological models. As the number of behavioural simulations are not equal among models, a desired number of behavioural sets of model parameters should be sampled based on the prior probability attached to a model i.e., random sampling of solutions from behavioural sets in proportion to the prior model probability. As this study assumes that all models are equally probable, only the n numbers of behavioural solutions are randomly sampled from each model. This number n is selected as the minimum of the number of behavioural solutions among models, and the Nash-Sutcliffe efficiency measure ($N1$ in Eq. 1) is used as an informal likelihood measure. Initially, the threshold value of 0.6 was selected, which was fine-tuned for each basin so that the prediction interval encapsulates as much observation as possible, and maintains a good population of behavioural solutions.

The implementation of the GLUE method to estimate prediction uncertainty associated with hydrological models can be expressed through the following procedure;

Step 1. Select K models that are structurally and/or parametrically different and choose the ranges of model parameters for each model.

Step 2. Select the likelihood measure and the threshold to differentiate between acceptable and unacceptable solutions.

Step 3. Run each of K sets of hydrological models with calibration data. At each run, a parameter set is randomly drawn (e.g., using simple random sampling, stratified random sampling etc.) from the range of the model parameters assuming the parameter follows a uniform distribution over its range.

Step 4. From the number of behavioural solutions of the i^{th} model (i.e., NB_i where $i=1, M$), obtained for the specified threshold value, sample randomly n number of behavioural solutions and repeat this for all selected models. The likelihood of the accepted solution derived from the set of K models is then rescaled so that their cumulative sum equals 1. Consequently, this rescaled likelihood is used to assign weight to each runoff prediction.

Step 5. Use the likelihood weights of the behavioural data set to assess parameter sensitivity and to compute prediction limits on hydrographs using:

$$P(\hat{Z}_t < z) = \sum_{i=1}^N L[f(\theta_i) | \hat{Z}_{t,i} < z] \quad (2)$$

where N is the number of behavioural models i.e., $K*n$, P is the prediction quantile, θ_i is the i^{th} set of model parameters, \hat{Z}_t is the value of the variable Z at time t simulated by the model $f(\theta_i)$, and L is the likelihood measure.

The uncertainty bounds estimated by GLUE have been found to be sensitive to a number of factors such as the likelihood measure, and the threshold values employed (e.g., Viola et al., 2009). The increase in the value of $N1$ will put more weight to the best simulation, thereby increasing the difference between good and bad solutions. Furthermore, if the threshold value grows, the width of the uncertainty bounds and percentage of data captured by prediction limits will decrease. Thus the choice of the threshold value is important since it strongly influences the size of the uncertainty bounds.

BMA

Bayesian Model Averaging provides a solution to the model selection problem by accounting for uncertainty about model forms or assumptions and by propagating this uncertainty to inferences about quantities of interest. In the situation in which several models $\{f_1 \dots f_K\}$ are theoretically possible, it is risky to base inference on the point estimates from a single model f_K . BMA allows us to account for this type of uncertainty as the predictive distribution of the quantity of interest, as shown in equation (3), is calculated as the average of the posterior

predictive distribution of the quantity derived from each individual model weighted by the corresponding posterior model probability.

$$p(\Delta | f_1, \dots, f_K, D) = \sum_{k=1}^K p(\Delta | f_k, D) p(f_k | D) \quad (3)$$

The posterior model probability, $p(f_k | D)$, of model f_k given the data, is given by equation (4).

$$p(f_k | D) \propto P(D | f_k) P(f_k) \quad (4)$$

where the constant of proportionality is chosen so that the posterior model probabilities add up to one. The prior probability, $P(f_k)$, in Eqn. (4) presents the preference of model f_k before re-evaluation. Therefore, a model with better performance in history will have a greater weight in future application. Note that without any prior knowledge of model preference, the prior probability is assumed to have a uniform distribution among the N models. The quantity $P(D | f_k)$ is the integrated likelihood of model f_k .

The posterior mean and variance of Δ are as follows:

$$E[\Delta | f_1, \dots, f_K, D] = \sum_{k=1}^K w_k \hat{\Delta}_k \quad (5)$$

$$Var[\Delta | f_1, \dots, f_K, D] = \sum_{k=1}^K (Var(\Delta | D, f_k) + \hat{\Delta}_k) w_k - E(\Delta | D)^2 \quad (6)$$

where $\hat{\Delta}_k = E(\Delta | D, f_k)$ (Raftery, 1993). Note that weight w_k has a value only between 0 and 1. A larger value indicates more preference on the prediction by model f_k . In this application, the PDF from each model at time t is modelled by a gamma distribution with heteroscedastic variance. At each time step, the chosen PDF is centred on the individual forecasts with an associated variance that is heteroscedastic and directly depends on the actual stream flow prediction. The BMA parameters i.e., BMA weights and variances, were obtained from historical stream flow data (1971-1990) using Markov Chain Monte Carlo (MCMC) sampling. In this study, MCMC sampling was done with the Differential Evolution Adaptive Metropolis (DREAM) algorithm developed by Vrugt et al. (2008).

The probabilistic predictions of daily streamflow were derived based on each individual deterministic predictions obtained from each hydrological model and their weight and variances. The procedures used in this study to generate probabilistic predictions at each time step t are briefly described below.

Step 1 Select K models that can be structurally or parametrically different.

Step 2 Generate model prediction sets $\hat{y}_{i,k}$ ($i = 1, 2, \dots, N; k = 1, 2, \dots, K$).

Step 3 Calculate weights w_k and variance Var_k for each of the selected models.

Step 4 Generate new model-based prediction \hat{Y} using Eq. (5).

Step 5 Probabilistic predictions are made using mean (w_k) and variance parameters (Var_k) as follows:

- Select an individual competing model (f_k) with probability proportional to its weight.
- Sample from the probability distribution associated with the output from each individual model.
- Repeat above two steps to sample a number of values that represent the distribution of streamflow at time t , and subsequently derive the uncertainty interval.

The median predictions obtained from the GLUE method form the basis for implementing the BMA here, thereby incorporating deterministic predictions from four CRR models forced with observed rainfall data in order to make probabilistic predictions. The BMA variance (Eq. 6), which contains two components: the between-model-variance and the within-model-variance, is essentially an uncertainty measure of the BMA prediction. This measure is a better description of predictive uncertainty than that which estimates uncertainty based only on the ensemble spread. In BMA, the uncertainty in model parameter values can be regarded as within-model uncertainty, and uncertainty in model choice can be regarded as between model uncertainty. Because the focus of this study is on the definition of uncertainty arising from a number of plausible models and not on the model selection problem we did not attempt to penalize the models depending upon the number of calibration parameters. This could have been incorporated within the BMA framework by assigning the prior probability of $P(f_k)$, in Eq. (4) that represents the preference of model f_k instead of sampling it from a uniform distribution.

Experiment Design

In order to evaluate the role of hydrological model uncertainty in relation to the uncertainty envelope associated with the estimation of future impacts on stream flow, the response of the catchments to input from three GCMs forced with two scenarios, evaluated from four hydrological models and their behavioural parameters sets was used. The results are presented for three bench mark periods in the future; 2020-2029 (2020s), 2050-2059(2050s), and 2070-2079 (2070s). As it is difficult to attach preference to one scenario over the other, both scenarios (i.e., A2 and B2) were assumed equally likely. The predictions from the three GCMs were weighted based on the Climate Prediction Index (Murphy et al. 2004) that reflects the ability of the GCM to reproduce observed climate

data. This is done by multiplying the likelihood functions of the accepted solution and then rescaling it, similar to a probability measure, in order to make the cumulative sum equal to 1. Subsequently the simulated uncertainties are apportioned and assessed as follows:

- HYDRO: the uncertainty in future simulations due to hydrological model structure and their parameters
- SCENE: the uncertainty in future simulations due to selection of emission scenario
- GCM: the uncertainty in future simulations due to the selection of climate models
- TOTAL: the total uncertainty in future simulations of stream flow from all combined sources.

To examine the performance of the prediction intervals in capturing the observed flows, an index defined as the ratio of the number of observations falling within their respective prediction intervals, to the total number of observations (hereafter referred as Count Efficiency), and the average width of the prediction interval is used.

Concerning the application of BMA, the following four different probabilistic predictions were made by combining: a) four median predictions obtained from the selected four CRR models (referred to as HYDRO) forced with the selected GCM and the scenario, b) eight median predictions estimated from the four CRR models forced with regional climate scenarios corresponding to A2 and B2 scenarios derived from the selected GCM (referred to as SCENE), c) 12 median predictions estimated from the four CRR models forced with regional climate scenarios data derived from three GCMs (referred to as GCM A2(B2)) d) 24 median predictions obtained from four CRR models forced with six regional climate scenarios (referred to as TOTAL). In all the experiment design, the BMA weight and variance parameters were estimated from the calibration period (1971-2000). However, depending upon the regional climate change scenario used, the BMA weight parameters were suitably modified. In this study, the calibrated BMA weight parameter was modified depending upon the ability of the GCM to reproduce climate data at a more regional scale. Furthermore, both scenarios were assumed equally likely in BMA i.e., the weight parameter derived for each GCM is equally divided among A2 and B2 scenarios such that the total weight sums to one.

Results

Performance of GLUE and BMA under observations

The hydrological discharge simulation is carried out at a daily time step using the four conceptual models calibrated on observed data for the period of 1971-1990 and validated using the period of 1991-2000. The GLUE scheme was implemented to account for parametrically and structural different hydrological models. The number of behavioural predictions from each of the hydrological models was ranked and likelihood weighted to describe the parameter as well as structural uncertainty. Fig 2 (a-d) shows the prediction interval for the Boyne basin (1981-1983) for each hydrological model.

Table 2 shows the median NSE, the Prediction Interval (PI) and Count Efficiency (CE) for each model. It reveals that the PI and CE estimated from one model on a particular basin is different from the PI estimated on the same basin by a different model and on different basins. The GLUE estimated PI, CE and number of behavioural simulations (NB) for each individual model and basin depend on the threshold values. The selections of threshold values were made based on a sensitivity analysis where these measures, i.e., PI, CE and the number of behavioural simulation (NB), were estimated for different threshold values, namely NSE of 0.3, 0.5, and 0.7. For all models the PI, CE and NB increased with a decrease in value of the threshold and vice versa. However, the rate of decrease of PI, CE, and NB are (5%, 15%, 40% respectively for PI, CE and NB) much lesser when moving the threshold value from 0.3 to 0.5 than when moving it from 0.5 to 0.7 (25%, 37% and 73% respectively for PI, CE and NB). In this study, the threshold value of 0.6 was selected for Boyne and Moy and 0.5 for Blackwater and Suck basin.

This is done so that the sufficient numbers of behavioural samples for each model can be obtained and at the same time the benefit in terms of improving the value of CE with decreasing threshold is small. Even with the decreased threshold (0.3), the 90% confidence interval could not encapsulate 90% of the observation data.

The PI showed a tendency to grow wider with increasing discharge and with increasing variance in discharge. Moreover, it varied among hydrological models. In general, the prediction interval estimated from TOPMODEL and NAM are marginally smaller than the PI estimated from HYMOD and TANK, with PI estimated from TANK being the widest. It is interesting to note that the TANK model has the highest number of parameters followed by NAM, HYMOD and TOPMODEL respectively. Despite having fewer parameters, the PI estimated from HYMOD is, in most instances, bigger than NAM.

Figure 2 Prediction intervals for Boyne basin including median and observed flow produced from; a) HYMOD , b) NAM, c) TANK, d)TOP for the selected period (1981-1983)

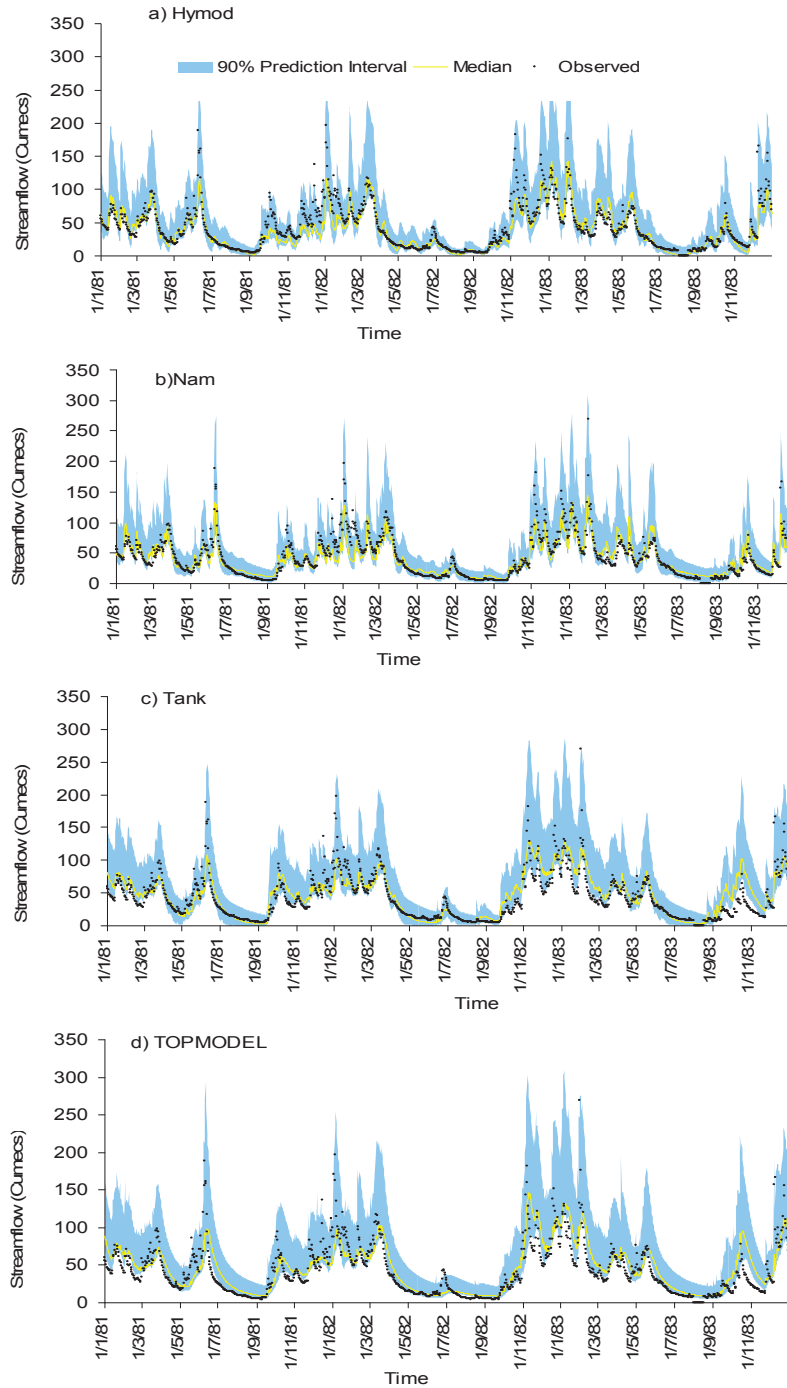


Table 2 The performance of median prediction, the percentage of observation encapsulated within the prediction interval (CE), and the average width of the 90% prediction interval (PI) for each model during the calibration and validation period

Sn	Period (Calib/Valid)	Basin (Model)	NSE (Median)		CE		PI (m ³ /s)	
			Calib	Valid	Calib	Valid	Calib	Valid
1	1971- 1990/1991- 2000	Moy (HYMOD)	0.77	0.66	0.68	0.56	30.5	33.0
2		Moy (NAM)	0.72	0.63	0.58	0.52	25.7	27.7
3		Moy (TANK)	0.80	0.69	0.80	0.77	40.9	44.6
4		Moy (TOP)	0.80	0.70	0.72	0.70	34.0	37.5
5	1971- 1990/1991- 2000	Boyne (HYMOD)	0.79	0.76	0.80	0.83	28.2	29.4
6		Boyne (NAM)	0.76	0.74	0.77	0.78	23.8	25.1
7		Boyne (TANK)	0.70	0.73	0.67	0.75	25.6	27.1
8		Boyne (TOP)	0.69	0.68	0.52	0.57	23.3	24.7
9	1971- 1990/1991- 2000	Suck (HYMOD)	0.78	0.68	0.70	0.68	17.3	18.8
10		Suck (NAM)	0.72	0.63	0.56	0.51	14.7	15.9
11		Suck (TANK)	0.70	0.65	0.61	0.59	17.1	18.5
12		Suck (TOP)	0.68	0.60	0.34	0.31	12.7	14.1
13	1971- 1990/1991- 2000	Blackwater (HYMOD)	0.64	0.74	0.50	0.58	25.18	25.67
14		Blackwater (NAM)	0.63	0.72	0.31	0.40	15.62	16.13
15		Blackwater (TANK)	0.67	0.75	0.59	0.68	33.35	34.09
16		Blackwater (TOP)	0.64	0.71	0.33	0.31	21.77	22.69

Moreover, this comparison does not reveal any distinct relationship between the number of calibration parameters and the prediction interval or uncertainty in model prediction. For the Suck and Blackwater catchments, the PI simulated by TOPMODEL only encapsulated 30% of the observations, whereas the percentage of observations that are encapsulated within the PI are higher for HYMOD and TANK. This clearly indicates that the extent of uncertainty in prediction explained by model parameterization alone varies among models. Though the PIs estimated from different models show a general increase in count efficiency with wider PIs, the increase in CE is not proportionate with the increase in the PI, e.g., in the Boyne the PIs simulated by NAM and TOPMODEL are very similar but there is an apparent difference in the count efficiency for the PI resulting from these two models. Therefore, these four models, which differ in their conceptualization of hydrological

processes and their variability, produce apparently different simulations and descriptions of the uncertainty in the prediction. Therefore, both GLUE and BMA that weight model prediction based on model likelihood are utilized to address the model uncertainty. Concerning the application of BMA, the median prediction of the individual model obtained from the GLUE scheme i.e., four individual time series of prediction obtained from each hydrological model, is processed. The probability density function from each model at any given time is modelled by a gamma distribution with heteroscedastic variance. The weight (Fig 3) and variance parameter of the BMA was estimated from 10 yrs of calibration data (1971-1981). The weight of HYMOD is apparently higher than that of the other three models.

Figure 3 Weight parameters for Bayesian Model Averaging (BMA) estimated from calibration period (1971-1990)

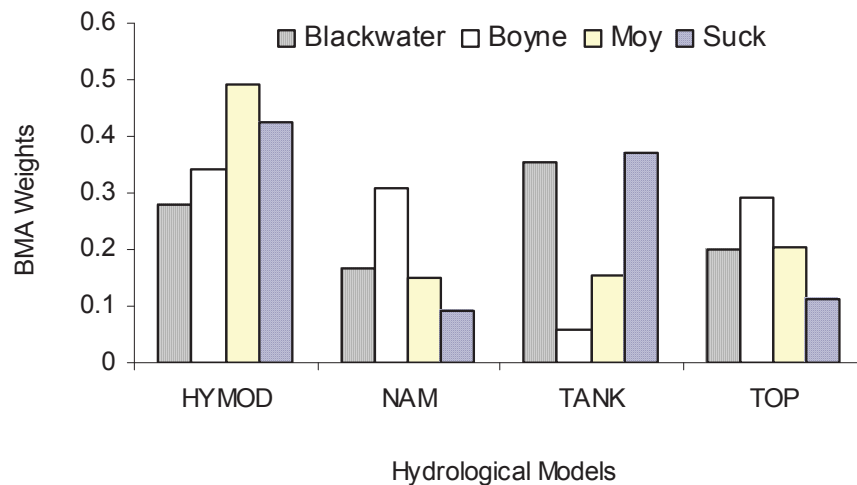
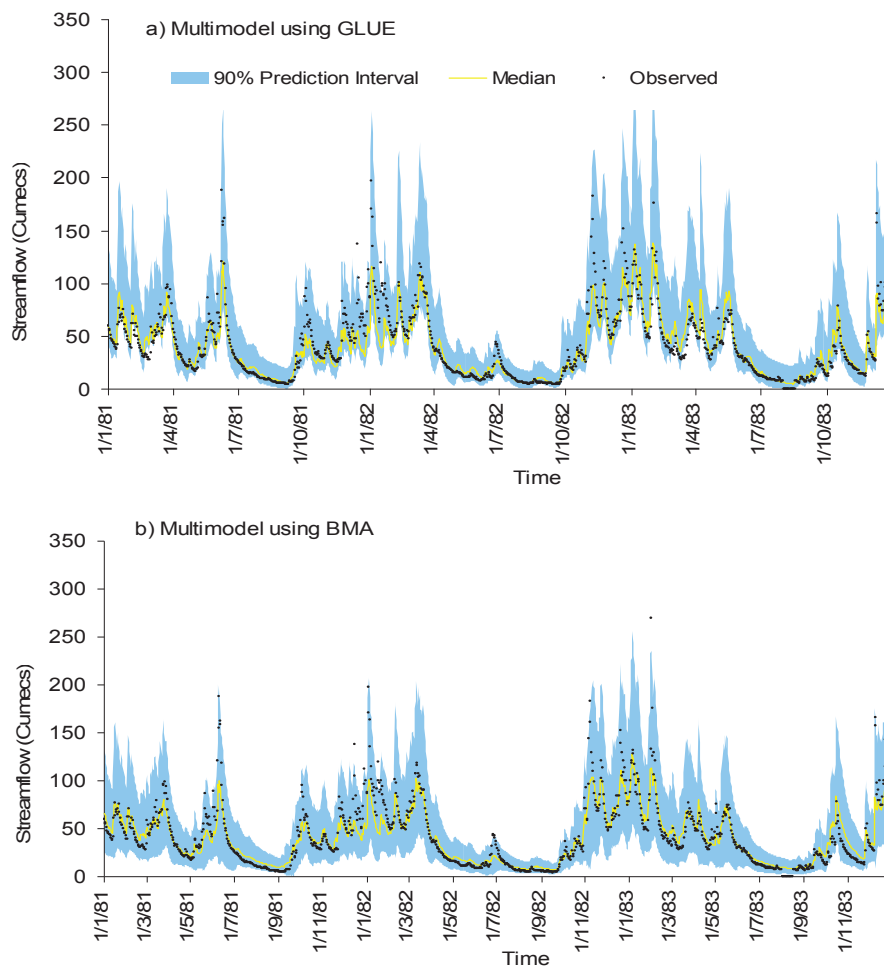


Fig 4 (a) shows the daily 90% PI (the results for only a three year is shown), derived using the GLUE, for the Boyne when all four models and their behavioural parameter sets are taken into account. The width of the prediction interval – expressed in terms of cumecs – increased when different models are considered. In addition, the count efficiency of the prediction interval improved when different model structures are incorporated. Fig 4(b) shows the daily PI for the Boyne when the median output from the all four CRR models are combined using BMA. The prediction intervals estimated from GLUE are sharp as compared to BMA. Furthermore, posterior model output, estimated from BMA is more symmetrical than GLUE, which is skewed towards the lower bound.

Figure 4. Prediction interval for Boyne basin including median and observed flow produced from Multimodal ensemble of four selected models using a) Generalized Uncertainty Estimation Method (GLUE) and b) Bayesian Model Averaging (BMA) for the selected period (1981-1983)



The Table 3 shows that the PIs estimated from GLUE are narrower than the same obtained from BMA. Consequently, a larger proportion of observation are encapsulated within the PI estimated from BMA than from GLUE for the selected threshold value. Furthermore, the median model performance obtained after processing different plausible predictions through the BMA is better in terms of NSE than individual predictions. The inadequacies of the prediction interval estimated from GLUE in capturing the observations can be attributed to the subjectivity involved in the selection of threshold values and likelihood measures. The threshold value selected for implementation of GLUE will have effect on the PI and subsequently on the capability of the PI to capture

the observed runoffs. Apart from that, the percentage of runoff observations bracketed by the prediction limits is still subject to a number of factors that affect the rainfall–runoff modelling efficiency. In addition, the uncertainty associated with the input data was not explicitly accounted for in both methods.

Table 3. The performance of median prediction, the percentage of observation encapsulated within the prediction interval (Count Efficiency i.e., CE), and the average spread of the 90% Prediction Interval (PI) for each model during the calibration and validation period

Sn	Basin	Scheme	NSE (median)		CE		PI (m ³ /s)	
			Calib	Valid	Calib	Valid	Calib	Valid
1	Moy	GLUE	0.81	0.72	0.85	0.80	43.32	46.8
2	Boyne		0.80	0.78	0.90	0.92	31.8	33.4
3	Suck		0.79	0.69	0.74	0.70	19.2	20.9
4	Blackwater		0.66	0.74	0.68	0.76	36.52	37.32
4	Moy	BMA	0.90	0.79	0.97	0.92	64.03	66.76
5	Boyne		0.80	0.75	0.96	0.96	44.67	48.26
6	Suck		0.82	0.76	0.96	0.93	30.90	32.19
7	Blackwater		0.73	0.76	0.91	0.93	78.10	80.90

Contribution of CRR models to the envelope of future simulations

Fig. 5 shows the uncertainty in model prediction, expressed in terms of the Average Width of Prediction Interval (% of long term average flow) (AWPI) arising from uncertainties associated with parameterization of the hydrological model for the period from 1971 to 1990 and from 2050 to 2059, when forced with six regional climate scenarios. It reveals that the prediction uncertainties arising from parameterization depends upon the characteristics of CRR models, the regional climate scenarios and the type of catchment. On average, the PI (%), expressed in terms of observed flow, grew wider with time. The uncertainty in prediction for the future time period is highest for the Boyne catchment and smallest for the Blackwater, closely following the results obtained during model calibration. The variation of uncertainty among basins is likely to arise due to the variation in the applicability of CRR models and the variation in physical parameters of a basin, which plays an important role in characterizing the response of a basin to a given input. In the selected basins, the PI (%) grew with a decrease in runoff coefficient and wetness index. Both of which tend to increase the nonlinearity in the basins response.

Figure 5. Average width of the prediction interval simulated from behavioural set of model parameters for four conceptual rainfall-runoff models for the period 1971-1990 and 2050-2059

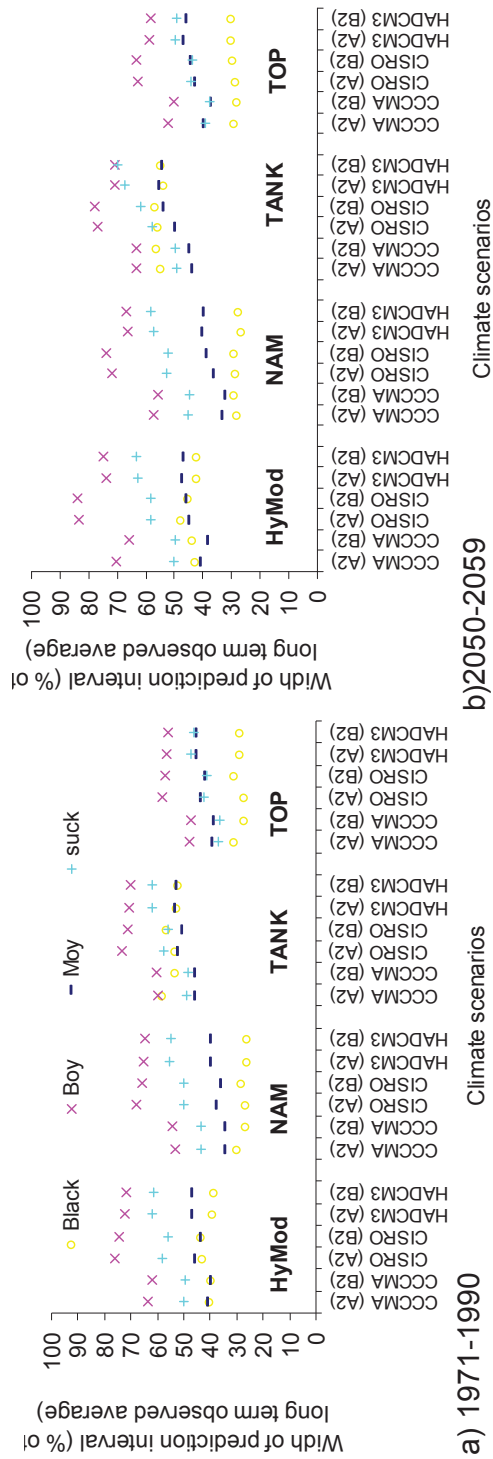


Fig 6 illustrates the response of the Boyne basin simulated by the behavioural parameter sets of four different hydrological models to climate scenarios derived from HADCM3 for the A2 scenario. The median estimates from the selected models are not significantly similar ($\alpha=90\%$, two tail) with the exception of the median estimate from TOP and TANK. Consequently, the prediction intervals derived from GLUE are wider in comparison to the estimates from each individual CRR model.

Figure 6. The 90% prediction interval (shaded region) simulated by the behavioural parameters sets of four hydrological models forced with climate inputs from HADCM3 (A2) for two periods namely, 1971-1990 and 2050-2059 and median predictions from each individual hydrological model (continuous lines) for Boyne catchment.

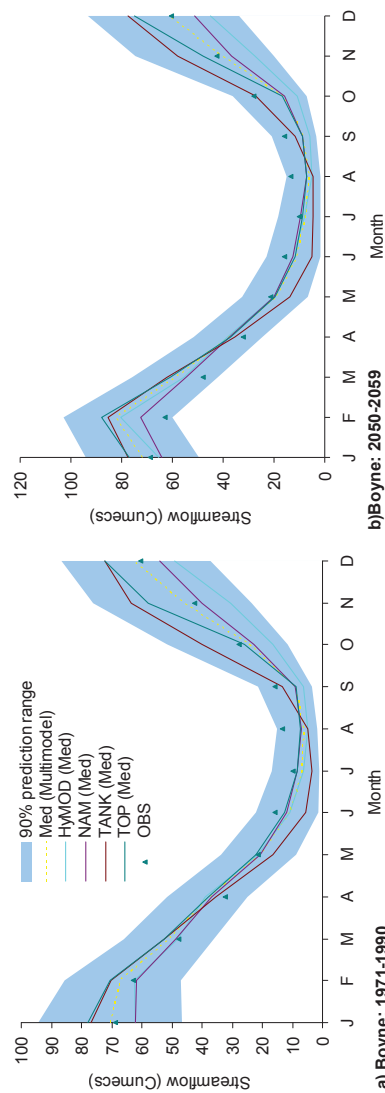


Fig 6 shows the seasonal prediction interval for the period from 1971 to 1990 and from 2050 to 2059. The prediction interval was constructed based on the behavioural predictions obtained from the models that were ranked and likelihood weighted to produce upper 95%, lower 5% and median 50% quantiles. For each basin, five different prediction intervals were calculated depending upon the sources of uncertainty included in the analysis. The 'hydrological model' scheme (referred as HYDRO hereafter) is assumed to quantify the uncertainty in hydrological model, the scheme 'scenario' (referred to as SCENE) is assumed to quantify the uncertainty arising from the selection of scenarios along with hydrological model, scheme GCM_A2 (GCM_B2) is assumed to quantify the uncertainty in GCM along with Hydrological model and the scheme 'TOTAL' is assumed to define the full consideration of impact model uncertainty.

Fig. 7 shows the average width of the PI expressed in terms of the percentage of long term average flow for the three time periods, namely 2020s, 2050s and 2070s. The average width of the PI arising from uncertainties associated with parameterization of CRR models is nearly 50% of the average flow and it increased, on average, to 70%, when different CRR model structures are included. However, this does not indicate that the role of hydrological model uncertainty is less than parameter uncertainty as sources cannot be disintegrated as there is no true value of model parameter or structure that can be estimated from field measurements.

The width of prediction interval nearly equalled the average flow when both scenarios are taken into account. It further grew to nearly 120% of the average flow when three GCMs with A2 (B2) scenarios are entertained, and nearly equalled to 140% of the average discharge when the total uncertainty is incorporated. Similarly, the uncertainties arising from the hydrological model varied among basin, climate scenario and the selected GCM highlighting the importance of conducting impacts assessment for individual catchments. In addition, the uncertainty derived from the choice of GCM is greater than that derived from emission scenario.

However, the full range of emission scenario and GCM sensitivities are not sampled here and therefore results are only indicative, nonetheless they agree with the majority of research reported to date (e.g. Wilby and Harris, 2006; Prudhomme and Davies, 2007). The hydrological uncertainty seems to be fairly constant for each future time period, but the effect of GCM is apparently different among three time periods. Fig 8 shows the BMA estimates for five experiment design, namely for HYDRO, SCENE, GCM A2 (B2), and TOTAL (averaged across basin) for three time periods. The widths of the prediction interval (%) estimated from BMA are higher than the same estimated from GLUE. From the figure, it is apparent that the role of hydrological model

uncertainty is considerable and warrants routine inclusion in impacts assessment, particularly where robust adaptation decisions are required.

Figure 7. The uncertainty in prediction for a) 2020s, b) 2050s and c) 2070s arising from uncertainty in the hydrological models (HYDRO), uncertainty in the selection of scenario and HYDRO (SCENE), uncertainty in the selection of Global Circulation Model (GCM) forced with A2(B2) scenario and HYDRO (GCM (A2(B2))), uncertainty in the selection of GCM, selection of scenario and uncertainty in hydrological models (TOTAL). The prediction uncertainty estimated from Bayesian Model averaging (BMA) is also shown for the same time period.

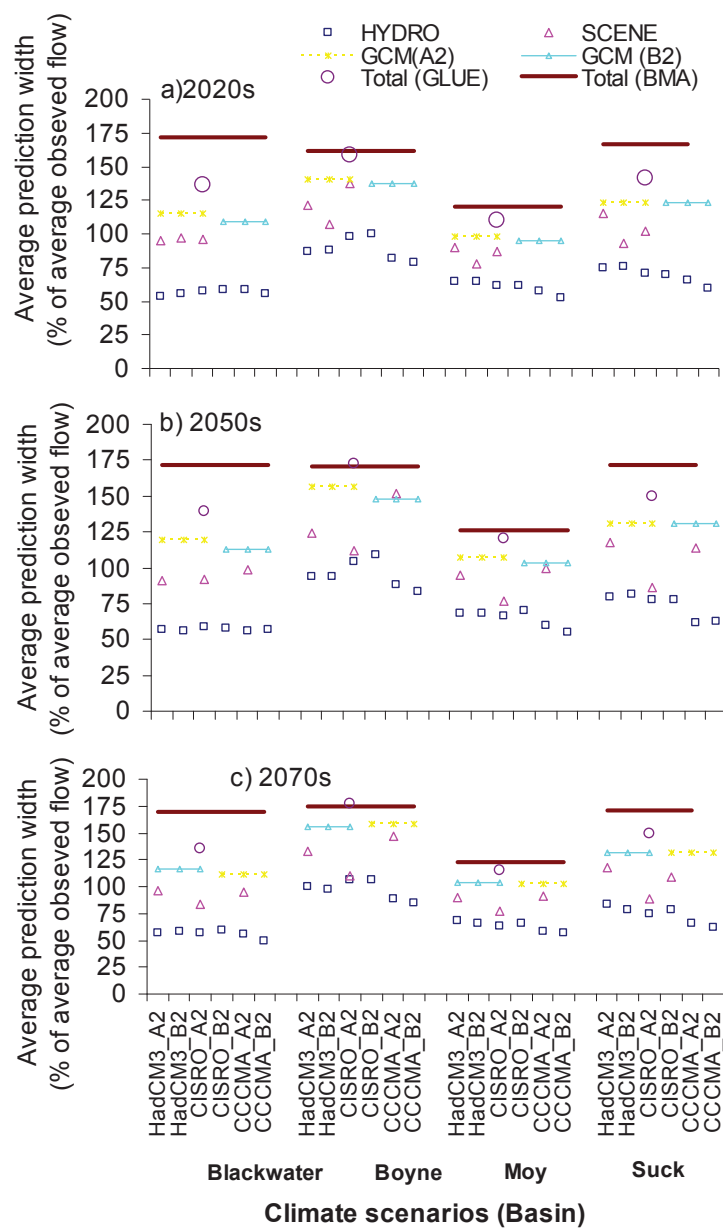
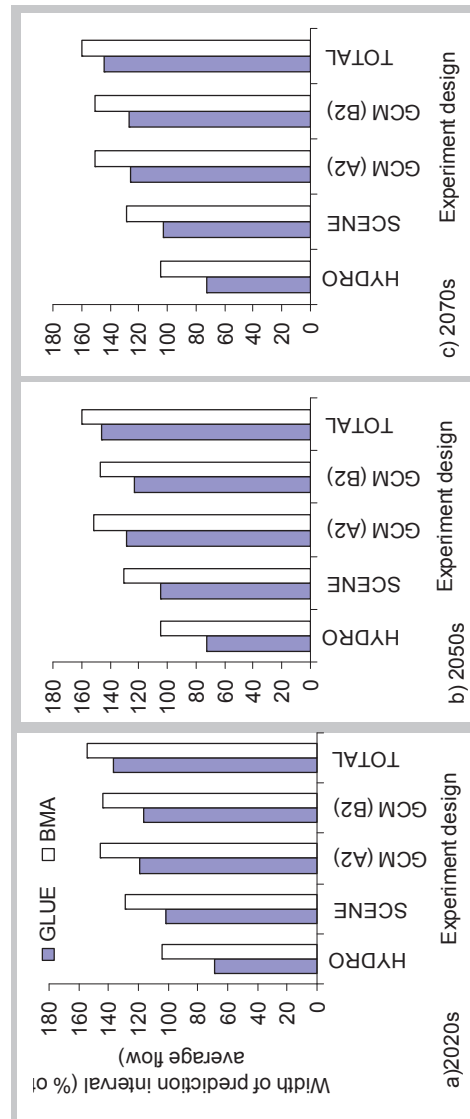


Figure 8. width of the Prediction interval (%), averaged across basin, estimated from Generalized Likelihood Uncertainty Estimation method (GLUE) and Bayesian Model Averaging (BMA) associated with various sources of uncertainties.

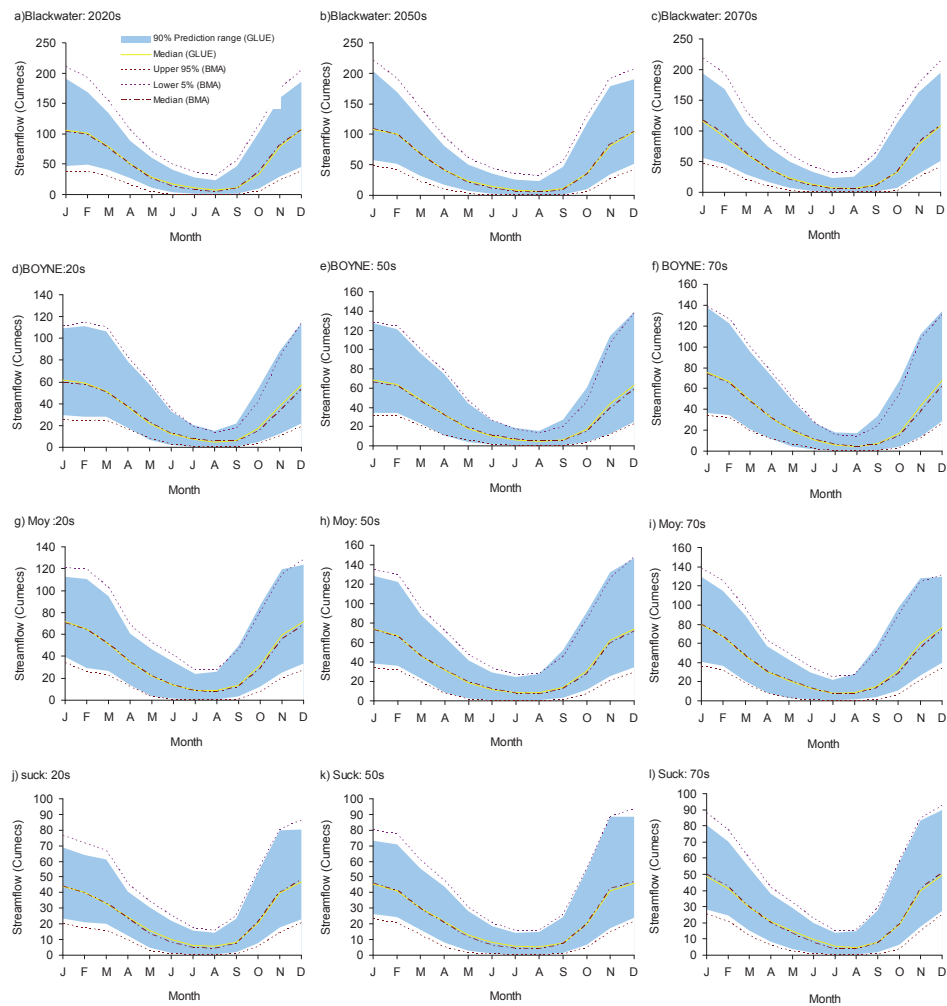


Similarly, Fig 9 shows the total uncertainty envelope derived from six climate scenarios and four hydrological models for the four study basins and each future time period using both GLUE and BMA. Although the median prediction obtained from both GLUE and BMA are significantly similar, the upper 95% and lower 5% prediction quantile estimated from BMA are wider than the same estimated from GLUE.

As the suitability of application of any selected model and the extent of nonlinearity in input output relationship differs among basins the uncertainty in prediction associated with parameter uncertainty and

selection of hydrological model is likely to be different among basin. The runoff coefficient for the Boyne and Suck are markedly lower than the Blackwater and Moy, and the nonlinear behaviours are common in basins that have low runoff coefficients (e.g., Nemeč and Schaake, 1982).

Figure 9. Total uncertainty envelope derived from six climate scenarios and four hydrological models for the four study basins and for three time periods using Generalized Likelihood Uncertainty Estimation method (GLUE) and Bayesian Model Averaging (BMA).



Moreover, the Boyne is the driest basin among the four selected. The physical characteristics of the basins, such as area, runoff coefficient and wetness therefore play a key role in explaining the variation in the PI among basins. The catchment characterized with largest catchment area, lowest runoff coefficient and lowest wetness index resulted in the widest prediction interval in all the five experiments designed in this study. Owing to the limited number of basins used in this study, we do not intend to make a regional relationship for the extrapolation of results

beyond the basins used in this study. Further work is currently underway in relation to this.

Figure 10 Percentage change in monthly streamflow, median prediction derived from hydrological models forced with downscaled output from three global climate models, and two emission scenarios using Generalized Likelihood Uncertainty Estimation method, in the Blackwater, Boyne, Moy and Suck catchments for three future time periods, namely, 2020s, 2050s and 2070s

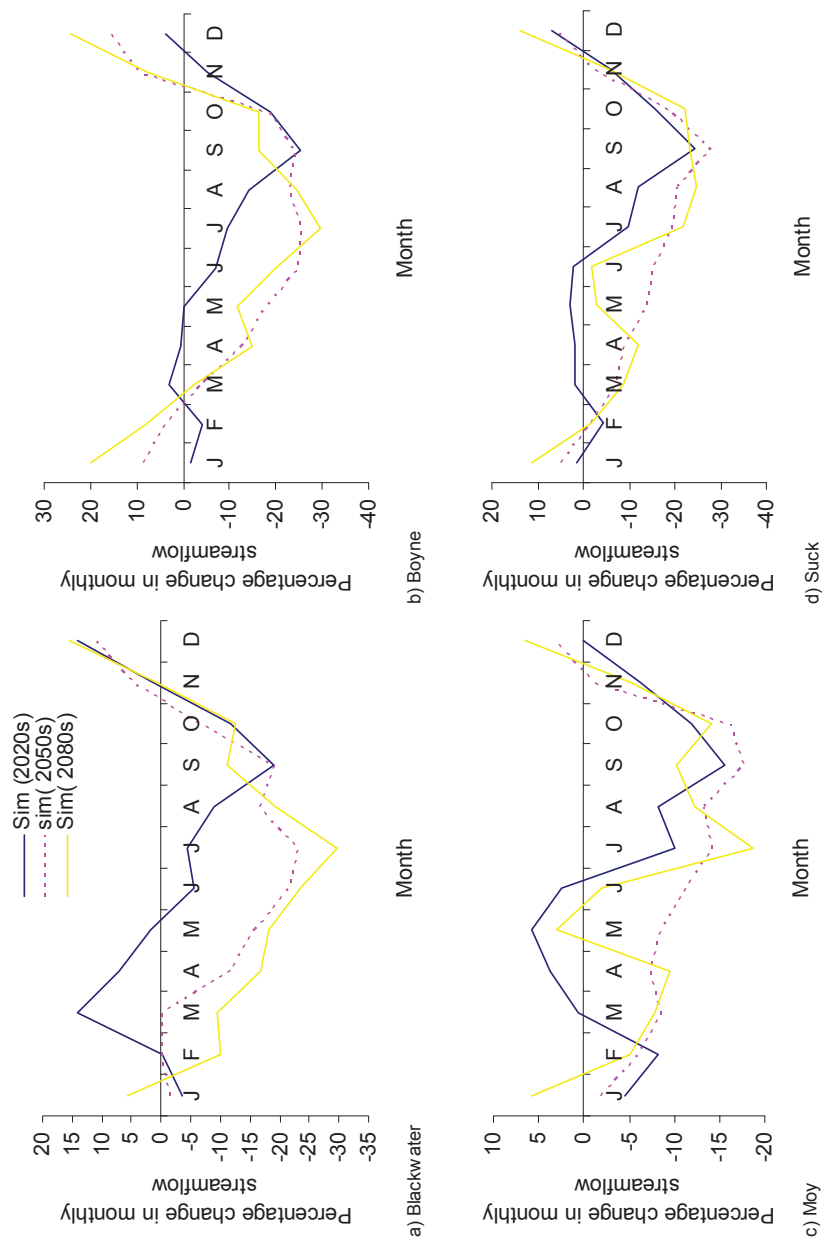


Fig 10 shows the percentage change in simulated monthly flow regime for each future time period. For all the basins, there is a tendency of an increase of flow in winter and decrease of flow in summer when moving from the 2020s to the 2070s and similar decreases in summer discharges as the century progresses, with associated implications for water management.

Conclusion

There is a cascade of uncertainty in climate change impact assessment that begins with the construction of future emission scenarios and ends in impact assessment. This study addresses the uncertainty in the projection of future water resources by incorporating four plausible yet conceptually diverse CRR models, forced with regional climate scenarios, using BMA and GLUE. In terms of the climate change signature there is a tendency for an increase of flow in winter and a decrease of flow in summer. As the magnitude of increases and decreases, as well as the uncertainty from each source considered vary among the basins selected it is critically important that a full impact assessment that accounts for the full range of uncertainties (including CRR model parameter and structure) be conducted where important decisions are required to adapt to climate change.

The uncertainties derived from the use of behavioural model parameters for each model is nearly 40% of the average river flow. The Prediction Interval (PI) and Count Efficiency (CE) estimated from GLUE varied among selected models and basins with no distinct relationship observed between the number of calibration parameters and the prediction interval. Furthermore, the 90% confidence prediction interval did not encapsulate 90% of the observations. However, an improvement in the reliability of the prediction interval was apparent when the uncertainty in the selection of model structure was accounted for. The widths of the PI obtained from BMA are wider than obtained by each model and combination of entire models within the GLUE framework, for the selected threshold values and likelihood measures. The smaller value of the GLUE PI in comparison to BMA can be attributed to the selection of a threshold value and likelihood measure. Furthermore, the GLUE implemented in this study uses a simplistic MC sampling scheme to sample parameters from their prior distributions. While this method is adequate for simple models, complex models may require improved sampling strategies (e.g., Blasone et al., 2008).

The same tool was further used to identify the role of the uncertainty in the hydrological models in the overall uncertainty envelopes by utilizing six scenarios derived from three GCMs forced by two of the SRES emission scenarios representing and medium high (A2) and medium low (B2) GHG evolution, to force each CRR model along with their behavioural sets of model parameters identified during calibration. The uncertainties derived from the use of behavioural model parameters for each individual

model was nearly 50% of the average river flow. However, it increased to 70%, 100%, 120% and 140% respectively when uncertainty in CRR model structure, emissions scenarios, GCM and total uncertainty were accounted for.

This application therefore shows that hydrological model uncertainty has a significant role in the uncertainty envelopes of future climate change impacts and should be routinely considered in assessments, particularly where adaptation decisions are required to be robust to uncertainty. In addition to GLUE, BMA was also used to examine the uncertainties associated with future estimation of streamflow at the catchment scale. BMA probabilistic predictions were made by combining 24 median predictions (from GLUE) obtained from six climate scenarios and four hydrological models. BMA is found to be a useful approach for application in climate change impact studies, allowing predictions from different models forced with input from different scenarios and GCMs to be combined in an efficient manner. Quantification of CRR uncertainty (parameter and structure) using BMA resulted in an uncertainty band that is apparently similar to the same estimated from GLUE. Clearly, any approach to modelling data that considers a set of competing models has merit. In our application, there were clear differences in individual predictions obtained from four models. Hence, use of BMA and or GLUE is likely to add value to a prediction by helping in avoiding predictions obtained with an inappropriate model and allowing a truer sense of uncertainty to be incorporated into future simulations, thereby increasing the information content available for decision making.

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CHAPTER 35

ADAPTING WATER SUPPLY SYSTEMS IN A CHANGING CLIMATE

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The traditional approach in water resource planning and management has been based on the assumption of stationarity of the hydrological system. However, the assumption that the past will be the key to the future is no longer valid. The climate and therefore the entire hydrological system is changing, and relying on the traditional planning approach increases the risk of mal-adaptation, water shortages and monetary losses. However, the methods to identify the future changes in water resources due to climate change are very uncertain. This cascade of uncertainty stems from the assumptions made about the state of future society and the greenhouse gas scenarios affiliated to these states. The uncertainty envelop expands further when the greenhouse gas scenarios are used to drive the global climate models, which are then downscaled to the regional models, and finally more uncertainty is added through local impact models. Such uncertain simulations are problematic when decisions on future adaptation have to be agreed upon to avoid expensive mal-adaptation.

This chapter examines climate change as emerging pressure on water supply and the evidence of climate change from climate records. Future impacts of climate change on water resources are highlighted and the challenge of adaptation is reflected on. Being confronted with deep uncertainty, the need for alternative approaches, shifting the paradigm away from the traditional “predict and provide” approach, seeking an optimum adaptation solution, is highlighted. Instead, alternative approaches are needed that allow the development of water supply systems that are robust to the uncertainty framing future changes in water resources. International examples of these approaches are described; including a case study of the Boyne catchment's water supply system in the east of Ireland. The uncertainties involved in generation of future catchment hydrology are discussed and the vulnerability of the case study water supply system to a changing climate is investigated. Where vulnerability exists, sample plausible future adaptation options are then assessed to their robustness to uncertainty, to quantify the water supply system response, to aid decision making. This chapter concludes that water managers will have to engage with alternative methods for climate change adaptation in conjunction with future observational evidence of change.

Climate change as emerging pressure on water supply

Climate plays a central role in water resource management, as it influences the hydrological cycle at all stages. But the climate is changing. Increasing atmospheric temperature, due to increasing atmospheric concentrations of greenhouse gases, can lead to an intensification of the hydrological cycle, as evidence of several studies reviewed by Huntington, (2006) suggests. For example, as consequence of increasing temperature models suggest an approximate global average precipitation increase of 3.4% per degree Kelvin of temperature (Allen and Ingram, 2002), leading to more intense but less frequent precipitation periods.

However, effects of a changing climate will not be uniform on the earth and will differ at different locations. For example, climate models suggest a greater warming at high latitudes and less warming in the tropics (Hegerl et al., 2007), while precipitation changes will not occur uniformly around the globe. On a regional scale, some locations will receive more rainfall, whereas others may suffer from extended drought periods. These changes in precipitation will also for example influence surface runoff, with an increase in higher latitudes (i.e. of North America and Eurasia) and a decrease in southern Europe, the Middle East, mid-latitude western North America, and southern Africa (Milly et al., 2005).

Historically, pressure was put on water supply systems mainly from increasing water demand; however, with a change in climate, water demand could further increase while water supply may be reduced. Therefore, a changing climate is a key driver of the future availability of raw water resources. Predominately changes in the timing, frequency and intensity of precipitation can have a significant impact on the hydrological system. For example, the shifting of seasonal precipitation patterns or reduced precipitation can lead to reductions in stream flow and groundwater recharge rates, which can affect the quantity and quality of the available water. Increasing temperatures can result in higher evaporation losses and increasing water demand. Whereas increasing precipitation can damage water supply systems due to flooding or increased erosion, and water abstraction can be affected due to high turbidity and decreased water quality. Such climate-induced changes can pose a challenge in various ways to any water supply utility.

However, the effect of climate change on water resources and supply systems will not only depend on the location and the degree of changes in the hydrological system but also on the water supply system itself. Depending on the main characteristics of water supply systems, the same change in climate can have various effects on different water supply systems. For example, robust systems with plenty of excess headroom are likely to cope with large changes, but where water supply systems are already under pressure and operating at, or close to their design capacity, a small change can have a big impact. Therefore, an assessment of the balance of future water supply and demand of individual water supply

systems or even a single water abstraction point is crucial taking future climate and the future development of non-climatic pressures into account. The quantity and/or the quality of the water resources can be affected by climate-independent factors such as population changes, increasing wealth, the political and legislative framework, economic activity, technological and monetary potential, land-use change and urbanisation. Demand increase due to population growth, the emergence of water-intense industry or agricultural practices for example reduces the overall water availability even without the occurrence of climatic change. Whereas, the introduction or rise of water charges (if water is already priced) can result in water saving, or the water loss reduction can increase the amount of water that can be provided to the individual water users. These key climatic and non-climatic factors need to be combined in an assessment to determine future vulnerabilities of a water supply system.

There is a consensus that climate change will have a small effect on water supply systems compared to growing demand over near term planning horizons. However, future hydrological simulations suggest that climate change will significantly alter catchment hydrology over medium and long time scales. In response to these anticipated changes; long-term adaptation has to take place locally, at the catchment scale. This need for adaptation is supported by the evidence of climate change from observations.

Evidence of climate change from observations

Climate is the most central driver of the hydrological cycle. A change in either the climate system or water cycle would induce a change in the other due to their intimate association (Kundzewicz, 2004). The earth's climate system has changed since the pre-industrial period with an accumulation of evidence suggesting an anthropogenic increase of carbon dioxide being the very likely cause (IPCC, 2007). Global average surface temperature has increased, with warming accelerating to 0.13oC per decade over the past 50 years (IPCC, 2007). The average atmospheric water vapour content has amplified since at least the 1980s over land and ocean and corresponds to long-term increasing trends in precipitation amount over North America, northern Europe and northern and central Asia (IPCC, 2007). Warming of the climate is in theory expected to bring about increases in evaporation and precipitation, leading to the hypotheses that one of the major consequences will be an intensification (or acceleration) of the water cycle (Held and Soden, 2000; Huntington, 2006). Huntington (2006) explains the theoretical basis for this intensification is summarised in the Clausius-Clayperon relation that implies specific humidity would increase approximately exponentially with temperature.

Globally, evidence of direct human influences on the hydrological cycle is now apparent (Gedney et al., 2006; Huntington, 2006; IPCC, 2007; Barnett et al., 2008). However, for a number of components of the water

cycle, for example groundwater, the lack of data has made it impossible to determine whether their state has changed in the recent past due to climate change. Gedney et al., (2006) suggest that raised carbon dioxide levels are already having a direct influence on the water balance at the land surface, increasing runoff and therefore freshwater availability. Increases of precipitation that occur outside the explanation of internal climate variability attributed to anthropogenic forcing have also been detectable with significance (Zhang et al., 2001). Dai et al., (2004) present large variations in yearly river flows for the world's 200 largest rivers but highlight that only about one third of the catchments show statistically significant trends over the study period 1948-2004. Furthermore, the majority of significant trends were associated with reductions in discharge. Trends were consistent with precipitation and modes of variability being driving forces, with the exception of Arctic drainage basins where increasing trends in flow are more likely associated with increasing temperatures (Dai et al., 2004). Syntheses of evidence compiled by Huntington (2006) further defend the case for considerable global change in both key global climate and hydrological variables. Kundzewicz, (2004) highlight the role of climate change leading to the acceleration of the hydrological cycle and may cause increases in the frequency and severity of extreme hydrological events. Yet, to date, there is little concrete evidence of significant large-scale climate-induced change for floods and droughts (Kundzewicz, 2004), nor is it yet possible for rainfall trends below the global scale to be attributed to human influences (Lambert et al., 2004; Fowler and Wilby, 2010).

At the scale most relevant for the effective management of water supply and water infrastructure, the detection of climate-driven trends is far more problematic due to high inter-annual and decadal variability of river flows (Burn and Hag Elnur, 2002; Wilby, 2006; Fowler and Wilby, 2010) and the effects of human intervention in natural catchment systems (Marsh, 2010). Detection of climate change at regional and local scales is inherently difficult because of the relatively weak climate change signal compared with large interannual variability of rainfall and river flows, the choice of index, spatial and temporal scale of aggregation, strengths and assumptions of statistical tests and significance testing and confounding factors such as land use change, channelization and arterial drainage, which all require careful consideration (Kundzewicz and Robson, 2004; Radziejewski and Kundzewicz, 2004; Legates et al., 2005; Svensson et al., 2005; Wilby et al., 2008; Fowler and Wilby, 2010).

For example: The choice of indices can be monthly, seasonal, annual, based on river flow or water levels, maxima, minima, cumulative totals, counts of peaks over thresholds, point or area averages, based on individual records or pooled. The period of record has a huge bearing on derived trends where analysis of long records can refute the significance of trends from series of shorter duration that may be overly influenced by outliers or natural variability. The record length required to detect

trends can vary depending on the strength of the trend, the variance about the trend, the probability of type one and type two errors. The power of statistical tests to detect trends (monotonic or step change) can vary hugely and in the case of hydrological data assumptions of tests may be violated and increase the likelihood of false identification of trend. Factors such as changes in site instrumentation, observing or recording practices, land cover change, water abstraction, arterial drainage, channel engineering can all confound the detection and interpretation of trend.

Short records have proven to be particularly problematic. The number of years of record needed to detect a statistically significant trend depends on: the strength of the trend; the amount of variance about the trend; the probability of erroneous detection (type 1 error); and the probability of missing a real trend (type 2 error). Preliminary estimates using data for river basins in the United States and the United Kingdom suggest that statistically robust, climate driven trends in seasonal runoff are unlikely to be found until the second half of the 21st century (Ziegler et al., 2005; Wilby, 2006). In Australian river basins an even greater change may be required for detection as the interannual variability of flows is twice that of Northern Hemisphere river basins (Chiew and McMahon, 1993).

As shown by Wilby (2006) detection time relationships can also be inverted to estimate the strength of trend required for detection by specified time horizons. For example, analysis of UK winter and annual precipitation totals suggests that changes of ~25% would be needed for detection by the 2020s in the most sensitive basins (such as the River Tyne). Although attribution of changes is not yet possible at regional scales, techniques are being developed for detection of trends in indices at river basin scales, and for estimating the time taken for specified anthropogenic climate change signals to emerge from climate variability (Fowler and Wilby, 2010). For the moment at least it would appear that water managers will have to balance water demand and assess the functionality of supply systems for future climate, without any statistical evidence that climate change from local observations. Therefore, as discussed further below the challenge emerges of maintaining the functionality of critical supply systems under conditions of considerable uncertainty.

Future impacts on water resources

Water resources will be one of the most affected sectors by changes in climate (Bates et al., 2008). As discussed above, the main climatic drivers influencing the availability of the raw water resources are precipitation and temperature (especially where catchment hydrology is influenced by snow accumulation and snowmelt). Generally, by altering the hydrological cycle, climate change can have an effect on the quantity (intensity and frequency of flood, normal, or drought conditions) and quality of water resources (nutrient and oxygen content and, temperature) and their seasonal distribution. Changes in amount, intensity, and timing

of precipitation, the type of precipitation (rain or snow) and evaporation determine stream flow, and water levels in lakes and wetland as well as groundwater levels and recharge rates, as do increased evapotranspiration and a reduction in soil moisture. This in turn determines how much freshwater can be utilised for ecosystem and human needs. Additionally, changes in vegetation cover resulting from changes in temperature and precipitation and consequently changes in land use management practices can also influence the hydrological cycle.

The future effects of climate change and non-climatic pressures on water resources with regard to their extremes and their likelihood of occurrence is summarised in Table 1 (after Bates et al., 2008). Noticeable is the global scale at which results are summarised due to the confounding factors that moderate climate change at more local scales. As discussed later, as the resolution of climate change projections is increased to scales that are most relevant to assessing future impacts in water resources, the uncertainty of impacts grows considerably.

Climate change will impact both the available water resource through altering hydrological processes and the human water demand through increasing temperature. Other stresses are also likely to further increase the water demand such as increased competition for resources among water users, particularly for irrigation purposes. Further, additional water need to be allocated to ecosystems, where sensitive aquatic species have evolved which can only deal with small changes in water temperature. At the catchment scale, changes in seasonality are likely to alter available resources while a change in the magnitude and frequency of extreme events are likely to result in increased risk of failure of critical infrastructure and increased maintenance cost. In relation to the latter for example, higher intensity rainfall is likely to increase the sediment load of rivers and therefore the rate of sedimentation in reservoirs, resulting in reduced water storage capacity. Catchment geology can play a strong role in offsetting large reductions in river flow, where permeable geologies and productive aquifers contribute to base flow to sustain river flow over dryer periods. However, where a reduction in rainfall in the recharge period occurs, drought conditions can be quite severe and long-lived.

Therefore, it is quite a complex issue to extract more catchment specific results. Indeed many have concluded (e.g. Prudhomme and Davies, 2007) that the complexity and uniqueness in response of individual catchments means that we need to assess climate change impacts on a catchment-by-catchment basis. The lessons we can glean from such assessments is that, at the very least, water management is going to become a more complex issue in the future and the successful management of those resources will require adaptation to future climate.

Table 1. Future changes, their likelihood and effects on water resources (c.f. Bates et al., 2008)

<i>Change Projection</i>	<i>Likelihood (21st century)</i>	<i>Effects on water resources</i>
Precipitation increases in high latitudes and parts of the tropics	<i>very likely and likely</i>	Increase in water resources.
Annual river runoff increase at high latitudes and in some wet tropical areas	<i>high confidence (by the middle of the century)</i>	More frequent and more serious floods
Precipitation decreases in some subtropical and lower mid-latitude regions	<i>likely</i>	Decrease in water resources
Annual river runoff decrease over some dry regions at mid-latitudes and in the dry tropics	<i>high confidence (by the middle of the century)</i>	More frequent and more serious droughts
The frequency of heavy precipitation events increase over most areas	<i>very likely</i>	Risk of rain-generated floods
Increase in continental drying in summer (especially in the subtropics, low and mid-latitude)	<i>likely</i>	More frequent and more serious droughts
Decline in glaciers and snow cover (important in regions supplied by melt water)	<i>high confidence</i>	Reduced water availability (seasonal shift in stream flow, reductions in low flows)
Higher water temperatures and changes in extremes, including floods and droughts	<i>high confidence</i>	water quality and exacerbate many forms of water pollution
Sea-level rise extends areas of salinisation of groundwater and estuaries	<i>high confidence</i>	Decrease of freshwater availability in coastal areas.
Globally, increase in population and affluence and urbanisation;	<i>high confidence</i>	Growing water demand
Regionally, changes in irrigation needs due to climate change and land use change	<i>high confidence</i>	Growing irrigation water demand

Considering Adaptation

In order to accommodate future impacts of climatic change and meet future water demands, some degree of adaptation will have to take place within the water sector. Indeed adaptation is considered an important response option or strategy, along with mitigation efforts in the face of climate change. However, what is meant by adaptation is not entirely clear-cut. The Intergovernmental Panel on Climate Change (IPCC) defines adaptation as: ‘Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities’ (IPCC, 2007). Whereas, the United Nations Framework Convention on Climate Change (UNFCCC) defines adaptation as ‘Actions taken to help communities and ecosystems cope with changing climate conditions, such as the construction of flood walls to protect property from stronger storms and heavier precipitation, or the planting of agricultural crops and trees more suited to warmer temperatures and drier soil conditions’(UNFCCC,

1992). There are many other treatments and definitions of adaptation in the literature. UNFCCC treats adaptation in the narrowest sense — as actions taken in response to climate changes resulting from anthropogenic greenhouse-gas emissions. The dominant approach in dealing with adaptation in response to the UNFCCC definition has been the ‘predict-then-act’ approach, where the key focus of assessments have been on climate and a predominantly scientific approach. In contrast, the stance taken by the IPCC tends to recognize other processes that act in conjunction with climate change in order to induce vulnerability to future change. Adaptation assessments based on the more human centred philosophy of the IPCC have been based on assessing vulnerability and resilience to climate change. The IPCC’s definition of adaptation is probably more aligned to water system which can be viewed as an inherently socio-ecological system; sensitive to both changes in natural resources and human traditions and behaviours. Indeed, in many instances it can be difficult to differentiate between the two.

In addition to considering definitions of adaptation, we can also think about how adaptation is likely to take place in time and the degree of strategic vision involved. Adaptation can take place with different levels of spontaneity, and can be distinguished into autonomous or planned adaptation (Bates et al., 2008, Fankhauser et al., 1999). Autonomous adaptation is not purposely designed to deal with climate change, but rather a non-coordinated mostly spontaneous response to changes by individuals or communities. Whereas planned, often policy driven, adaptation aims to directly make allowance for climate variability and climate change in order to reduce the negative impacts or gain from the changed conditions. The following paragraphs focus on planned adaptation to climate change impacts.

Adaptation can also be characterised depending on the timing, into reactive and anticipatory adaptation. Anticipatory adaptation predicts and responds to vulnerabilities before damages are incurred. Reactive adaptation limits the recurrence of damage only after effects have been felt and damage has been done. An example of an anticipatory adaptation is the construction of a reservoir to store winter rainfall to supply water during drier summer months. The goal of this anticipating adaptation is to minimize the impact of climate change by reducing vulnerability of the water supply to drier conditions. Reactive adaptation on the other hand is likely to lag persistently behind the emerging risks, which is particularly problematic when changes occur rapidly. The more rapid the rise in atmospheric greenhouse gas concentrations, the faster the rate of climate change and the less effective reactive adaptation is likely to be (Repetto, 2008).

In dealing with anticipatory, planned adaptation Arnell and Delaney (2006) highlight considerations that are important in adapting to climate change. In particular, they highlight the need for decision makers in the

water sector to consider their adaptation strategy and what they term the 'adaptation space'. The adaptation strategy defines what an organisation is seeking to achieve by adaptation and how this is intended to be achieved. Possible aims include continuing to provide the same standard of service or product to customers (using different methods if necessary), providing different products and services which broadly meet the same function, ceasing to provide the product or service at all, or ignoring climate change and relying on "muddling through" (Arnell and Delaney, 2006).

The adaptation space is defined as the set of options, which are potentially available to deal with possible climate and other changes. The need to adjust to changing pressures and climate variability over centuries and millennia has meant that the adaptation space for water management is considerably large. For simplicity, we might consider the adaptation space in terms of supply side options and demand side options. Examples of the former would include the building of new or enhanced reservoirs, inter-basin transfers, desalinization and new abstractions. Supply side options can also extend to improving resource utilization, such as increasing the connectedness of the network, seasonal forecasting and institutional behavioural change. Demand side options have been commonly used to reduce water use and in many cases have proven to be considerably less expensive than supply side solutions. Common strategies for demand reduction include the incentivisation of water efficient equipment and fittings, educational campaigns on behaviours to conserve water, controlling new development, encouraging the use of rainwater etc., the list is quite extensive.

Clearly some of the options within this adaptation space will be more feasible than others, for technical, legal, economic or cultural reasons, and some may not be perceived at all by an organization (Arnell and Delaney, 2006). The adaptation space is dynamic, as new options become available through, for example, technological development, and as understanding of the characteristics of change develops. In previous water management planning, the main focus was placed onto technical or so called 'hard' adaptation options, often involving engineering solutions, and less consideration was given to 'soft', non-technical options which are designed to influence socio-economic behaviour. In the situation where water management is ever more aware of the fact that humans are only one user of resources, the preference for soft strategies has increased. Soft strategies also have a lot to offer to climate change adaptation. The main advantage of 'soft' adaptation options is, that they are often more adaptable and more flexible than 'hard' adaptation. 'Soft' adaptation is therefore preferred more, as this form of adaptation keeps other options open and allows for modification as new information becomes available. 'Hard' technical adaptation options like new large infrastructural projects have a long lead-time and are designed for a long lifetime. They should only be considered carefully, as with the selection

of such a 'hard' option the water supply system runs the risk of becoming dependant on a single future development path. This can easily result in expensive mal-adaptation, when the main assumptions of change on which such a project is based are over or underestimated.

To cope with the possible impacts of climate change on fresh water and water supply systems, careful consideration is required about how to plan, evaluate and prioritise adaptation action. Overall, it is important that the planned anticipatory adaptation measures are kept flexible to allow for further adaptation and not to be limited by our own actions. This is especially important for water supply systems where it is essential to balance between future water demand and future water supply. To maintain this balance, supply side as well as demand side measures can be adapted to abate climate change impacts. Supply side measures generally imply a supply increase whereas demand side measures aim to reduce the water demand. However, to agree upon a measure or a combination of measures to adapt to climate change still remains a challenging task.

The challenge of uncertainty

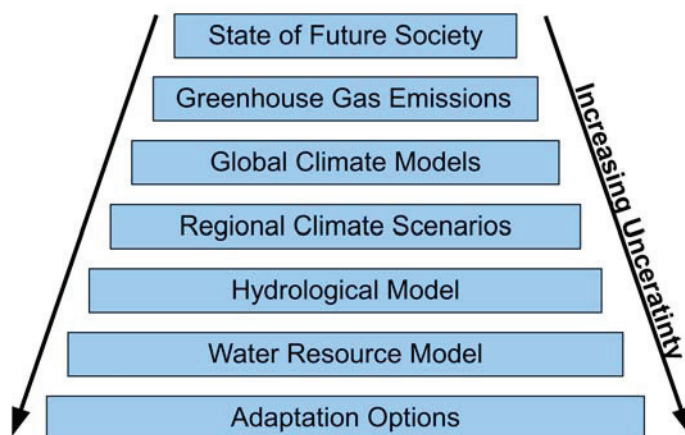
Within the water sector many decisions, particularly investment in new infrastructure and the protection of existing assets, come with long-term commitments, which can be very climate sensitive and require an estimate of what future conditions are going to be like over the design life of the investments (Hallegatte, 2009). Therefore, when building and designing water infrastructure to balance the supply and the demands of the future we need to account for the future changes that can be expected. The provision of this has proven to be a significant obstacle for climate science, particularly given the high levels of precision required by engineers in order to derive optimal solutions. This is a rather disconcerting position when it is contextualised by the fact that more than US\$ 500 billion are invested every year in the water sector (Milly et al., 2008). Additionally, the concept of stationarity, on which water systems throughout the developed world have been designed, cannot be retained as a foundational strategy for defining and designing optimum performance (Milly et al., 2008). Changing climate variability, changes in extremes and means imply that water management cannot keep using the stationarity hypothesis for its investment decisions. An alternative approach is required.

Therefore, adaptation to climate change in the water sector is a challenging task and one that will perhaps require a paradigm shift in how we go about designing and operationalising the systems upon which so much of society depends. Producing future climate scenarios and future impacts of climate change in order to inform adaptation is by no means an exact science. Conventional approaches to adaptation have been driven by the scientific, scenario, or impacts led approaches. Such 'top-down' approaches can be characterised as a number of discrete steps as follow;

1. Scenarios of the evolution of future climate are derived from Global Climate Model.
2. In the majority of cases, some approach is used to downscale these scenarios to scales relevant of catchment scale hydrological processes. These approaches range from simple change factor approaches, through statistical downscaling, to the deployment of complex regional climate models.
3. Following downscaling these scenarios are used to force impacts models, most commonly conceptual rainfall-runoff models, which have been trained to capture the dynamics of a specific catchments hydrology.
4. Finally outputs from of hydrological response have been used as a means to inform policy and decision making in adapting to future changes.

Wilby and Dessai (2010) note that while there is an abundance of such applications that follow the ‘top-down’ approach or a similar framework, the number of such studies that have resulted in tangible adaptation strategies being implemented has been rather limited. A key reason for this is the large uncertainty associated with impact projections, as a result of the cascade of uncertainty in the methodological steps identified (see Figure 1).

Figure 1. Cascade of Uncertainty (modified after Wilby and Dessai, 2010)



The largest source of uncertainty is associated with Global Climate Models (GCMs). These models, developed using fundamental laws of physics, differ in the number of grid cells used to represent the land surface, atmosphere and oceans. They also differ in the way they aggregate or parameterise climatic processes in space and time. Stainforth et al. (2005) show the range of simulations for equally acceptable GCMs in simulating the global climate sensitivity, defined as the temperature

change at a doubling of carbon dioxide concentrations. Furthermore, Prudhomme et al. (2003) show that future projections of water resources are very much dependent upon the choice of GCM. Many techniques such as Reliability Ensemble Averaging (REA) (Giorgi and Mearns, 2002) and the Impact Relevant Climate Prediction Index (IRCPI) (Wilby and Harris, 2006) have aimed at catering for such uncertainties in future climate. Others have sought to develop large scale modelling experiments that assess inter- and intra-model uncertainty, examples being climateprediction.net and the Coupled Model Inter-Comparison Project (CMIP) to account for uncertainty in GCMs.

While the outputs from GCMs reproduce the global and continental scale climate well, they are not so successful at higher resolutions (national, regional or local scales), the scales most appropriate for impact assessment (Wilby and Wigley, 1997). In dealing with this, limitation numerous regionalisation approaches have been developed ranging in complexity from the application of complex dynamical Regional Climate Models (RCMs), through empirical statistical downscaling to change factor analysis where changes in simulated future time series are applied to observations. Both regional climate modelling and statistical downscaling have been the most widely applied with pros and cons associated with each; most notably the computational costs and data demands of RCMs and the assumption that statistical links between local and large scale climatic variables will remain consistent under future, changed climate conditions. No one method has emerged as the optimum, as all approaches are subject to considerable assumptions.

Conceptual Rainfall Runoff (CRR) models have been the most widely applied models for assessing local scale hydrological impacts. Such models are characterised as simplified representations of catchment hydrology using conceptual stores to represent different components of catchment storage and response. Despite their widespread use such models are also subject to uncertainties given that they represent complex, dynamic catchment systems. Key uncertainties in the application of CRR models include input data uncertainty, particularly rainfall, as well as model state, structure and parameter uncertainty. (Beven, 2000; Gupta et al., 2003). Numerous approaches have been proposed for propagating uncertainty in CRR models, most common being the Generalised Likelihood Uncertainty Estimation (GLUE) method, based on the concept of equifinality, and Bayesian Model Averaging.

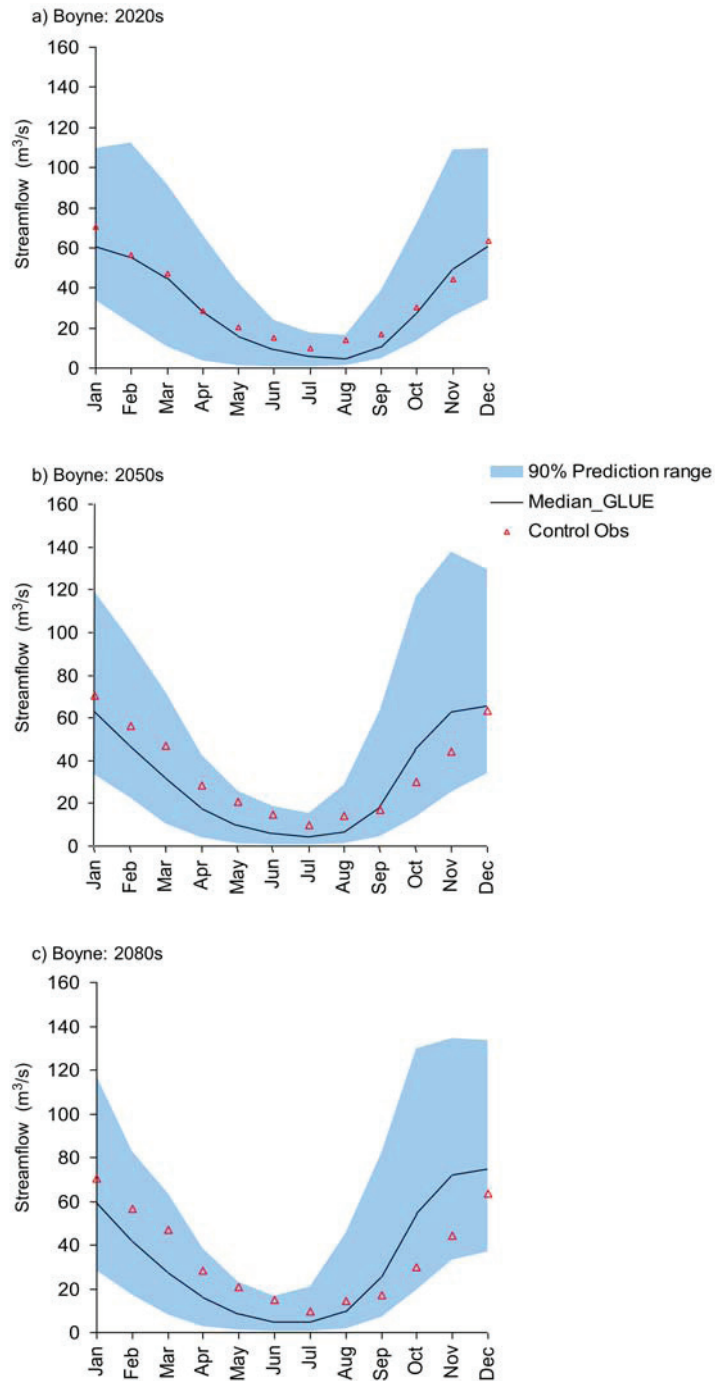
The outcome of such a propagation of uncertainty throughout the modelling process is shown in Figure 2, with the largest uncertainty ranges associated with the information used for decision-making. Consequently, Hall, (2007) draws attention to the heavy criticisms proffered to the ranges of future changes presented in the IPCCs fourth assessment report, for not providing sufficient information on which to

base decisions about the future and the conception that uncertainty ranges are so large as to be useless (Hall, 2007).

In light of the criticisms of the scenario approach, many practitioners, particularly in the water sector, have called for probabilities to be associated with future impacts projections. However, given the uncertainties outlined above, probabilistic approaches are subject to the same difficulties as the scenario approaches presented, particularly epistemic uncertainty, and can only represent a fraction of the uncertainty space. Hall (2007) highlights that probabilistic outputs are highly conditional on the assumptions made in their construction, the models used and even the statistical methods adopted. For example, two commonly applied techniques for propagating uncertainty in hydrological models are Bayesian Model Averaging and the Generalised Likelihood Uncertainty Estimation (GLUE) method. A recent study by Bastola et al., (2011) for a selection of catchments in Ireland has applied both of these approaches using the same regional climate scenarios and hydrological models as employed below and derived quite different ranges of outcomes depending on the technique used. Fundamentally, Hall (2007) highlights that the traditional use of probabilities in engineering for optimisation of performance in design is potentially dangerous in the context of climate change if the severe ambiguities in the information they present are not made transparent. Indeed, he also highlights that the calls to reduce all of the uncertainty in climate change impacts modelling to a single probability distribution function are to misrepresent and place unrealistic demands on current scientific knowledge.

As a result of uncertainties, adaptation to climate change in the water sector has been hindered by decision makers procrastinating on making commitments until either uncertainty is reduced, or until a clearer picture of which simulations are correct emerges as climate change signals become detectable within observational records. While it is agreed that early detection of climate change is essential for minimising adverse environmental and societal impacts (Ziegler et al., 2005), it is becoming clear that waiting for climate change signals to emerge from records is unacceptable as an adaptation approach. As noted above, robust attribution of changes in hydrology at the catchment scale is not feasible at present. However, techniques have emerged for estimating the time horizons for formal detection of trends. Preliminary estimates using data for river basins in the US and UK suggest that statistically robust climate driven trends in seasonal runoff are unlikely to be found until at least the second half of the 21st century (Zeigler et al., 2005; Wilby, 2006). In such situations adaptation will have to take place in the face of uncertainty and well in advance of change being detected.

Figure 2. Uncertainty in future simulated monthly flow regimes derived from six climate scenarios and four hydrological models for the river Boyne in Ireland for three time periods (2020s, 2050s and 2080s) using Generalized Likelihood Uncertainty Estimation method (GLUE) (Bastola et al., unpublished).



Moreover, the additive nature of uncertainties in climate change modelling and impact assessment means that it is highly unlikely that we can reduce uncertainties significantly in the time scale required for implementing adaptation options. This conclusion is supported by Dessai et al., (2009) who draw attention to the fact that after in excess of twenty years intense study, the uncertainty ranges for climate sensitivity (temperature response of the global climate to a doubling of carbon dioxide levels in the atmosphere) has not been significantly reduced. In fact, the outcome of further developments in understanding key processes and feedbacks is likely to result in the opposite case where unveiling limits to our knowledge will result in further unknown processes, thereby increasing uncertainty. Recently this is evidenced by the increased uncertainty associated with sea level rise due to the discovery of previously unknown processes involved in the melting of large land based ice sheets.

Robust adaptation

In spite of the adaptation challenges presented, adaptation to anticipated climate changes has to take place, as uncertainty cannot be avoided or eliminated through more research (Langsdale, 2008). The traditional framework of approaching such challenges ('predict-then-act' framework (Lempert et al., 2004)) is rooted in the assumption that the future is predictable. In this framework, different adaptation options are evaluated against probabilistic scenarios and a few options or a single optimal adaptation solution are selected with the help of evaluation criteria.

However, being confronted with deep uncertainties in a climate change vulnerability assessment, where no subjective likelihood judgments should be assigned and risk is not quantifiable; such an approach is no longer valid. Additionally, probabilistic scenarios are not capable of capturing the full uncertainty extent and therefore only represent a part of the total uncertainty (Hall, 2007). This is particularly problematic when, like in the water resource sector, extremes (low flows (droughts) and floods) are important planning components and adaptation decisions are made based on probabilities, without taking the total uncertainties into account. Not adequately considering the residuals of potential future outcomes, can result in non-appropriate adaptation decisions and may result in mal-adaptation. Hallegatte, (2009) additionally states that uncertainties in future climate change impacts are so large that traditional planning approaches, often seeking an optimum solution when designing infrastructure and other long-lived investments, are insufficient. For example, depending on the models used to predict impacts on water supply systems, the optimal adaptation strategy can differ considerably.

In such a setting, adaptation to climate change impacts is mainly about dealing with uncertainties as precise climate change impacts on water supply systems are not available and will not be feasible in the near term future, making the quest for an optimum strategy infeasible. Therefore, it

is important that the deep uncertainty surrounding the challenge of selecting adaptation options is communicated to decision makers, to enable them to understand and base their decisions on adaptation strategies that reflect the deep uncertainty encountered.

Consequently, new approaches other than the traditional 'predict-then-act' or 'predict-then-adapt' methodology to anticipatory climate change adaptation are required and need to be established. For example, Lempert and Schlesinger, (2000) suggest that adaptation strategies should be sought that are robust against a wide range of plausible climate change futures. This means that alternative future strategies need to be evaluated against a wide range of plausible futures to determine those that are insensitive to future uncertainties. Adger et al., (2005) also identify robustness to uncertainty as one of the two key indicators of effectiveness of an adaptation option, besides the flexibility or the ability of a system to respond to changes. Possible adaptation strategies that improve robustness to uncertainties and challenges presented before have been highlighted in international literature. A review of the some leading papers in this area highlights some important characteristics of robust adaptation options as follows (Fankhauser et al., 1999; Lempert and Schlesinger, 2000; Adger et al., 2005; Hallegatte, 2009; Wilby and Dessai, 2010).

Development Path Independency

Measures taken do not compromise other future adaptation options.

Economic Efficiency

Adaptation measure that result in benefits, which exceed the costs. However, non-monetary benefits are often difficult to relate to costs (Adger et al., 2005).

Flexibility and Reversibility

According to Adger et al., (2005) two key indicators of effectiveness of an adaptation option are flexibility and reversibility. These indicators need to be considered when planning for adaptation measures. Flexible and/or reversible adaptation measures are dynamic by design to allow changes or to withdraw the adaptation strategy, as new climate change information evolves or when boundary conditions change.

Functional under Wide Uncertainty Ranges

Uncertain futures require robust adaptation strategies that aim to be insensitive to the wide range of climate change uncertainties. Robustness to uncertainty is one of the key indicators of the effectiveness of an adaptation action (Dessai and Hume, 2007). Robustness to uncertainty helps to ensure benefits and satisfactory performance under various future presumptions and scenarios.

Low/No-Regrets

Adaptation options with low implementation costs that are projected to have large benefit under various future scenarios. The Low or no-regrets adaptation criterion is important for infrastructural development considerations. No-regrets measurements are cost-effective and effective under current and projected climate given their long life design (Hallegatte, 2009.)

Reduced Decision Horizon

Lifetime reduction and therefore cost reduction of possible climate change vulnerable projects (Fankhauser et al., 1999, Hallegatte, 2009)

Safety Margins

Strategies that can reduce climate change vulnerability by adding extra safety margins at null or low costs in current infrastructure or allow for easy retrofitting (Hallegatte, 2009).

Win-Win

Adaptation to climate change requires the implementation of management options and policies that reduce the vulnerabilities caused by climate change, but also offer the most benefits from changed conditions.

The key to identify robust adaptations strategies, which are both insensitive to specific future states of the system and are beneficial under a wide range of possible futures, is a paradigm shift away from the 'predict-then-act' approach. As an alternative, the 'assess-risk-of-policy' approach (Lempert et al., 2004) overcomes the need to assign (subjective) probabilities to climate change and model outputs, as this approach does not aim to identify the optimum adaptation solution. Instead, a robust decision making framework aims to assess the robustness to uncertainty of a wide range of adaptation actions, without any likelihood judgment attached to them. Such decision making is mainly coherent with established optimum seeking analysis, but the traditional assessment order of uncertainty assessment and adaptation decision is reversed (Groves and Lempert, 2007). Thus robust approaches have often been characterised as bottom up assessments, in contrast to the top-down 'predict-then-act' approach.

Bottom-up approaches begin with an identification of vulnerabilities. If vulnerabilities exist, the consideration of future adaptation options becomes necessary. In the robust decision making framework, an inventory of different adaptation options is compiled (see paragraph 5). Then through an exploratory modelling approach, the performance of selected adaptation measures is appraised against a wide range of future scenarios (Wilby and Dessai, 2010), with the aim of finding strategies which perform well and are insensitive to the most significant uncertainties. Whereas, the traditional top-down approach examines the

variability of model outcomes against different (uncertain) input variables and ranks the options according to their performance. A robust decision making framework also has an iterative and flexible component, which evolves over time in response to emergence of new information or scenarios ensuring adaptivity of adaptation decisions.

Adaptation strategies have to be evaluated regularly according to the newest knowledge available and reconsidered if necessary. This ensures flexibility and the ability to respond to changes, to ensure that future adaptation options are not development path dependent and constrained by previous adaptation decisions, reducing the risk of mal-adaptation. Matthews and Le Quesne, (2009) therefore support the application of a process-oriented “vulnerability thinking” instead of “impacts thinking” approach in adaptation planning. A vulnerability thinking approach combines flexibility of planning over longer time horizons and monitoring with adaptive management, recognising the uncertainty in projected future hydrological changes.

It needs to be noted that different water supply systems might show a different degree of sensitivity to different uncertainties in climate change and hydrology models. Therefore, an individual exploratory modelling approach to identify robust adaptation options for each water supply system might be necessary. This is especially important, as climate change is only one of several factors and it is difficult to separate climate change adaptation decisions or actions from actions triggered by other social or economic events (Adger et al., 2005). Therefore, robustness (insensitivity) to key uncertainties needs to be implemented as an important criterion for adaptation strategy decision making.

Some Best Practice Case Studies

In meeting the challenges of uncertainty, a number of approaches are emerging within the international literature, which are showing significant potential. In relation to engineering safety margins into the design of new infrastructure, Prudhomme et al., (2010) have developed a novel framework for undertaking climate change impact studies, which can be used for testing the robustness of precautionary climate change allowances used in engineering design. In analysing the functionality of the UK Governments 20% increase on peak flows strategy, the authors employ a change factor analysis of the IPCC AR4 GCMs and the UKCP09 RCMs to analyse the sensitivity of catchment responses to a plausible range of climate changes. By combining current understanding of likelihood of the climate change hazard with knowledge of the sensitivity of a given catchment, as indicated by its response signal, Prudhomme et al., (2010) contend that it is possible to evaluate the fraction of climate model projections that would not be accommodated by specified safety margins. This approach enables rapid appraisal of existing or new precautionary allowances for a set of climate change projections, but also for any new set of climate change projections for

example arising from a new generation of climate models as soon as they are available, or when focusing on a different planning time horizon, without the need for undertaking a new climate change impact analysis with the new scenarios.

In Ireland, Hall and Murphy, (2010) using measures of vulnerability of public water supply infrastructure and the use of natural resources have produced a vulnerability analysis of future public water supply for the Moy catchment over the coming decades by accounting for the design capacity of current infrastructure, population growth, changing patterns of water demand and usage. Where vulnerability hotspots were found to exist potential adaptation options were screened for robustness using exploratory modelling to assess the robustness and functionality of adaptation options identified for the catchment. In the case of the Moy catchment, a realistic reduction of losses from leaking water infrastructure greatly reduced the vulnerability identified under all climate scenarios investigated up to mid century; a low regret strategy that is robust to uncertainty (Hall and Murphy, 2010).

In a similar study of the Wimbleball water resource zone in southwest England, Lopez et al., (2009) used the ensemble of the ClimatePrediction.net experiment to test the performance of different adaptation options under climate change. By analyzing the frequency of failures to meet peak water demand it was concluded that the previously identified option of increasing reservoir capacity was not enough to tackle successive dry years and that demand reduction measures were also needed (Lopez et al., 2009).

Evident from these studies is that adaptation measures have to be context specific, as one set of adaptation options may work in one region but may not be applicable in another. Adaptation has to be planned and implemented on international (for trans-boundary river basins), national and regional (basin) level. National planning and water management at the river basin scale can help to understand current and future vulnerabilities and insufficiencies which need to be recognised and subsequently addressed (Stakhiv, 1998). Individual river basins are the level at which detailed adaptation plans have to be implemented. The fine-tuning of these plans ideally takes place with a broad range of stakeholder involvement, to ensure that all possible options are considered. With stakeholder involvement, adaptation can allow water users to influence the adaptation process, enhancing the likelihood of success. However, formulating a final adaptation strategy remains complicated because of the number actors involved as well as range of measures available. The definition of the criteria for success of an adaptation strategy is always context specific and final decisions can always be argued (Dessai and Hume, 2007).

A closer look at robust adaptation to climate change: a case study from Ireland

The case study presented in this chapter is based on the assumption that the deep uncertainties in climate change and hydrological modelling are not quantifiable and therefore have no likelihood judgement (subjective probabilities) attached. Therefore, a robust decision making framework is applied aiming to assess the robustness to uncertainty of adaptation options through an exploratory modelling approach.

The application of a robust adaptation decision making framework is presented using the case study of the Boyne catchment's water supply system in the east of Ireland (Figure 3). Ireland has a moist, temperate, maritime climate, mainly influenced by the moderating influence of the Atlantic Ocean and the Gulf Stream's northern extension towards Europe, the North Atlantic Drift, which carries warm water towards the coast of Ireland. Climate data from the synoptic station at Mullingar is used to drive the Boyne catchments hydrology. The 30 year-annual average climatology (1961-1990) is about 931mm for precipitation and 8.8°C mean temperature (Met Éireann, 2010).

In Ireland, the majority of public drinking water (83.7%) originates from surface water (abstractions from rivers and lakes) (EPA, 2009). As surface water abstractions are directly influenced by changes in catchment hydrology induced by a changing climate and are the bulk source of drinking water, this case study focuses on river abstractions in the Boyne Catchment. The six surface water abstraction points shown in Table 2, are assessed to identify their vulnerability to climate change and if vulnerability is indicated, the robustness of adaptation options is assessed.

A stepwise modelling approach is applied (Figure 4) aiming to incorporate uncertainties from climate and hydrological models into the robust decision making framework.

Step 1: Regional climate scenarios for Ireland were derived from a combination of two greenhouse gas emission scenarios (A2 and B2) and statistically downscaled output from three Global Climate Models (GCM) (HadCM3, CCCma and CSIRO) which were modelled in previous research (see Fealy and Sweeney, 2007 and Fealy and Sweeney, 2008 for details) to incorporate climate model uncertainty.

Step 2: To additionally include hydrological model structure and parametric (model parameters) uncertainty, 500 Monte Carlo sampled behavioural hydrological model runs (generated with the Hydrological Simulation Model (HYSIM)) are driven by the six climate scenarios of step 1 for two future time slices: the 2020s (average of 2010-2039), 2050s (2040-2069). This approach increases the possible uncertainty space from

six plausible futures (if only one hydrological future is modelled) to an ensemble of 3,000 possible future hydrological time series.

Figure 3. Study Area - The Boyne Catchment. Including Water Abstractions, Stream flow Gauges, Synoptic Stations, Towns and Catchment Elevation.

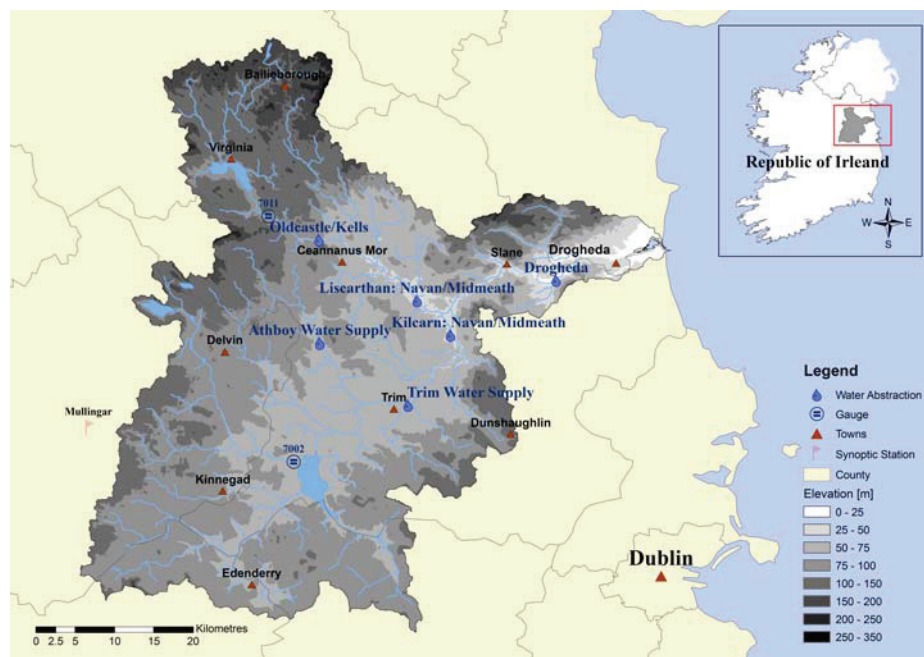


Table 2. Boyne Catchment Surface Abstractions studied and Water Supply Information (CDM, 2009, EPA, 2009)

<i>Scheme Name</i>	<i>Scheme Code</i>	<i>Population Served</i>	<i>Volume (m³/day)</i>
Athboy Water Supply	2300PUB1001	3000	2200
Drogheda	2100PUB1019	23077	27692
Kilcarn: Navan/Midmeath	2300PUB1016	5600	2800
Liscarthan: Navan/Midmeath	2300PUB1016	22400	11200
Oldcastle / Kells	2300PUB1011	2024	1447
Trim Water Supply	2300PUB1009	8000	3200

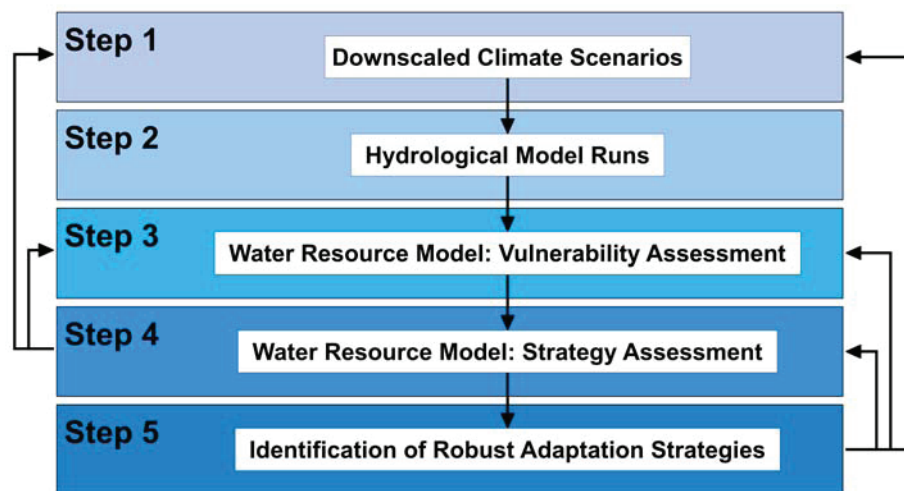
Step 3: Vulnerability assessment of the water supply system with the help of a water resource model (Water Evaluation and Planning model Version 21 (WEAP21) Yates et al., 2005). The current features of water supply systems in the catchment are extrapolated into the future (Business as Usual-Scenario (BAU)). The performance of the system is assessed under the range of future hydrological conditions (3,000 plausible futures) generated in step 2.

Step 4: Where vulnerability under the BAU-Scenario exists, the key steps in the robust decision

making framework, step four and five, are modelled. In step four different adaptation options are modelled and these strategies are assessed with regard to their robustness to uncertainty over the wide range of hydrological scenarios.

Step 5: The final step in this modelling approach involves the identification of robust adaptation strategies, which function well across the wide range of possible future hydrological scenarios, according to the performance measures selected. Robust adaptation strategies can then result in an adaptation option/policy options. The identified adaptation measures are flexible and can be revised as soon as new criteria are selected, new scenarios emerge or the characteristic of the water resource system change.

Figure 4. Flow chart of the case study modelling approach.



The following section focuses on the detailed assessment of step three to step five.

Step 3: Vulnerability Assessment

To assess the vulnerability of the water supply systems in the Boyne catchment, with the help of a water resource model, current characteristics of the system are extrapolated into the future as follows. The future Business-As-Usual (BAU) scenario for the water supply systems is based on the population growth rate projections from the Irish Central Statistics Office’s (CSO) Report on Population and Labour Force Projections (CSO, 2008), the estimates of unaccounted for water (leakage) are derived from the Assessment of water and waste water services for enterprise (Forfás, 2008).

Scenario A —‘Business as Usual’. The population of 2008 of the water supply system is extrapolated into the future using the projected annual

average change of the CSO. The per capita water abstractions and the supply infrastructure remain constant. The amount of unaccounted for water (water lost through leakage) is of the national average of 43%.

The vulnerability of the water abstraction points is assessed using the Water Use-to-Resource Ratio (URR) (Raskin, 1997). The URR vulnerability measure is used to determine a quantitative indication of the pressure (water stress) imposed on the water supply system. This physical vulnerability index is the ratio of the water used (withdraws) to the available water supply on average (Raskin, 1997 and Arnell, 1999), and provides a local index of water stress (Vörösmarty et al., 2000). The original URR-index is adjusted to the Irish water resource context, where on average over 80% of municipal water abstractions are taken from surface water with pronounced seasonality of water availability, and no water storage facilities. To take these characteristics of the Irish water supply system into account, the original URR-index is refined using monthly totals, compared to the original index which is calculated on an annual basis, (Hall and Murphy, 2010).

The URR-index is divided into four Water Stress classes, ranging from No Water Stress to High Water Stress, as shown in Table 3. A ratio of withdrawal to available water resources greater than 20% can ‘begin to be a limiting factor for economic development’, whereas the other stress classes are literature-based estimates by Raskin (1997).

Table 3. Monthly Water Use-to-Resource Ratio (URR) Classes (adapted from Raskin, 1997)

URR	<10%	10%-20%	20%-40%	>40%
Classification	No stress	Low stress	Medium stress	High stress

In the case study area, vulnerability is analysed for each abstraction point individually, using 3,000 future hydrology scenarios previously created in step two. Monthly URR indices are calculated and then analysed over seasonal periods (Winter (Dec, Jan, Feb), Spring (Mar, Apr, May), Summer (Jun, Jul, Aug), Autumn (Sep, Oct Nov)).

Vulnerability under the BAU-Scenario

The water abstractions at Drogheda, Kells and Liscarthan indicate various levels of Water stress. Figure 5 shows the Water Use-to-Resource Ratio for the summer and autumn season and for the abstraction points indicating Water Stress. The 3,000 model runs are presented using violin plots, which show the kernel density of the data at different values (similar to a histogram), and a marker for the median of the data at that time step. In summer and autumn, Drogheda Water Supply URR values ranging from No Water Stress to Water Stress, whereas for Kells and Liscarthan all Water Stress Classes are present. In winter and spring, all simulations for Drogheda, Kells and Liscarthan remain below the Low

Water Stress threshold. The only exception was the year 2055 (not shown) where some simulations of the Kells and Liscarthan water supply system indicate Low Water Stress in spring. The remaining water abstraction points do not indicate any vulnerability (water stress) under the future simulations of the Business-As-Usual Scenario and are not included in any further analysis.

Step 4: Adaptation Strategy Assessment

For presentation purposes, only the results for the abstraction of the Kells water supply, which indicates the highest water stress, are presented and described from this step onwards.

Three future adaptation options different to the BAU-Scenario are constructed to allow for the evaluation of water management strategies/policy into the future. In this case study, scenario thinking is used as a planning tool to test and assess the future vulnerability of different strategies used in the water resource sector. The aim is to learn about the future by understanding the vulnerability of the different water supply systems. Therefore, the water resources modelling tool (WEAP21) is not used as an optimisation tool or as a planning tool for designing future water resource systems, but rather to indicate the robustness of different adaptation options to uncertainty by exploring possible future states of the water supply system.

Here, for each adaptation strategy described below, water abstractions are based on the same assumptions described for the BAU-scenario for each water supply system individually.

The four future adaptation strategy scenarios' comprise of the 'no-measure' (BAU-scenario), a 'demand side', a 'supplyside' and an 'integrated' measure shown in the Scenario Matrix (Figure 6). The aims of this exploratory scenario modelling approach are to assess the vulnerability of the abstraction point, to investigate the interaction between different measures and to evaluate their robustness to uncertainty as well as to compare the impacts of climate change to other non-climatic pressures.

Figure 5. Use-to-Resource Ratio (URR)-Analysis (with median trend line) of abstraction points, in the Low, Medium or High Water Stress Category.

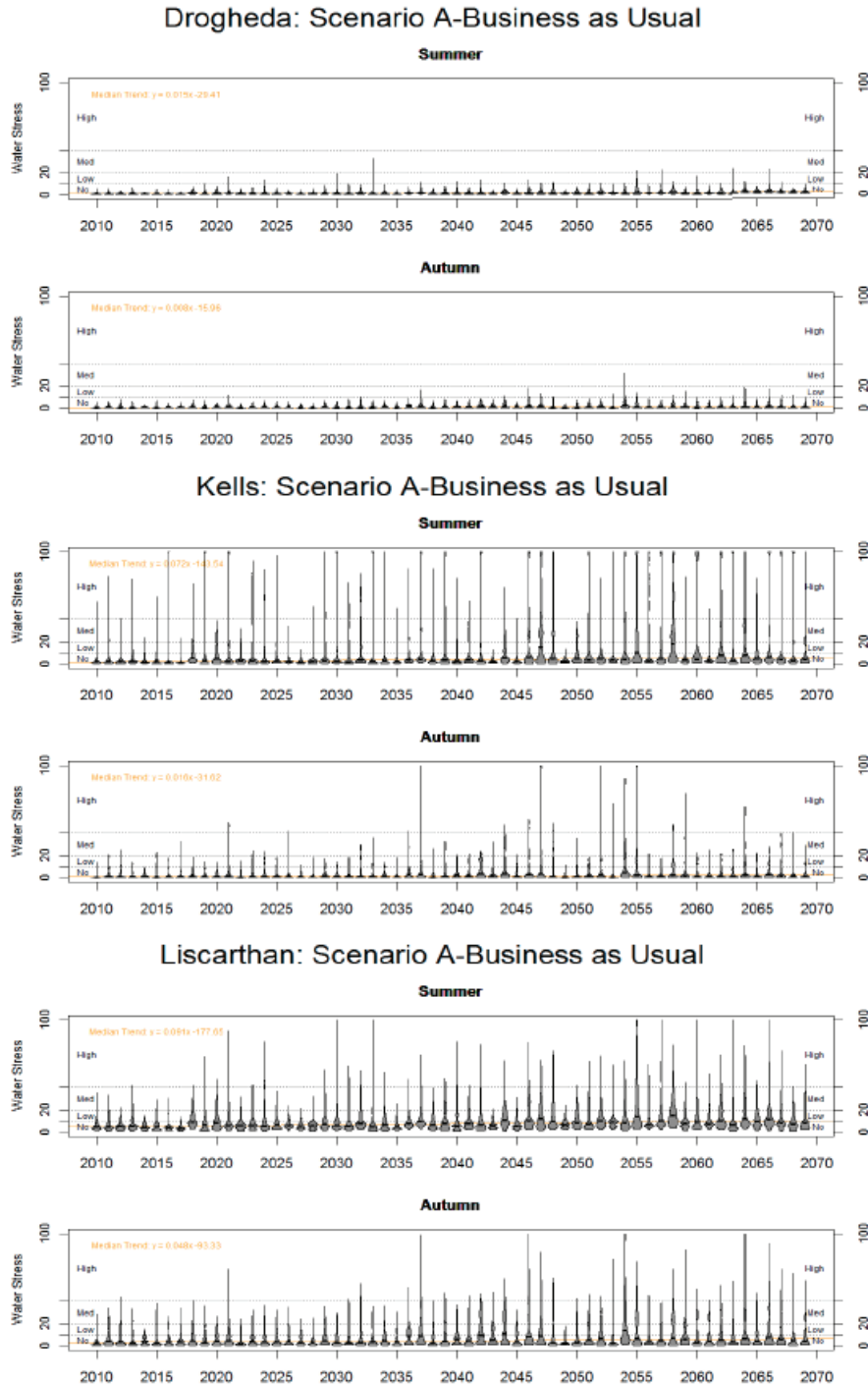


Figure 6. Scenario Matrix; showing the four investigated Adaptation Strategies.

		Per Capita Water Demand	
		Constant Water Demand At 2008 Value	Reduced Water Demand 5 % Reduction of 2008 Value by 2020
Leakage Level	Leakage Constant National Average of 43%	Scenario A Business as Usual	Scenario B Reduced Water Demand
	Leakage Reduction Stepwise up to 25% by 2015	Scenario C Reduced Leakages	Scenario D Reduced Water Demand & Leakages

The following is a brief description of the scenarios and assumptions made;

Scenario A—‘Business as Usual’. Extrapolation of the water supply system characteristics as described above.

Scenario B—‘Reduced Water Demand’. Increasing water conservation measures results in a stepwise per capita water demand reduction of 5% of the 2008 value by 2020. The level of unaccounted for water remains constant at 43%.

Scenario C—‘Reduced Leakages’. Water supply infrastructure improvements reduce the leakage level in annual steps from 43% to 25%, by the year 2015. Leakage reduction is based on the Department of the Environment, Heritage and Local Government (DEHLG) Water Conservation Programme estimates (CDM, 2004). The per capita water demand persists on its 2008 level.

Scenario D—‘Reduced Demand and Reduced Leakages’. Combination of Scenario B and Scenario C. Water demand and leakage level reductions, as described above.

Step 4 - the Adaptation Strategy Assessment - of the modelling framework is conducted, which means that the future demand side, supply side and integrated strategies (Scenario B, C and D respectively) are modelled. The three alternative strategies/scenarios selected can be characterised as “low or no regrets” and “win-win-strategies”, which are able to cope with climate uncertainty and provide benefits, even in absence of climate change (Hallegatte, 2009). Therefore, in uncertain conditions their application is to be favoured over high cost, potentially high regret strategies. In the following sections, the capacity of these strategies to successfully adapt to the vulnerabilities indicated in step three is assessed.

Results for the Adaptation Strategy Assessment

The outcomes of the adaption-strategy assessment show that in summer and autumn all ranges of water stress can be found within the different adaptation scenarios modelled. Generally, throughout the simulated time periods, the water Use-to-Resource Ratio (URR) increases over all adaptation scenarios (also indicated by the median trend lines). Figure 5 and 7 show that as the simulation times increase so does the spread of the simulation outcomes. This increasing spread of data over time also represents the increasing uncertainty ranges. However, when looking at individual water resource scenarios there is a significant reduction of the spread of simulation outcomes with the implementation of demand, supply, and integrated measures compared to BAU-Scenario (‘no-measures’). Scenario A has the highest uncertainty ranges, which are subsequently reduced in Scenario B and C resulting in a significant reduction in Scenario D. The adaptation options can be classified as robust, since the adaptation measures have an effect on the vulnerability, especially on the values different from the median and on the extremes. The median of all simulations is also influenced by the adaptation measures. For example, the median values of the BAU-Scenario (A) show a statistically significantly increasing trend (line) of water Use-to-Resource Ratio. With the reductions in water demand and leakage, the exhibited increasing trend is mitigated (compare Figure 5 with Figure 7). The same applies to the median values in autumn.

Figure 8 presents the increasing trend of the percentage of all summer simulations located in the High Water Stress Category for the Kells water supply system over the simulated time period. The effect of the different adaptation measures in reducing the amount of simulations showing high water stress is evident. However, even within Scenario D where integrated measures reduced water demand and leakage level, the percentages of simulations resulting in the High Water Stress Category are still considerably high. Especially for the water abstractions at Kells, in the time between 2049 and 2069, when 25% of the years have more than 15% of all their simulations reaching the High Water Stress Category.

Figure 7. Kells - Adaptation Strategies: URR-Analysis (with median trend line).

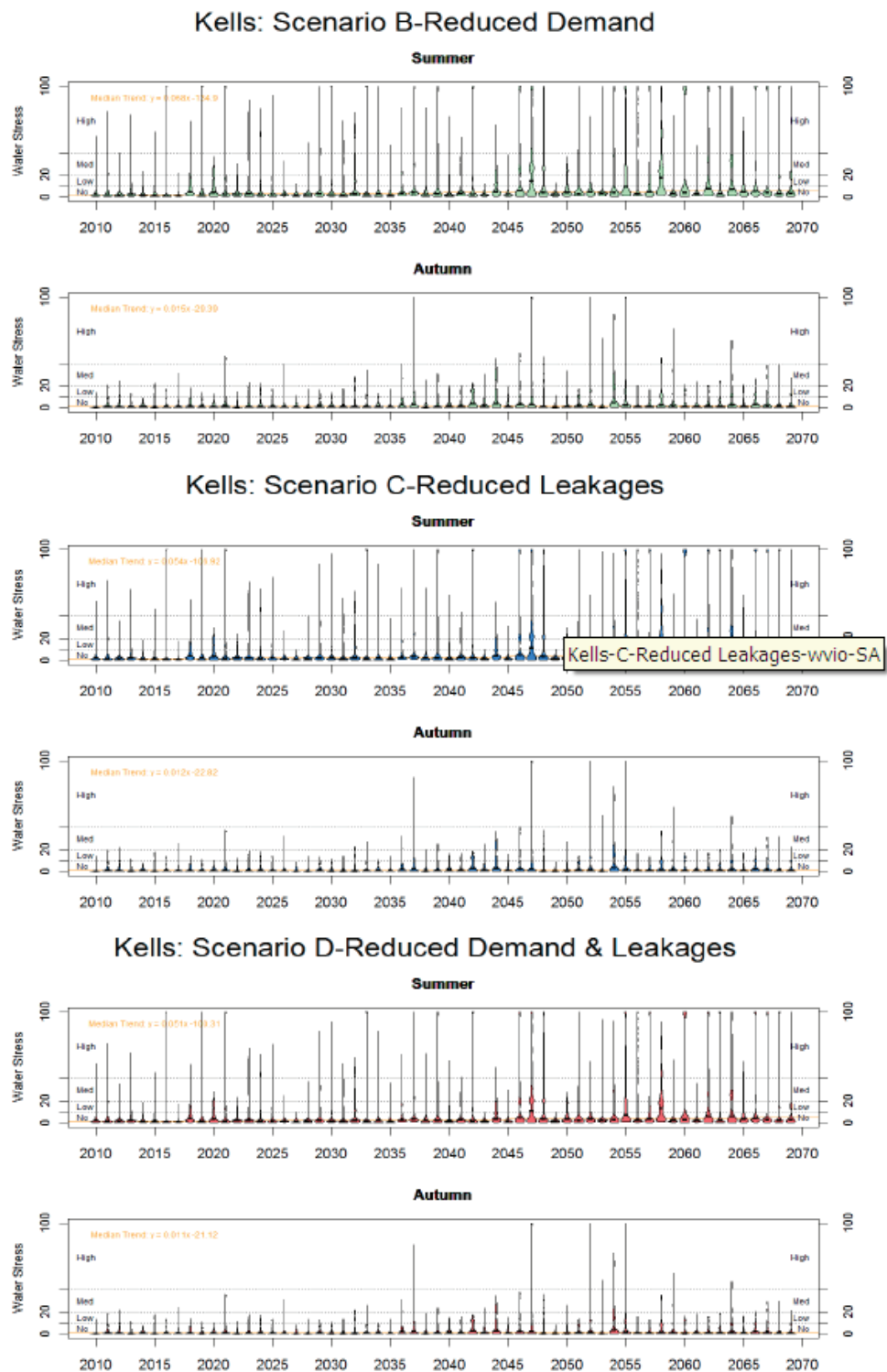
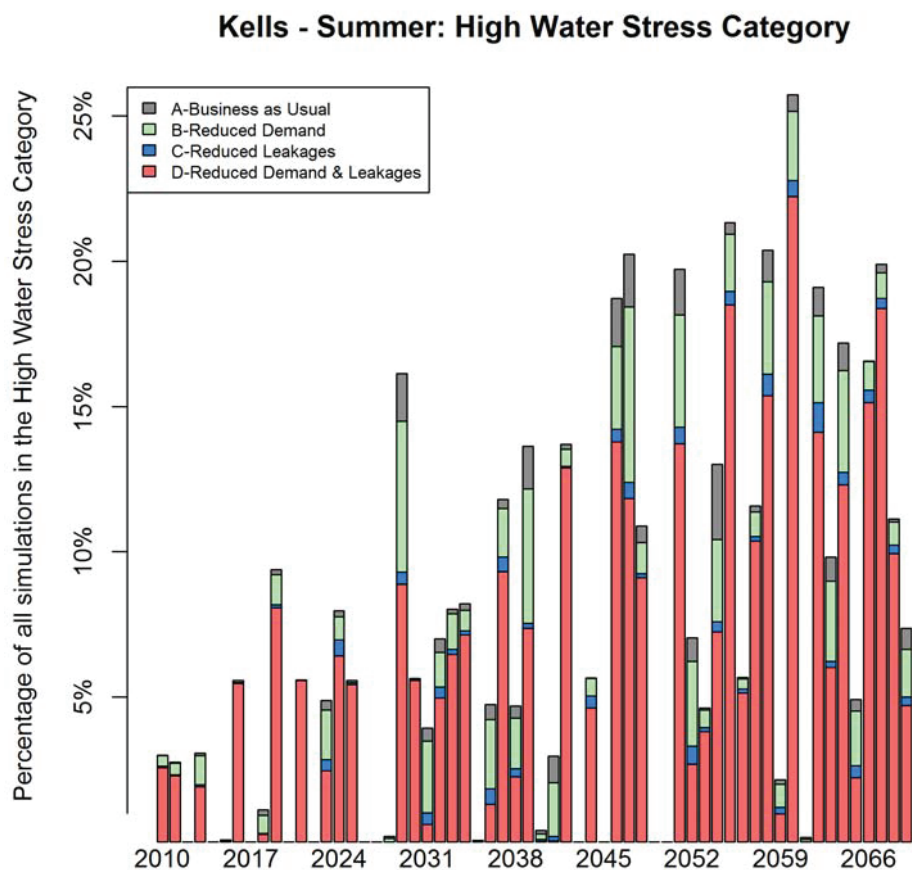


Figure 8. Kells-Summer: Percentage of all Simulations in the High Water Stress Category.



Step 5: Identification of Robust Adaptation Strategies

Having completed the steps of this robust decision making framework, it can be concluded that all three adaptation measures (demand, supply, and integrated measures, Scenario B, C and D respectively) are robust to uncertainty, as they are all able to reduce the vulnerabilities compared to BAU- Scenario A ('no-measures'). However, there is an indication that the considered No or Low Regret water adaptations measures might not be enough to sufficiently reduce the vulnerability of the water supply system, as the Water Stress levels still remain at a high level. An expansion of the inventory of the adaptation strategies considering for example additional adaptation scenarios/measures or higher water demand and leakage reduction is needed. This new menu of strategies can then again be assessed in step 4 to identify their capacity to decrease the vulnerability and increase the robustness of the investigated water supply systems.

Conclusion

Climate change presents significant challenges for water supply systems and their management. The results of such a change undermine the

assumption of stationarity, on which adaptation in the water sector to past pressures such as population growth has been based. In addition, the future evolution of the climate system is inherently uncertain, with the likelihood of uncertainty being reduced within the timeframe needed for adaptation being small. Furthermore, the large variations in local scale hydrology and small climate change signals mean that it is unlikely that climate change signals will be statistically detected in river flows before the middle of the century. Therefore, water managers will have to engage with alternative methods for adapting to climate change. One such framework that has been gaining considerable attention in a range of sectors is robust adaptation. Under robust approaches, rather than being prescriptive, uncertain climate change scenarios are used for exploratory modelling to assess the functionality of identified adaptation strategies across the uncertainty space. These approaches offer considerable potential for progress in initiating anticipatory adaptation strategies. In the case study conducted here, an exploratory modelling framework is presented that enables the assessment of both demand and supply side options.

Looking to the future observational evidence will play a vital role in addressing uncertainties and achieving a fuller reconciliation between model-based scenarios and ground truth (Hannaford and Marsh, 2006). Hydrological monitoring programmes have an essential role to play in acquiring the hydrological data necessary to characterise variability and discern any emerging trends, while the identification and interpretation of these trends is a necessary foundation for the development of appropriate water policy and management responses to climate driven changes (Hannaford and Marsh, 2006) effecting the water supply sector.

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CHAPTER 36

LIGHTNESS AND WEIGHT: (RE)READING URBAN POTENTIALITIES THROUGH PHOTOGRAPHS

CIAN O'CALLAGHAN

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Red balloons on the industrial skyline

An entire multiplicity rumbles underneath the sameness of the idea (Deleuze 1994: 344).

Time flows in an extraordinarily complex, unexpected, complicated way... (Serres with Latour 1995:58).

For Serres, the city is an imperfect citation perpetually reproducing and transforming itself. No matter how deep we dig into its historical layers ‘...another point always interpolates itself iteratively, in front of it. One city demands another city, one history requires another; but we do not really know how time flows’ (Serres 1991:39, in Crang and Travlou 2001:174). Time and space, for Serres, are ‘pleated’ in that other temporalities and spatialities are always suggested in any given moment in any given place. Thus, the city always escapes from the net of totalising narratives that seek to encapsulate it, wriggles free of the ‘Gods-eye’ view, eludes the orderly vision of what de Certeau (1984) calls the ‘concept city’. Cities exist in a state of relational tension between attempts to represent them and their inherent multiplicity. As such, the city is a constantly shifting spasm of relations, writhing in and out of the flows of movement and stasis, which can be apprehended in moments of (perceived) unitary meaning before again dissolving into the ether of urban flux.

The visions seated within these moments of unitary meaning can of course exert considerable weight, framing not only what cities are but forming what they will become. Nowhere is this more apparent than in the powerful vision of post-industrial urbanism seated within particular forms of neoliberal capitalist accumulation. An integral part of how the city has been ‘...colonized and commodified, bought and sold, created and torn down, used and abused, speculated on and fought over’ (Merri-field, 2002:89) in capitalism’s quest for perpetual growth is through the articulation of these relationships within urban visions (Lefebvre, 1991). Capitalism has been very successful in colonising cities in material and discursive ways, imbuing urban space with its inherent logic and occluding other visions. These visions exert weight, especially in their ability to retain an illusion of consistency while perpetually mutating. But these visions are also paradoxically light in the sense that they are

contingent upon the alignment of fragmented discursive and material forces.

As I was preparing my PhD thesis for submission in the summer of 2008, these contradictions presented themselves to me in urgent and insistent ways. During this period the global credit crunch was underway, and the inklings of the national recession were beginning to be felt in Ireland. The context in which this research project was initiated, however, was quite different. The Celtic Tiger boom, which prevailed between 1993 and 2007, transformed Ireland from a weak, peripheral nation to a high-tech economy with a GDP double that of many of its European neighbours (Bartley and Kitchin, 2007). One major component of this boom, particularly in the period after 2002, was the cultivation of an ultimately fatal property bubble, which dramatically altered the Irish urban landscape (Kitchin et al., forthcoming). While major regeneration programmes had been rolled out in Dublin from the late 1980s, similar schemes were not implemented in Cork until a decade later, such that the coming to fruition of a major strategy to redevelop the city's docklands coincided with the collapse of the property market, thus rendering the aspirations of this vision obsolete. My thesis concerned urban regeneration in Cork city between 2000 and 2008, and was particularly interested in the way in which the plans for the docklands and the European Capital of Culture (ECOC) event discursively stimulated new city imaginaries and development objectives. In many ways, these strategies had transformed the city (and particular spaces in it), but at the same time much of this functioned in terms of plans that were yet to be physically implemented. Significantly, the city's industrial waterfront was constructed as a space through which Cork would be 'transformed' into a modern European post-industrial city:

The major opportunity site within the [Cork] city boundary is the Docklands area, which has the capacity for the development of a new modern mixed use district bringing both employment and residents back into the city centre, consolidating Cork as 'a European location for enterprise' (Cork City Council, 2002:8).

Despite the fact that the bulk of these transformations were then only existent as urban plans, the images which circulated through strategy documents, promotional texts and developer's plans had begun to take on qualities in certain ways seemingly more 'real' than the spaces as they currently were. It seemed that this change was inevitable, and we were just waiting for the physical to catch up with our mental image. However, this impending transformation was contingent upon the relationships between a set of conditions, the unity of which was threatened by the impending recession. The set of assumptions upon which my research was built, like the property bubble itself, were fast becoming a flimsy foundation. As I was finishing my thesis, the city stood on the thin and anxious line between movement and stasis.

During this period I captured a photograph (Plate 1), which for me resonated strongly with the themes of my research, the set of urban relations that this was based on, and the tensions on these relationships that the current moment engendered. The image showed a number of old industrial buildings along the waterfront being suspended from what looked like red balloons, and gave the impression that these structures were levitated by the balloons.

In this article I wish to use this image to illustrate a number of exploratory points. Drawing on recent debates on visual methodologies, I acknowledge that capturing images forms a situated fieldwork practice through which we produce relations. I view images not as neutral representations of an objective material reality but as encoding a series of relationships that are read in fluid ways. I want to use this starting point to think about the value (and our use) of images in urban geographical fieldwork.

Through powerful progress visions the city can become in a sense enslaved by a particular urban narrative. Thus, through the discourses of Celtic Tiger expansion and the more uniform trend towards entrepreneurial urbanism, cities like Cork are bound into an uncritical conception of the city as a space to invest in particular forms of economic, cultural and social functions. This view of what the city 'should be' is normalised through various intersecting discourses to the extent that the rationale underpinning it becomes an invisible assumption beyond the need for explanation. The use of images in urban studies literature is also contingent upon these narratives, and thus always implies a temporal dimension through which these images are read. Therefore, if we revisit and reread these images we can disrupt both the 'general' hegemonic inscription and our own encoding of them.

Reading the photograph through Benjamin's 'imagistic approach' to the city and Serres' theorising of space and time as pleated, the underlying agenda of the article is to find oblique pathways to illuminate alternative versions of the (capitalist) city. In relation to the thrust of this article, but also I think applicably more generally, is the potential of the current crisis to provide a pivot around which we can orchestrate a rereading of the multiple cities inherent in images.

Urban images

The way in which social researchers understand and mobilise images as part of fieldwork has changed much in recent years (Crang, 2003; Fyfe and Law, 1988; Lorimer, 2003; Rose 2003, 2007). Images are now increasingly viewed as one of the primary means by which we construct our world; not simply artefacts or records but reflections of power relations which themselves have their own agency. This article is cognisant of Rose's (2007) assertion that we need to 'take images seriously' and engages in what she calls 'critical visual methodology'.

By 'critical' I mean an approach that thinks about the visual in terms of the cultural significance, social practices and power relations in which it is embedded; and that means thinking about the power relations that produce, are articulated through and can be challenged by, ways of seeing and imaging (Rose, 2007:xv).

Figure 1. 'Red balloons' over industrial buildings in Cork docklands. 'Balloon', installation by Sorcha O'Brien and Eli Caamano, commissioned by the National Sculpture Factory, Cork



Source: Photo by author

As Rose (2007:2) suggests '... images are never transparent windows onto the world. They interpret the world; they display it in very particular ways'. This applies to images that urban geographers collect in the process of fieldwork. While on the surface many such images offer representations of the material world, in reality they are used to demonstrate a range of urban processes, cultural meanings and circuits of capital. These images, therefore, are deeply entwined in a complex web of associations linking the epistemology of research practice with the perceived nature of evolving spatial processes. In this way they are both the embodiment of dominant urban potentialities and our own commentaries and critiques (as researchers) of them. With this in mind it is perhaps useful to revisit and reread our own images in order to understand the ways in which we have constructed meanings through them and how they can begin to form new meanings and associations.

A sympathetic counterpart to such an agenda can be found in Walter Benjamin's 'imagistic approach' to the city. For Benjamin, photography was a practice that did not simply 'document' the city, but situated the researcher at 'important points in the sphere of imagery' (Gilloch, 1997:18). Benjamin's 'imagistic approach' is not based on images per se but on the ontological implications of seeing explanatory partialities expressed in fragments. He suggests that '...image is dialectics at a standstill. For while the relation of the present to the past is a purely temporal, continuous one, the relation of what-has-been to the now is dialectical: it is not progression but image, suddenly emergent' (Benjamin, 1999:462).

Benjamin's concern with the depiction of the urban is interwoven with a conscious refusal of or resistance to the presentation of an overarching, integrated, coherent view of the city as a whole. The imagistic approach highlights the fleeting, fluid character of the modern metropolitan experience (Gilloch, 1997:18).

While, for Benjamin, the city cannot be apprehended as a whole, it can be (partially but meaningfully) explicated through the broader processes inherent within the moment caught fleetingly and extrapolated creatively by the researcher; 'Indeed to detect the crystal of the total event in the analysis of the small, individual moment' (Benjamin in Gilloch, 1997:112). If we are to view images of the city in the context of Benjamin's imagistic view of cities, then photographs are not representations of static urban relations but points through which we can articulate and rearticulate these relations iteratively.

The fragmented flaneur

In September 2008 I was, like most doctoral candidates in their final stages of writing up, a hollow shell of my former self. I had spent the previous few months within a narrow time-space geography that mostly involved a circuitous route between a few rooms as I sat writing for most of the day and thinking about writing for the rest. Fragments of sentences rattled around my head as I tried to sleep at night and I rattled around town on some of my few days off, the fragmented flaneur anxiously reading my research on the city. This anxiety familiar to the final stages of a PhD was not helped by the quickly shifting circumstances of Irish economy and society, which problematised a number of my findings. I began to think that my thesis could quickly move from being a document of contemporary and future urban trends in Cork, to a piece of historical geography illustrating an aborted plan of expansion.

As I took a walk through the city centre one September Saturday shortly before my submission, I was confronted by an uncanny spectacle that encapsulated for me both the understanding I had of urban processes in Cork and my anxieties about my attempts to represent them. I stood on

St Patrick's bridge looking at the industrial docklands that expanded to the east of the city centre, both an imposing physical presence of concrete and steel and an ever-present weight on my consciousness. A number of the industrial buildings along the south docks floated under red balloons. In a playful exposition obliquely reflecting Kundera's (1984) discourse on lightness and weight, the materiality of these buildings seemed to be lifted through the ethereality of the balloons: heavy industry made feathery by the unbearable lightness of art.

For anyone familiar with the development of urban trends in western cities over the last 30 years, such a connection will resonate. The post-industrial city has been characterised by the co-dependence of capital and culture in the replacement of industrial spaces with those of the knowledge economy, amenity, and art (Chang and Huang, 2005; Gibson and Stevenson, 2004; Gospodini, 2006; Hannigan, 1998; Kong 2000; Miles, 1997; Soja, 2000). The image also resonates with a more localised manifestation of this urban narrative. From the beginning of the previous decade a dual strategy has evolved in Cork that connected the plans to redevelop the waterfront with the re-imagining of the city's image through the ECOC event. Within the discourses of urban planning and development, this strategy enabled new narratives to be formed around notions of Cork as a city experiencing an 'urban renaissance', with new building activity reflecting the emergence of new knowledge and cultural industries (O'Callaghan and Linehan, 2007). Since hosting the 2005 event the City Council and various development interests have sought to draw art into a dialogue with urban transformation, particularly in relation to the space of the docklands. More specifically, these buildings themselves were (at that time) slated for demolition to make way for '...three million sqft of offices and over 1,200 apartments... along with a neighbourhood centre with shops and other facilities...' (Barker, 2008). Thus, the spectacle did not merely relate to an abstract vision of what might happen to this site sometime in the future, but to very immediate material transformations.

These red 'balloons' which caught my attention were in fact attached to the buildings with wire – supported by, rather than supporting these structures – as part of an art installation by Sorcha O'Brien and Eli Caamano, commissioned by the National Sculpture Factory to celebrate Culture Night (an evening of free arts events) in the city. As a public installation it was very effective; working as a clever and visually arresting aesthetic juxtaposition of shape and colour. The hard edges of the angular grey buildings suspended under the contours of the round red balloons. The piece works because of its aesthetic simplicity, perhaps even whimsy. However, and crucially, it suggests relationships that give it depth.

The moment of the red balloons

This piece of public art was produced within a certain set of relationships between culture, the city and property development. Reading these relationships within the piece, I composed the shot, framed the landscape in the camera's gaze and captured the image. In this I not only framed visually what was already 'present' but integrated the photograph into a frame of analysis that called various absences to bear upon it. Within the moment of the red balloons I articulated an image that caught/posed the city in a spasm of relations.

The moment of the red balloons formed in Benjamin's terms a 'dialectical image' – 'a moment of interruption and illumination, in which past and present recognise each other across the void which separates them' (Gilloch, 1997: 113) – in relation to my research practice. It provided both a monad (the universal discernible within the particular) that expressed Cork's contemporary urban narrative and a dialectical image that intersected past and present and placed different visions of progress into a relational tension.

Serres suggests that cities do not succeed one another, but rather geography 'presents us with a sowing' (Serres, 1991: 30, cited in Crang and Travlou, 2001: 162), wherein the traces of past cities are pleated in the subsequent cities that emerge. For Serres and Benjamin, modernity and anachronism always coexist. As Serres puts it, '...we are always simultaneously making gestures that are archaic, modern, and futuristic'. Rather than time being linear, it 'percolates' through a turbulent pleating together of these categories. Serres suggests the metaphor of the River Seine to illustrate this point, indicating that while the Seine, like the classical view of time, 'flows' in one direction towards the English Channel 'many little trickles turn back toward Charenton or upstream', thus indicating how the flow of time does not obliterate the past, and is more chaotic than its measurement through universal increments of days, months, and years would imply (Serres with Latour, 1995: 57–62). Events that occurred thousands of years ago can be culturally 'closer' to us than others separated by a much shorter duration because our perception of events is dependent on our folding together different sets of knowledge in ways that are partially 'rational' but also turbulent and affective. Serres (with Latour, 1995: 60) likens this to ironing out and then crumpling up a handkerchief, thus bringing distant points on the flat plane into proximity.

Benjamin's (1999) reading of the city in *The Arcades Project* is similar. As Buck-Morss (1989) points out, by the time Benjamin chose to study them, the Parisian arcades were already anachronisms. In them, Benjamin witnessed the shimmering array of commodities '[h]ollowed out and barren...revealed as nothing other than a ruin' (Gilloch, 1997: 136). But rather than conceiving of them simply as historical 'artefacts', Benjamin uses the arcades to launch a critique on both the transience of

commodity forms and the intransigence of capitalist modes of producing the city. As Edensor (2005: 15) suggests, ruins ‘...gesture towards the present and the future as temporal frames which can be read as both dystopian and utopian, and they help to conjure up critiques of present arrangements and potential futures’. The ruin exposes the myth of eternal progress and, thus, the contradictions of capitalism. In recognising the illuminations of the modern capitalist city in the arcades, Benjamin not only critiques this particular instance of how new spaces are transformed into ruins through creative destruction, but grasps the broader implications of how ruins function as sites shifting between obsolescence and opportunity.

The image under discussion here similarly depicts ruins in complex ways. The industrial buildings on Cork’s waterfront are articulated as ruins through the strategy to redevelop the docklands. They are imagined as the artefacts of a dead economic era, which are already consigned to the realm of heritage, their materiality a mere formality. Thus, the docklands strategy produces a ruin space in order to usher in a new phase of capitalist development. When read this way these ruins are utopian, sites of potentiality and opportunity. They stand on the precipice of a becoming commodity – ‘The major opportunity site within the city boundary...’ (Cork City Council, 2002: 8) – as sites in which the past and the present are projected into an imagined future. However, in recognising this shifting position of the ruin, how it is simultaneously urban blight and opportunity – as we can do through this photograph – we destabilise the legitimacy of the linear view of development. The combination of art and urban development, the industrial with the post-industrial, and its intersection with powerful urban imaginaries concerning accounts of what the city ‘has ceased to be’ and ‘will become’ placed the moment of the red balloons at an interface of urban pasts and potential futures. The pleated histories of space comeingle in an image that seems to ‘move’ figuratively to unveil urban complexity. Within this image, visions of the future coalesce and coexist among the ruins of the past, pasts rendered ruin by the pathways of progress mapped out in the strategies of the present day, while the ungainly tension between these trajectories is obliquely animated by the punctuation of the red balloons. Thus, in rendering this irreconcilable juxtaposition of past, present and future visible the red balloons explode the myth of linear progress by calling to attention the space (and the city) as one of mixture and multiplicity. The moment of the red balloons articulates the shifting mingled relationships between the city as commodity, opportunity, and ruin, between past, present and future.

But there is a double-bind here. The subsequent unravelling of the surety of the entrepreneurial vision of the city further dissolves the boundaries between these coordinates. The commodification of the city’s future encapsulated in this vision is itself exposed as ruin. The photograph, thus, becomes also a depiction of a ruin of what never was. At the time I

took this photograph it not only suggested to me the form of urban development practiced in Cork, it also suggested to me the fragility of this system. In doing so, it exposed for me the apparatus of entrepreneurial urbanism – seemingly so entrenched in the urban political economy – as a tenuous alignment of a fragmented set of relations poised to fall apart at any moment. With the country sliding into recession and the world poised on the precipice of financial meltdown, it reflected the city tethering on a thin and anxious line between movement and stasis. Given the then impending demolition of these buildings, the warm red of the balloons seemed to float in an eerie silence over the deserted buildings, highlighting their temporality, but also their physicality. In this way, they seemed to me almost like a question mark. As Cork stood on the cusp of a new phase of development, the balloons looked set to take off, to lift these buildings – relics of an industrial past – and clear the way for change. But, like the city itself, they were still anchored to the ground; tenuously tugging at flight, but with roots deep in the landscape.

If I look upon the photograph now, there is less of a sense of struggle. The extravagant plans for the docklands are gradually vanishing into the fog of recession. In 2009, it was announced that planning permission had been granted for three new bridges that were seen as central infrastructural provisions for the docklands project. However, as this story adorned the front page of the local newspaper, it sat side-by-side with the story that a warrant had been issued for the arrest of one of the main developers involved in the scheme set to benefit most from this infrastructure. The Irish property market has crashed spectacularly (Kitchinet al., forthcoming). Meanwhile, arts funding has been slashed and Cork has lost some important cultural venues. While schemes have subsequently been announced for the docklands, they come with so many caveats that it seems unlikely redevelopment will happen in the near future (O’Callaghan, 2011). The moment of the red balloons now seems like a culmination of a set of plans and relationships that ended in this snapshot; the wind failed to lift and the buildings coiled their briefly relaxed roots into the ground once more. The moment of change had passed.

As I currently see it, then, the image depicts two sets of ruins; the ruin of the industrial city that has ceased to be and the ruin of a particular version of the post-industrial city that never was. The former has a material basis, the latter a virtual. But, nevertheless, both ruins are implicated in how we perceive the image, and thus how we might experience the space that it depicts. As these buildings sit empty on the quay, they occupy a representational space between these two ruins, neither urban blight nor opportunity but quiet stasis, existing still in the lull between economic eras.

Lightness and weight

Milan Kundera (1984) in *The unbearable lightness of being* suggests the problematic of a dichotomy between the concepts of 'lightness' and 'weight'. Is lightness positive and weight negative? 'The only certainty is: the lightness/weight opposition is the most mysterious, most ambiguous of all', he suggests (Kundera, 1984: 5). Looking at this image I am reminded of this fragile opposition. In this picture which is lightness and which is weight? Depending on our acceptance of the piece's optical trick; are the buildings light, and thus the balloons have weight in order to lift them? To follow the metaphor through is heavy industry made light by art? Is the heaviness of Cork's industrial heritage made light (made removable) by the powerful vision of 'progress' encapsulated in the Docklands plans? And if so, is the apparatus of the neoliberal entrepreneurial city characterised by lightness or weight? Is the apparatus of entrepreneurial urbanism akin to the optical trick performed by this image, making that which is light appear to exert an oppressive weight of influence under which the lightness of opposing visions of the city cannot hope to combat?

This image of Cork encapsulates the way in which various forces and processes are combined with associations and assumptions to construct an imagining of the urban fabric that carries a weight to such an extent that it becomes 'real'. Urban projects like Cork Docklands demonstrate how powerfully images function within society. The bombardment of plans and visions of the area's transformation translate the space incrementally from one associated with one thing (industrial) to another (postindustrial). These visions 'order' the city, but do so 'cosmetically' by accentuating certain relationships (and thus fixing the city through a discursive imaginary) and not by organising the multiplicity. Serres (1985: 32–35) suggests that ordering and adorning are one and the same:

The Greeks in their exquisite wisdom combined order and adornment in the same word, the art of adorning and that of ordering. 'Cosmos' designates arrangement, harmony and law, the rightness of things: here is the world, earth and sky, but also decoration, embellishment and ornamentation... Cosmos and cosmetics, appearance and essence have the same origin. Adornment equals order and embellishment is equivalent to law, the world appears ordered, at whatever level we consider phenomena. Every veil is a magnificently historiated display (Serres, 1985: 32).

For Serres '[t]he question of the city goes far beyond the urban question. It concerns simultaneously the emergence of the collective, foundations and relations, forms of multiplicity, representations of the world...' (Hénaff, 1997: 63). Inherent in any ordering of phenomena is the containment of the multiple. As Assad (2005: 216) argues '...Western thought has opted for rational, explanatory clarity and epistemological linearity and pushed aside the nonsolvable and nonclarifiable into the

realm of the nonscientific...[whereas Serres opted] to present his scientific discourse in a metaphoric, often allegorical form...' Serres' critique in this regard is that the rational, scientific, and linear discourse itself occludes the multiple through a cosmetic ordering.

On this view, the urban visions that order the city do not present a 'false' depiction, but rather apply a selective cosmetics that uncovers the essential elements of (and essentialises) the city. They are veils that simultaneously make visible and conceal. But they do so only relationally, in combination with other veils that conceal and reveal different histories and potential futures. Urban visions are, thus, both weighty and light, powerful and fragile. Ordering and representation are always bound up in, and eroded by, multiplicity. The urban narrative is pleated and temporally out-of-joint, encompassing thousands of abandoned dreams like dead leaves scattered around the body of progress. The aborted plans of expansion, the discursive visions never to given material form, are not the inconsequential aberrations of a fundamentally linear march of time and space. They are the remainder of the creative destruction of capitalism in the city that is denied by the illusion of eternal progress. These substantial (anti) visions are powerful in their capacity to disrupt the linear and logical view of progress seated within the vision of entrepreneurial and neoliberal capitalist accumulation.

In my rereading of this image, the weighty relationships it had represented for me (relationships that would 'structure' the future of the city) became light components of histories never to have been (they would not even 'structure' the past). Yet this reading also succumbs to a linear understanding of time and the city and separates the material from the discursive. If the vision of the Docklands held such a powerful grip on the urban imaginary, then surely it does not vanish in the instant that the redevelopment of the site no longer becomes commercially viable. The Dockland project 'exists', has been made to exist over the last decade through a few plans and strategies, hundreds of newspaper articles and speeches, countless conversations, negotiations, and schemes, and a couple of prominent developments. This vision is altered, perhaps loses its potency (its weight) in becoming a history never to have been instead of a future to be, but it remains folded in the urban fabric, pleated again (and again) into the city's histories. In doing so, it disrupts the linear (progress) vision.

Within the entrepreneurial city vision an unbroken trajectory between the past, present and future is articulated that denies urban spatial and temporal multiplicity and exerts a weight of inevitability to the city's development. But other cities are located in the interstices of this vision, hidden histories and veiled futures that interrupt the linear flow of time and space. In this article I have argued that because images are inscribed with these relationships and meanings they can also be mobilised to disrupt the ordered and static view of what cities can be. Nancy (1991)

suggests that every collectivity is produced and transformed by continually ‘unworking’ itself through singular interventions that interrupt totalising meanings. The city as a collectivity is similarly unworked by such small-scale interventions that, rather than signifying a violent waking from Benjamin’s ‘collective dream’, involve a perpetual process of ‘crumpling’ the urban fabric to illuminate these other cities. Such interventions are not a radical departure for urban studies. But as capitalism regenerates after this most recent crisis, a critical agenda that seeks to continuously (iteratively) destabilise the weight of ‘logic’ presupposed within the neoliberal view of space and society is both warranted and necessary to keep the possibility of alternative urbanities in play.

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CHAPTER 37

POLITICS, THE EUROVISION SONG CONTEST AND IRELAND

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While the Eurovision Song Contest attests to be a non-political event, there are always strong political elements running through the different stages of this contest each year, whether it be issues to do with national song selections, the staging of the contest or the much discussed Eurovision voting patterns. This post will consider the politics of the contest with respect to Ireland's participation in it. The political dimensions of the Eurovision Song Contest and Ireland's involvement relate not only to voting patterns and this was evidenced in the relationship between the Dustin debacle of the 2008 Belgrade contest and the failure of the first referendum on the Lisbon Treaty, which followed hot on the heels of that high profile Eurovision failure as will be discussed later. In light of this, it is perhaps chastening to remember that the upcoming European referendum will take place days after this year's Eurovision Song Contest in Baku and consider whether a high profile Jedward loss in the semi final or a Jedward win could have a bearing on people's intentions in the referendum! But first this post will look at the wider politics of the Eurovision and the different European countries that have been shaped by this.

Politics and the Eurovision

Outside of Ireland, even though the contest professes itself to be apolitical and the organisers have intervened to prevent it becoming politicised, the political alliances and divisions that mark Europe often become too readily evident with the contest. Political and cultural allies (for example, Russia and Armenia, Cyprus and Greece) tend to consistently award each other high votes at Eurovision, while countries that are at war, or have recently been at war, tend not to vote for each other even if they are neighbours (Cyprus and Turkey, Russia and Georgia, Armenia and Azerbaijan) although this interestingly does not seem to apply in the case of the Former Yugoslav states. There are a series of incidents where politics has directly impinged on the contest; one of the earliest probably being the "Francogate" controversy surrounding the 1968 contest which 'allegedly' cost Cliff Richard victory and lead Terry Wogan to mutter bitterly in relation to Spain's entry in the 2007 contest about how "even Franco's secret service couldn't even save this". In 2003 political opposition within Europe to the UK's involvement in the Iraq conflict was argued to be the reason why the UK

entry attained the dreaded nils points score in the Eurovision final in Riga.

The Orange Revolution in the Ukraine in 2004 was to strongly influence hosting of the 2005 Eurovision by that country, as well as the song represented to select the Ukraine in that contest – the lyrics of which had to be changed after the European Broadcasting Union took issue with political references to the Orange Revolution in the song. In the following year, tensions in the lead up to a Montenegrin independence referendum came to the fore in the Serbia and Montenegro Eurovision selection contest, almost leading to a riot at the event (which incidentally also featured Brian Kennedy – the show, not the near-riot...) and ultimately leading Serbia and Montenegro to withdraw from that year's contest. Following the conflict with Russia in 2008, Georgia initially seemed likely to boycott the following year's contest which was being held in Moscow, but eventually seemed to relent and announced they would enter the contest and went about the process of selecting a song for this. The song chosen by Georgia for the 2009 contest, *We Don't Wanna Put In*, awoke controversy with alleged references to Russia and its then prime minister, Vladimir Putin:

We don't wanna put in

the negative move

It's killin' the groove

I'm a-tryin' to shoot in some disco tonight

Boogie with you

(Diggiloo Thrush, 2009)

After protests from Russia, the European Broadcasting Union requested that Georgia either enter change the song lyrics or else enter a different song; when Georgia refused to do they were disqualified from the 2009 contest. Controversy also emerged surrounding Azerbaijan, when it was discovered that the authorities there had called in for questioning the 43 people who had voted for Armenia in the 2009 final (one of whom claimed they had for voted for the Armenian entry because it sounded more like a song from Azerbaijan than the song that had represented Azerbaijan that year). The 2010 contest did not attract the same degree of political controversy as the previous year's contest did, although there was controversy surrounding the initial selection of the Ukrainian entry, which was allegedly politically influenced, and a change of government in the Ukraine subsequently kick started a new selection process for their Eurovision entry. In 2011 to date there has already been controversy concerning the Belarus selection, in which the president of the country

was seen to intervene in the decision to overturn the initial result. The most dramatic development has circled around the decision of Armenia to withdraw from the contest given that it is being hosted by Azerbaijan, a country that it still effectively remains in a state of war with over the Nagorno-Karabakh secessionist cause. The hostility between these two neighbouring states (heightened by the significant success levels achieved by these during their very short histories as Eurovision participants) was already evident at Eurovision in relation to the controversy over the questioning by authorities of people within Azerbaijan who had voted for Armenia in the contest (as noted above) but also in the featuring of an image from the contested Nagorno-Karabakh region when Armenia was reporting their Eurovision votes at the 2009 final.

Politics and Ireland in the Eurovision

Voting patterns can say a lot about Ireland's relationship with the rest of Europe— and probably are indicative of a growing peripheralisation of an Ireland – that Mary Harney would claim to be closer to Boston than to Berlin - in the 2000s from a Europe that was decidedly shifting further eastwards in focus. The results of contests in the 2000s lead many bemused Irish people and commentators to claim that they had never heard of countries such as FYR Macedonia, Moldova or Azerbaijan beforehand and that they weren't aware of such countries actually being in Europe. (It is worth noting that it is membership of the European Broadcasting Union that determines whether a country is eligible to take part in Eurovision or not, not being "European". This explains Israel's participation in the contest as well as Morocco's sole entry in 1980 – indeed all of the North African states and a number of Middle Eastern states are eligible to take part in Eurovision but most choose not to due to Israel's participation in the contest, a fact that was especially evident in 2005 when Lebanon decided to enter the contest and actually had chosen a song, but then withdrew when the EBU told them they would not be allowed to block the performance of the Israeli entry.) At the same time, it was obvious that Ireland simply wasn't registering as a voting option with voters from countries at the other side of the continent, such as those from Belarus, Bulgaria, Georgia and Azerbaijan. The growing Easternisation of the contest and Ireland's diminished fortunes fed into the political climate of mid-2000's Celtic Tiger Ireland, in which immigration issues and Ireland's changed position within an enlarging European Union was feeding into a growing antipathy towards the European Union (on which Ireland seemed to becoming less dependant on) within the state (and indeed other western states) during the mid to late Celtic Tiger era. Just as Ireland had been seen to lose out from the enlargement of the Eurovision to include new eastern entrants, it was feared that Ireland would similarly "lose out" in economic and political terms due to the 2004 and 2007 enlargements of the European Union. Just as (akin to a "boy who stops winning and takes the ball away" mentality) many were questioning whether Ireland should continue to

take part in the Eurovision Song Contest, there was a growing feeling that affluent Ireland no longer needed the European Union.

This culminated in the events of 2008 (which in cultural terms could be viewed as symbolising the dying embers of the Celtic Tiger era), where Ireland controversially entered a novelty entry, *Irelande Douze Points* by Dustin the Turkey, for the Eurovision contest in Belgrade, which was specifically seen to be a protest against Ireland's poor Eurovision results in the 2000s:

Oh, I come from a nation

What knows how to write a song

Oh Europe, where oh where did it all go wrong?

(Diggiloo Thrush, 2008)

The entry, part searing poststructuralist critique of the changing dynamics within a post-Stalinist Europe and Eurovision, part total rubbish, met a cold reception from the Eurovision voters, no doubt not totally unrelated to references in the song likening their previous Eurovision efforts as being akin to “Drag acts and bad acts and Terry Wogan’s wig, mad acts and sad acts” (Diggiloo Thrush, 2008). While Dustin himself has managed (so far) to escape the same fate, Ireland got stuffed as a result, failing abysmally to qualify for the final despite having been one of the pre-contest favourites. While some commentators rightfully roasted the decision to send such an entry to Eurovision especially at the expense a number of quality entries such as Leona Daly’s that lost out to it in the national selection, others blamed the failure of the song on a lack of a sense of humour on the part of Europeans who just “didn’t get us”. This was to tie in with the growing disenchantment and disengagement that sectors within Celtic Tiger Ireland had with all things European and European Union in the mid-2000s and would culminate in the loss of the first Lisbon Treaty referendum some weeks later. (Unlike the “accidental” loss of the earlier Nice Treaty (2001) referendum, which was largely explained by the low turnout levels for that contest and was not reflective of an especially significant anti-European bloc within the state at that time.)

Indeed, the misguided fowl was itself to call for a no vote in the wake of the Belgrade humiliation as a response to Ireland’s Eurovision defeat. The extent to which the Eurovision result did bear on people’s voting decisions is perhaps moot but the Dustin episode did point to a growing distancing between Ireland and Europe which was at the roots of the referendum defeat. The actual Lisbon vote itself was particularly notable given that the “No” victory could not this time be put down to low turnout as happened with the earlier vote on the Nice Treaty referendum.

The resultant sea-change in attitudes toward Europe in the wake of the economic recession, which saw a decided shift in favour of the treaty in the second referendum, also was replicated in Eurovision terms with credible acts being selected for the 2009 and 2010 contests and growing sense that the country was once again thirsting for Eurovision glory as an antidote to the economic gloom and doom:

Chastened and bowed by the collapse of the Celtic Tiger and by failure to qualify for the Eurosong finals three years in a row, how we would love the morale boost that a win for Niamh Kavanagh in Oslo tonight would give us. How we would love to watch the Irish contingent whooping victoriously in the Telenor Arena. (Irish Independent editorial, 2010)

Just as our Eurovision heyday preceded the economic boom of the late 1990s and 2000s, the Crisis of the past few years has seen a re-awakening of Irish interest in the contest. Ireland is now putting in a greater effort into its Eurovision selection and indeed staging of the Irish entry even within the growing financial limits placed on RTE – for instance contrast the staging of Jedward’s “Lipstick” in Dusseldorf in 2011 which was one of the most impactful performances in that contest with the staging of Irish acts earlier in the decade, which tended to be over-shadowed by more high-powered performances from other Eurovision countries, but most notably the more eastern states such as The Ukraine. This improved effort has fed into improved results in the contest – 2010 and 2011 were the first two years that Irish acts consecutively qualified from the Eurovision semi finals and, as the previous post shows, 2011 marked an especially significant return to form and the first time since 1997 that an Irish act won a number of douze points from different countries at the Eurovision voting on Final night. Increased success in turn links in to an increased interest level amongst the Irish public – the viewership for Eurovision shows over the past two years has ranked the contest as being one of the most watched shows on RTE in each of those years.

But there is a chastening dimension to these growing interest levels in light of the fact that the European Fiscal Stability Treaty referendum vote is scheduled to take place within days of this year’s Eurovision contest. If the vote is tight one (and this would appear to be highly likely), could voters’ attitudes be, albeit subconsciously, shaped by Jedward’s result in Baku? Could a Jedward defeat in the semi-finals lead to a growing embitterment towards all things European and encourage people to vote No? Could a triumphant Jedward victory in the Final lead to a growing sense of bonhomie towards Europe amongst Irish voters and help to get the treaty over the line? Only time will tell or as they say in Baku – at least according to Google translate! – *yalmıx zaman deyəcəklər*.

CHAPTER 38

THE ENERGY BUDGET OF THE URBAN SURFACE: TWO LOCATIONS IN DUBLIN

STEPHANIE KEOGH, GERALD MILLS*, and ROWAN FEALY

Forthcoming in *Irish Geography*.

Introduction

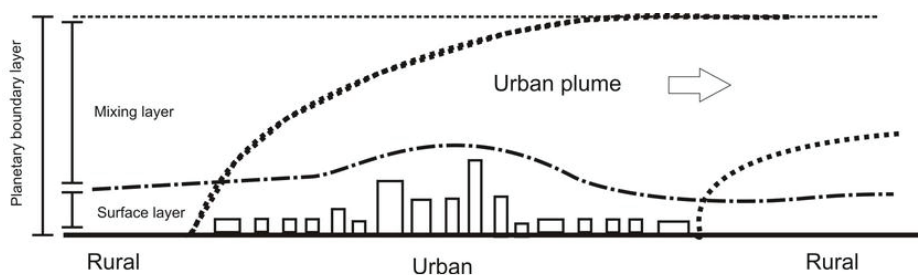
In the first decade of the 21st Century a significant milestone was reached when the urban proportion of the world's population of 6.6 billion passed 50%. This proportion will increase rapidly in the decades to come as parts of Asia and Africa become progressively less rural and more urban. Although urban areas occupy less than 3% of the planetary landmass, they are the foci of humans and economic activity. The climates that they generate are distinctive and represent unambiguous evidence of the anthropogenic climatic effect. This urban climate effect is a consequence of two related properties, land cover (form) and land use (function). Urbanisation replaces 'natural' surfaces with manufactured materials that are usually impervious and have distinctive thermal and radiative properties. In addition, the urban surface is both geometrically complex and highly diverse. These properties of form result in the formation of myriad microclimates caused by a number of climate drivers, including access to the sun and shelter from wind. Urban function refers to the human activities that generate waste heat, moisture and materials as a result of transportation, industrial production, energy consumption, and so on. These functions tend to have distinctive spatial and temporal emission patterns. Together, urban form and urban function generate urban climates at a hierarchy of scales.

At a micro-scale, the outdoor climate is extraordinarily diverse and a myriad of microclimates are generated in and around buildings. Turbulence mixes these distinct climates so that, with increasing elevation, the individual contributions become diluted and the urban (rather than building) climatic effect becomes evident. This mixing process produces an urban boundary layer (UBL) that develops at the upwind edge of the city and grows in depth with distance as it entrains non-urban air into the layer at its upper boundary (Figure 1). For a large city, the UBL may be 1-2 km deep by late afternoon as surface heating by the sun encourages vertical exchanges. At the lee side of the city a new boundary layer forms and it too grows in depth with distance from the city edge. It will develop as an internal boundary layer separating the elevated UBL from the underlying surface. As a result an urban plume,

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which is warm, relatively dry and enriched with a host of gaseous (including CO₂) and material pollutants, extends downwind of the city. An understanding of the growth and development of the UBL is necessary for a range of climatic studies, including the formation of the urban heat island and local and regional air quality. This paper reports on a project that is examining Dublin's climate by measuring energy exchanges at the urban surface. However, identifying this 'surface' is not easy in an urban setting. A brief discussion into boundary-layer climatology will make the urban 'problem' clearer and provide a context for the research reported on here.

Figure 1. Schematic of the vertical layers at which urban climate effects occur. The urban boundary layer is generated as a result of the urban form and function and can extend downwind of the city. The arrow indicates the direction of the prevailing wind



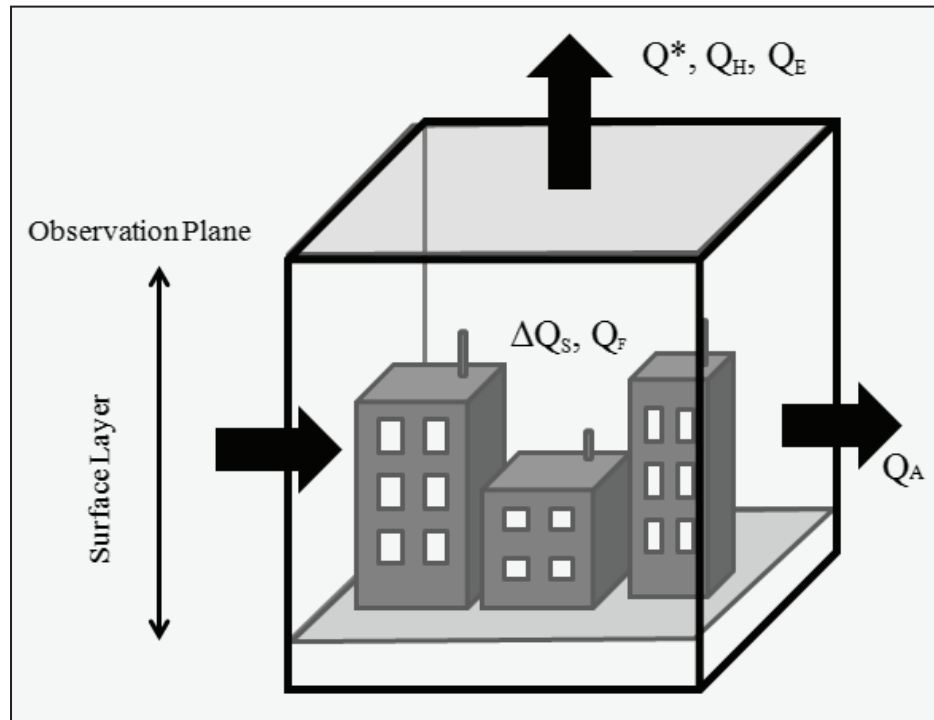
Boundary-layer climatology

The climate near the ground is formed as a result of energy exchanges with the underlying surface, which can be formalised as a statement on the energy budget that may be applied to a volume (Fig 2),

$$Q^* = Q_H + Q_E + \Delta Q_S + \Delta Q_A \quad (1)$$

Net radiation (Q^*) is partitioned into the vertical exchange of sensible and latent heat ($Q_H + Q_E$) via turbulence, the storage of heat (ΔQ_S) and the horizontal transport of energy or advection (ΔQ_A). Each term is expressed as a flux density, the flow of energy per unit surface area (Wm^2). If these terms are measured over a homogenous surface then there is no horizontal transfer in the system and $\Delta Q_A \approx 0$. In these circumstances, the only concern is the height at which the remaining terms are evaluated. Ideally, the observation platform is located within a constant flux layer where each of the energy budget terms is nearly invariant with height. This layer represents the level at which the atmospheric properties have come into equilibrium with the surface below. It is located above the height of the roughness elements, which may be blades of grass on a prairie or trees in a forest.

Figure 2. Schematic of a typical urban volume illustrating the required height at which to make representative observations. The vertical arrow represents vertical exchanges of energy via turbulence, and the horizontal arrows represent the transfer of energy via advection



Net radiation (Q^*) is comprised of the incoming (\downarrow) and outgoing (\uparrow) short- (K) and longwave (L) radiation,

$$Q^* = K \downarrow - K \uparrow + L \downarrow - L \uparrow \quad (2)$$

Shortwave (or solar) radiation is emitted by the sun, it occupies a wavelength range between 0.01 and 3 μm and has a peak at about 0.5 μm within the spectrum of visible radiation. Incident shortwave radiation ($K\downarrow$) at a surface is a function of day of year and time of day, which govern the altitude of the sun in the sky. In Ireland maximum $K\downarrow$ (approx. 800 Wm^{-2}) will occur on a flat surface at noon under a clear sky during the summer solstice. At noon on a clear winter day, the magnitude of $K\downarrow$ will be a great deal less (approx. 300 Wm^{-2}). Time of year also controls the length of day, whereas during the summer solstice the day-length in Dublin is 17 hours, at the time of the winter solstice, it is just 7.5 hours. Outgoing shortwave radiation ($K\uparrow$) is a function of a surface reflectivity (or albedo) which is expressed as a proportion (α),

$$K \uparrow = K \downarrow \alpha \quad (3)$$

Albedo varies with surface cover and common values are listed in Table 1.

Table 1. Thermal properties of grass and materials used in urban construction (Modified from Oke, 1987).

Material	Emissivity	Albedo	Density (kg m ⁻³ x 10 ³)	Conduc- tivity (Wm ⁻¹ K ⁻¹)	Heat capacity (Jm ⁻³ K ⁻¹ x 10 ⁶)
Concrete	0.71-0.90	0.10- 0.35	2.40	1.51	2.11
Asphalt	0.95	0.05- 0.20	2.11	0.75	1.94
Tile	0.90	0.10- 0.35	1.92	0.84	1.77
Slate	0.90	0.10	2.69	2.01	2.06
Glass	0.87-0.94	0.08	2.48	0.74	1.66
Brick	0.90-0.92	0.20- 0.40	1.83	0.83	1.37
Stone	0.85-0.95	0.20- 0.35	2.68	2.19	2.25
Grass	0.95	0.26	-	-	-

Longwave (or terrestrial radiation) is that emitted by all objects at Earth-like temperatures. It occupies a range between 3 and 30 μm and has a peak at approximately 10 μm. The magnitude of emitted radiation is a function of both temperature and emissivity (ε). For a surface, incoming longwave radiation (L↓) is derived from the overlying atmosphere,

$$L \downarrow = \epsilon_a \sigma T_a^4 \quad (4)$$

Where T_a is air temperature (in Kelvin, K), σ is the Stefan-Boltzmann constant (5.67x10⁻⁸ Wm⁻²K⁻⁴) and ε_a is atmospheric emissivity, which is substantially a function of atmospheric water content. Outgoing longwave radiation (L↑) is comprised of that which is emitted and reflected L↓,

$$L \uparrow = \epsilon_s \sigma T_s^4 + (1 - \epsilon_s) L \downarrow \quad (5)$$

where the subscript (s) refers to the surface. Emissivity varies with the nature of surface materials – most natural surfaces have ε_s values greater than 0.9 (see Table 1).

Over the course of a day, each of these radiation terms inscribes a distinctive pattern. In the absence of cloud, K↓ increases from sunrise to noon and declines until sunset and K↑ displays an opposite pattern. At night both are zero. By comparison the longwave terms show little diurnal variation and typically L↑ exceeds L↓. Net radiation (Q*) then is

negative at night and positive during the daytime. This energy is used to drive heat transfers with the overlying atmosphere and underlying soil.

Vertical heat exchanges with the atmosphere occur as turbulent motions transfer sensible and latent heat. These occur as a consequence of vertical gradients of air temperature and humidity. The nature of these exchanges can be represented simply as,

$$Q_H = -C_a(\overline{w'T'}) \text{ and } Q_E = -L_v(\overline{w'\rho'_v}) \quad (6 \text{ and } 7)$$

Where C_a is the heat capacity of air and L_v is the latent heat of vapourisation (L_v), which may be treated as constant near the surface. The terms in the parenthesis represent the correlation of vertical velocity (w) and air temperature (T) and of w and humidity (q_v). The overbar represents an average and the primes represent fluctuations (positive and negative) from that average. It is the correspondence of the signs of deviation that produces a positive or negative flux. For example, if a rising ($w' > 0$) brings warmer air ($T' > 0$) then the flux is positive, similarly if sinking air ($w' < 0$) brings warmer air ($T' > 0$), the flux is negative.

The final term in the equation is heat storage, which refers to the energy stored in the volume under study. A small proportion of this heat is stored in the atmosphere and is revealed as changes in the vertical air temperature and humidity profiles that result from surface-air exchanges. The majority however is stored in the solid substrate, the layer below the surface. The lower boundary of the volume under study extends to a depth (D) where no diurnal temperature change occurs so that,

$$\Delta Q_s = DC_s \frac{\Delta T}{\Delta t} \quad (8)$$

Where C_s is the heat capacity ($\text{Jm}^{-3}\text{K}^{-1}$) of the substrate and $\Delta T/\Delta t$ is the change in temperature with time (Ks^{-1}).

When these terms (Q^* , Q_H , Q_E and ΔQ_s) are plotted over the course of a day each flux exhibits characteristic patterns that illustrate the nature of exchanges. The net radiation curve is negative overnight and positive during the day, which corresponds to daytime radiative heating (associated with the receipt of short-wave radiation) and night-time radiative cooling. At night this cooling is supported by heat drawn out of storage and by heat transfer from the overlying atmosphere. During the daytime, the opposite occurs as the surplus energy at the surface is used to heat the atmosphere and the substrate. However, the patterns are not symmetrical about noon. When the sun rises and Q^* becomes positive, most of this energy initially is transferred into the substrate. At this time of the day the atmosphere near the surface is very stable and there is little turbulent activity. As the surface continues to warm the near-surface air temperature gradient increases, vertical motion becomes more vigorous

and Q_H and Q_E begin to dominate exchanges. By the afternoon, ΔQ_s has become negative (heat drawn out of storage), even though Q^* is still positive. Q_H and Q_E remain positive even after sunset, when Q^* has become negative.

This outline describes a typical pattern on a sunny calm day, where vegetation is present. On a cloudy day, there is little direct beam short-wave radiation to drive the diurnal patterns and the atmospheric response is muted. Similarly, on a windy day turbulence is driven by mechanical forces and the nature of energy partitioning between the atmosphere and the substrate changes. In these circumstances, one would expect the atmospheric temperature profile to be neutral (isothermal) as heat is mixed into a deep layer. Finally, the nature of exchanges will depend upon the nature of the surface itself. For example, in the absence of vegetation, there will be little potential for evaporation and Q_E will be small. In these circumstances available radiation energy (Q^*) is partitioned into heating the atmosphere (Q_H) and the substrate (ΔQ_s). A common means of comparing surface types then is to obtain the ratio of energy fluxes to see how available net radiation energy is partitioned in storage ($\Delta Q_s/Q^*$) or among the turbulent fluxes (Q_H/Q_E).

The urban problem

Cities pose a real challenge for the application of boundary-layer concepts largely owing to the nature of urban functions and of urban form. As a result there are very few measurements programmes internationally of any duration. Nevertheless, the results from these programmes have provided the conceptual basis for observations within the urban environment and are used in the project described here.

The effect of urban functions is the emission of an anthropogenic heat flux (Q_F) that can be substantially attributed to energy use associated with industrial production, building air conditioning (e.g. heating, cooling and lighting) and transportation. It represents an additional term in the energy budget (EB) equation,

$$Q^* + Q_F = Q_H + Q_E + \Delta Q_s + \Delta Q_A \quad (9)$$

Q_F is difficult to isolate in measurement programmes and is most often estimated from information on energy use. For mid-latitude cities it is estimated at between 25-100 Wm^{-2} on average depending on the intensity of energy use in different parts of the city. It will also have a distinctive temporal pattern associated with the working day and week. As an aside, as most energy is generated from fossil fuels, Q_F is directly linked to the emission of CO_2 in cities.

The effect of urban form is twofold. Firstly, the urban surface is aerodynamically very rough and this is reflected in a deep layer of intense turbulent activity that creates a deep surface layer. Secondly, the urban

facets that comprise the urban surface (walls, roofs, gardens, etc) are highly diverse in terms of their radiative and thermal attributes. The result is exceptional micro-scale variation in atmospheric properties (wind, temperature, humidity, etc.) in and around buildings so that observations close to buildings will have difficulty in ‘closing’ the energy budget owing to the diverse sources from which the instruments will sample. In these circumstances, observations that are representative of the underlying urban surface (with its characteristic diversity) need to be made at a height where these microscale variations have become blended. The evidence from field observations suggests that energy flux instruments should be placed at 1½ to 2 times the average height of buildings to avoid the effects of individual buildings and surfaces.

Finally, we must deal with the issue of surface variation, which means advection cannot be ignored ($\Delta Q_A \neq 0$). Although the urban surface is heterogeneous, much of this variation can be attributed to variation between types of urban landscapes that are (relatively speaking) extensive and homogenous. Thus, for example, mature residential suburbs in Ireland can be characterised by typical residential densities, building dimensions, road widths, green areas and so on. Similarly, industrial, commercial or city centre have characteristic properties associated with form and function. From this perspective the urbanised surface can be seen as a patchwork of urban sub-types. As air moves across the city surface, it encounters different patches and each of which will modify the overlying air. Initially, at the boundary between one sub-type and another, these modifications are significant as the air rapidly adjusts to changes in the underlying surface. These effects are transferred upwards into the atmosphere forming an internal boundary layer that grows in height at a rate of about 1:100. In other words, air traversing a distinctive urban surface will have an internal boundary layer approximately 10 m thick, 1 km from the upwind edge of that patch (termed the ‘fetch’). At an urban scale, each of these internal boundary layers become progressively mixed with vertical distance from the urban surface until the unique imprints of the urban subtypes is lost.

To apply the EB to these urban sub-types requires that the instrument platform is both within the fetch of that sub-type and near the top of the surface layer. In these circumstances, the observations will sample from air that has been uniquely affected by the underlying surface at a height where the variations associated with that urban-subtype have been thoroughly mixed. Ideally this is accomplished by identifying urban patches that are representative of an urban sub-type and extensive in area, and locating an observation platform at 1½ to 2 times the average height of buildings and sufficiently distant from the boundary of that patch.

This research that is reported on here is the first examination of the energy budget of Dublin's urban surface. It will contribute to a growing number of urban energy budget programmes globally.

Methodology

Two locations were identified in Dublin to represent two urban subtypes: suburban and urban (Figure 4). The suburban site is located in residential Terenure in south-west Dublin and consists of semi-detached, two storey houses with large private gardens. The observation site is on the grounds of a primary school and the instrument platform is placed on a mast at a height of 12 m whereas the average building height is 8 m. Land use here is predominantly residential and light commercial activity and natural land cover consists of gardens, shrubbery and mature trees. The urban site is located on the western side of inner city Dublin where the instrument platform is attached to a mast on a three-storey building, 17 m above ground-level. The surrounding building heights range from 4.5 m to 18 m, but the mean height is about 10 m. The principal land uses are industrial, light-commercial, residential and institutional. Located to the south, east and west of the instruments are a combination of storing yards, warehouses, car parks, and institutional buildings. To the north of the observation site are two- to five-storey residences consisting of both apartments and houses and the Guinness brewery.

A combination of site surveys, aerial imagery and a geographic information system (GIS) was used to determine the physical properties of the observation sites (Table 2). Information regarding instrument height, orientation and exposure was determined and recorded at the time of deploying the instruments. Dublin City Council (DCC) provided a vector-based GIS dataset representing estimated building heights in metres for the urban site and a site survey was conducted at the suburban site. Digitised datasets illustrating different surface covers such as, asphalt, concrete and vegetation, were created for both observation sites and were used to derive area-average albedo and emissivity values using information from a circular area (radius 200 m) centred on each site. For the suburban site, values for albedo ranged from 0.17 to 0.28 and those for emissivity ranged between 0.87- 0.92. By comparison, the urban site which had less green area, exhibited values for albedo and emissivity values of 0.10-0.25 and 0.76-0.80 respectively.

At each site a suite of high-resolution micro-meteorological instruments is deployed (Table 3 and Fig 6a). Net radiation (Q^*) and its short- and long-wave components are obtained from an instrument that records radiation receipt on an up- and down-facing pyranometer (K_{\downarrow} and K_{\uparrow}) and pyrgeometer (L_{\downarrow} and L_{\uparrow}). The turbulent fluxes of sensible (Q_H) and latent (Q_E) heat fluxes are obtained using an open-path eddy covariance (EC) system, which comprises a sonic anemometer (which measures vertical velocity, w) combined with fast response temperature (T) and humidity (q_v) sensors (Table 3 and Plate 2). Measurements are made at a

rate of once each 0.1 s and from this 30 minute averages and deviations (w' , T' and Q_v') are obtained, see eqn. 6 & 7. This data forms the basis of the calculation of the turbulent energy fluxes. The anthropogenic heat flux (Q_F) is not explicitly measured here and is included within ($Q_H + Q_E$) and we do not attempt to obtain this term separately. The remaining flux in the energy balance is ΔQ_S , which is heat held in storage. Again, this is not obtained directly here and is estimated as the residual from eqn. 10,

$$\Delta Q_S \approx Q^* - (Q_H + Q_E) \quad (10)$$

One should note that in this formulation ΔQ_S includes any measurement errors associated with the terms on the RHS. These errors result from both instrument and observational inaccuracies. The latter are particularly difficult to quantify as they result from the different source areas that the instruments sample from. For example, while the radiation instruments obtain their fluxes from a circular area directly below the mast, the turbulent fluxes vary in space and time associated with wind velocity and atmospheric stability. These errors are greatest when the underlying surface is heterogeneous.

In this paper we evaluate the magnitude of errors in ΔQ_S by comparing values obtained as a residual from eqn. 11 against those derived using the objective hysteresis model (OHM) developed by Grimmond et al (1991). While this does not address the errors associated with varying source areas, it does provide some confidence in our calculated storage terms and indirectly in the turbulent flux terms. In a subsequent paper the source areas of the Q_H and Q_E will be presented. The OHM estimates ΔQ_S as a function of net radiation and the thermal properties of the surrounding urban surface,

$$\Delta Q_S = \sum_{i=1}^n \left[a_{1i} Q^* + a_{2i} \frac{\Delta Q^*}{\Delta t} + a_{3i} \right] \quad (11)$$

Where n refers to each of the i surface types that are found in a 200 m radius area surrounding the observation platform where Q^* is measured and the terms a_1 , a_2 and a_3 are coefficients obtained from previous studies (Table 4). The average values of these coefficients are used here in conjunction with surface cover statistics to calculate site specific model coefficients (Table 4 and 5). OHM values are then compared with residual values to evaluate the EB.

Figure 3. Planar area illustrating the surface covers of the 200 metre radius surrounding (a) suburban and (b) urban observation sites. Building footprints were provided by Ordnance Survey Ireland, Government of Ireland (EN 0063512).

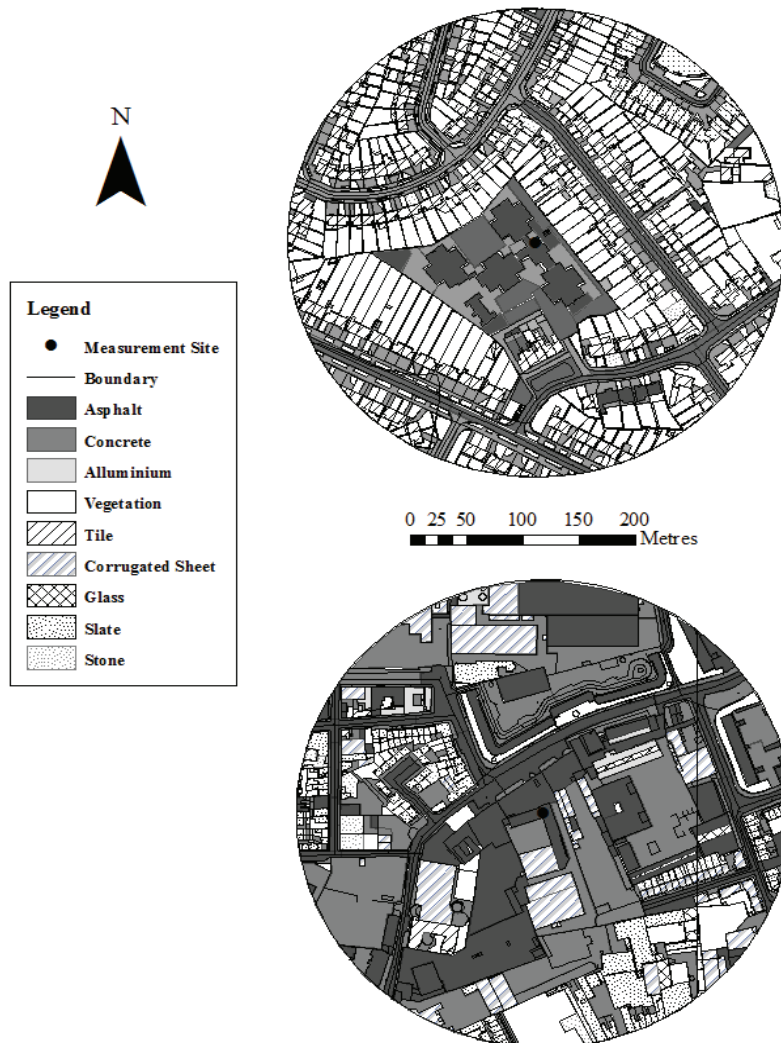


Table 2. A) Shows the fractional surface cover and B) outlines the physical properties of the observation sites.

(A) Surface cover				
Site	Roof	Asphalt	Concrete	Vegetation
Urban	0.24	0.22	0.44	0.10
Suburban	0.22	0.10	0.25	0.43
(B) Physical properties				
Site	Albedo	Emissivity	Building height	Building aspect ratio
Urban	0.10-0.25	0.76-0.8	10 metres	0.40
Suburban	0.17-0.28	0.87-0.92	8 metres	0.30

Figure 4. Google earth images representing a 1km radius of the observation sites, the black arrows represent the south westerly wind direction prevailing during the observation campaign.



Figure 5. Mean daily mean sea level pressure in Pascals for a) 17 April 2010 and b) 20 June 2010. Source: National centres for environmental prediction (NCEP) reanalysis data.

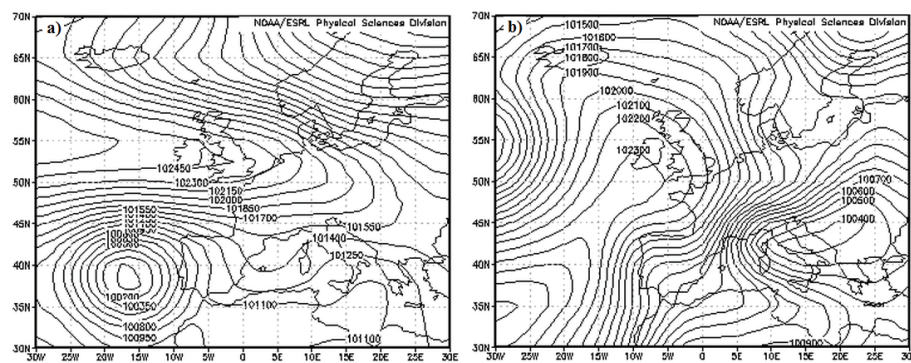


Figure 6. a) Instruments mounted at the suburban site, b and c illustrate the difference in vegetation density between April and June 2010 at the suburban site.

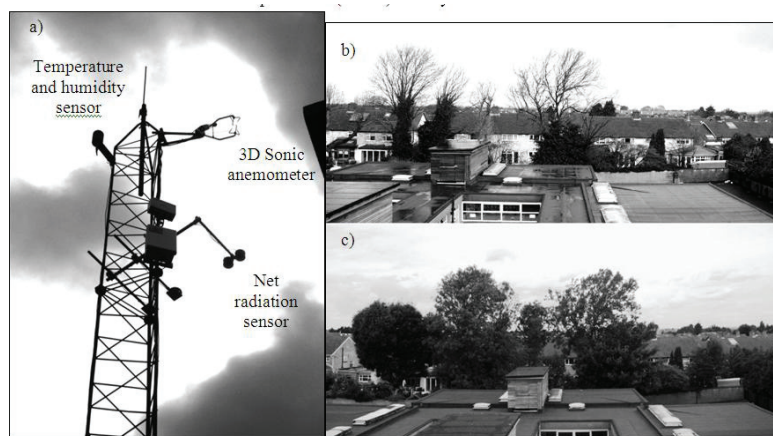


Table 3. Variables measured, instrument name and manufacturer and instrument height (z) above ground-level

<i>Variable</i>	<i>Urban</i>	<i>Suburban</i>
Net all-wave radiation	Net radiation sensor, Hukseflux, NR01 z=15m	Net radiation sensor, Hukseflux, NR01 z=11m
Wind velocity in x, y and z directions	Sonic anemometer, Campbell Scientific, CSAT3, z=17m	Sonic anemometer, Campbell Scientific, CSAT3, z=12m
Water vapour density	IRGA, Licor Sciences, LI-7500, z=17m	IRGA, Licor Sciences, LI-7500, z=12m
Air temperature and relative humidity	Temperature and relative humidity probe, Vaisala Inc., HMP45C, z=17m	Temperature and relative humidity probe, Vaisala Inc., HMP45C, z=12m

Table 4. Empirically derived coefficients used in the OHM and their authors

<i>Surface cover</i>	<i>Author</i>	<i>Regression coefficients</i>		
		a_1	$a_2 (b)$	$a_3 (Wm^{-2})$
1. Vegetation				
Grass	(Doll et al. 1985)	0.32	0.54	-27.4
2. Rooftop				
Uppsala	(Taesler 1980)	0.44	0.57	-28.9
Vancouver	(Yap 1973)	0.17	0.10	-17
Kyoto	(Yoshida et al. 1990-91)	0.82	0.34	-55.7
	Average	0.4766	0.3366	-33.8666
3. Paved/Impervious				
Concrete	(Doll et al. 1985)	0.81	0.48	-79.9
	(Asaeda et al. 1996)	0.85	0.32	-28.5
	Average	0.83	0.40	-54.2
Asphalt	(Narita et al. 1984)	0.36	0.23	-19.3
	(Asaeda et al. 1996)	0.64	0.32	-43.6
	(Anandakumar 1999)	0.82	0.68	-20.1
	Average	0.6066	0.4100	-27.6666

Table 5 A) and B) Employ the averages of the regression coefficients and the surface cover weighting factors to calculate site specific model coefficients

A) OHM coefficient calculation for the suburban site				
Surface cover	Weighting factor	a ₁	a ₂	a ₃
Greenspace	0.43	0.1376	0.2322	-11.7820
Rooftop	0.22	0.1034	0.0208	-7.4580
Concrete	0.25	0.2075	0.1	-13.5500
Asphalt	0.10	0.061	0.0410	-2.7670
Model coefficient		0.5095	0.3940	-35.5570

B) OHM coefficient calculation for the urban site				
Surface cover	Weighting factor	a ₁	a ₂	a ₃
Greenspace	0.10	0.032	0.054	-2.7400
Rooftop	0.24	0.1128	0.0816	-8.1360
Concrete	0.44	0.3652	0.1760	-23.8480
Asphalt	0.22	0.1342	0.0902	-6.0874
Model coefficient		0.6442	0.4018	-40.8114

Table 6. Average of radiation fluxes for April 17th and June 20th for the observation sites. Average values for K_↓ and K_↑ pertain to daylight hours while average values for L_↓ and L_↑ pertain to all 24 hours

Month	Site	K _↓	K _↑	Albedo (a)	L _↓	L _↑
April	Urban	363.43	48.58	0.14	291.30	389.54
April	Suburba n	372.07	34.18	0.10	294.29	392.73
June	Urban	511.80	64.03	0.13	318.20	426.25
June	Suburba n	510.61	45.01	0.10	319.48	435.06

Table 7. Proportioning of net radiation (Q*) for daytime- and all-hours for the two observation sites

Month	Site	Hours	Q*	Q _H /Q*	Q _E /Q*	ΔQ _S /Q*	Q _H /Q _E	Q _H /ΔQ _S
				χ	γ	Λ	β	κ
April	Sub-urban	All hours	139.62	0.51	0.12	0.37	4.09	1.38
		Q* > 0	333.56	0.44	0.10	0.46	4.40	0.97
	Urban	All hours	122.81	0.59	0.03	0.37	17.82	1.60
June	Sub-urban	Q* > 0	327.70	0.43	0.02	0.55	21.32	0.78
		All hours	212.94	0.48	0.15	0.37	3.14	1.29
	Urban	Q* > 0	388.62	0.44	0.13	0.43	3.31	1.02
		All hours	207.51	0.59	0.07	0.34	8.66	1.73
		Q* > 0	410.30	0.46	0.04	0.49	10.52	0.94

Figure 7. The diurnal profile of the radiation balance of the suburban observation site for April 17th 2010.

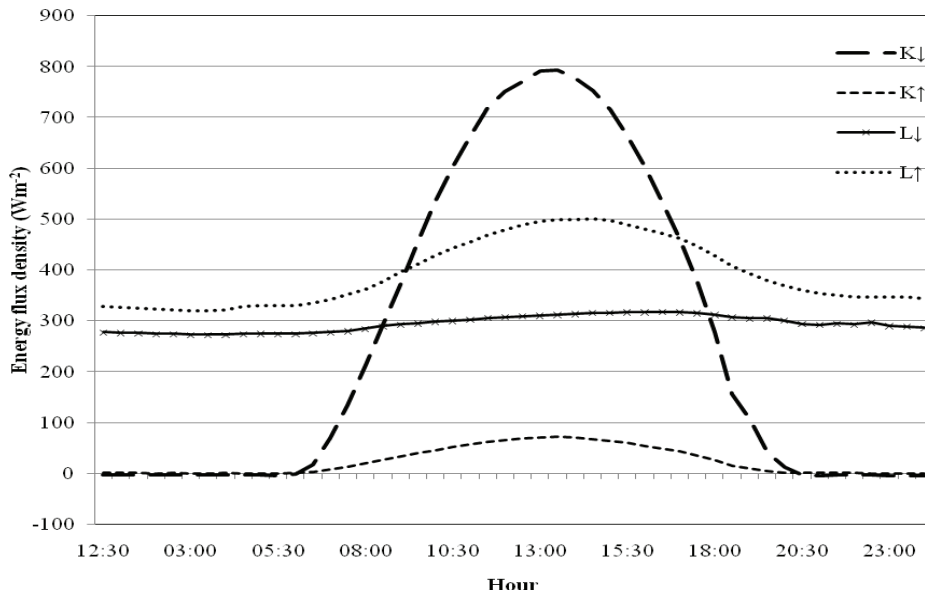
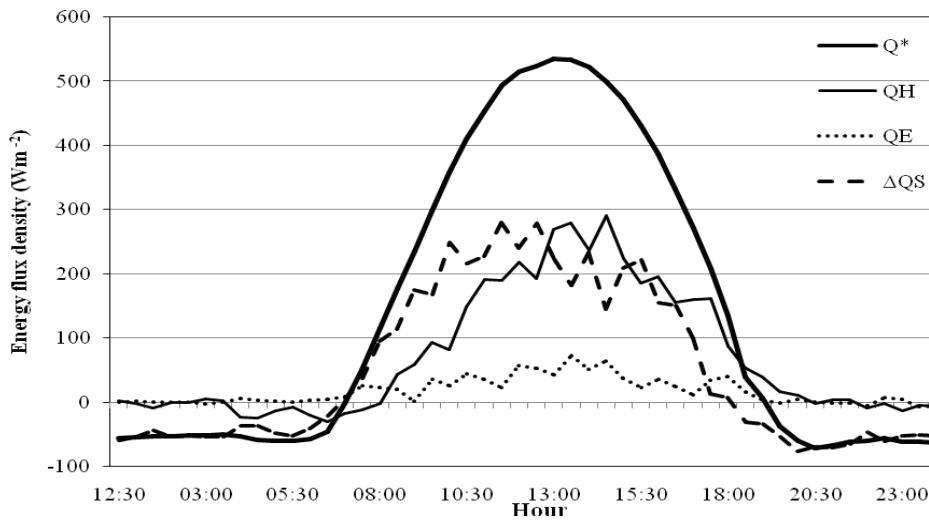


Figure 8. The diurnal profile of the surface energy balance of the suburban observation site for April 17th 2010.



Results

As the purpose of this investigation is to examine the distinctive urban climatic effect, two days were selected for an initial investigation that reported clear-sky and calm conditions, which were likely to accentuate this distinction. The meteorological conditions on April 17th and on June 20th 2010 were consistent; clear-skies, wind speeds below 5ms^{-1} from a south-westerly direction ($200\text{-}240^\circ$). Meteorological conditions were also

associated with high pressure systems centred on, or close to, Ireland and both days followed dry periods.

The radiation budget

The radiation budget (RB) for April 17th at suburban location is presented in figure 7 and illustrates the diurnal profile of incoming and outgoing/reflected solar and longwave radiation. The results are half-hourly averages and are corrected to local apparent time (LAT). K_{\downarrow} has a distinctive pattern during clear-sky conditions in that it is symmetrical around solar noon. For April 17th K_{\downarrow} increases following sunrise (06.30), peaks at solar noon (794 Wm^{-2} at 13.30) and declines in magnitude, in unison with solar elevation, before becoming zero at sunset (20.30) (Fig 7).

K_{\uparrow} is a function of K_{\downarrow} and the surface albedo. As K_{\downarrow} increases with solar elevation a greater proportion is reflected by the surface, this gives rise to a peak in K_{\uparrow} at solar noon (72 Wm^{-2}) (Fig 7). In the absence of solar inputs both K_{\downarrow} and K_{\uparrow} are zero during the night time. During cloudy conditions K_{\downarrow} and consequently K_{\uparrow} would not exhibit a smooth curve like that in figure 7. Instead the flux would vary according to cloud passing over the radiation sensor. In this case a greater portion of solar radiation would be received via diffuse as opposed to direct beam solar radiation. As mentioned earlier fluxes of L_{\downarrow} are a function of the temperature and emissivity of the overlying atmosphere. Fluxes are the lowest in magnitude from midnight until sunrise. During this time the overlying atmosphere of the suburban location continues to cool in the absence of solar inputs, consequently temperature and L_{\downarrow} decrease. Throughout the daytime the atmosphere begins to heat up and values are greatest during the late afternoon (317 Wm^{-2} at 16.30). L_{\uparrow} on the other hand is a function of the temperature and emissivity of the surface beneath the radiation sensor and that which is emitted and reflected L_{\downarrow} . The suburban surface responds more efficiently to changes in temperature than the overlying atmosphere, especially for a location whose surface extent is largely made up of greenspace or grass. In this case the surface will heat up and cool down in close conjunction with the magnitude of K_{\downarrow} (Fig 7).

In order to investigate the RB over space a brief overview of results will be outlined for the urban location for this day. Firstly values representing K_{\downarrow} were similar in magnitude to the suburban location throughout the daytime. K_{\downarrow} is largely governed by external factors (i.e. latitude and solar inclination) therefore one would expect the two locations, located within 5km of each other, to receive similar amounts of solar radiation. Peak K_{\downarrow} was 777 Wm^{-2} whilst peak K_{\uparrow} was 104 Wm^{-2} . Lower values for K_{\downarrow} for urban locations relative to suburban locations are reported in the international literature and are attributed to increased pollution concentration which serves to reduce irradiance (Jauregui and Luyando, 1990, Stanhill and Kalma, 1995). With regard to K_{\uparrow} dense urban

locations generally possess lower albedos than those of suburban locations. This investigation revealed higher values of $K\uparrow$ for the urban location indicating a higher surface albedo. This trend was unusual given the nature of the two measurement locations and will be discussed later. Similarly longwave radiation fluxes showed deviations from its suburban counterpart. Urban materials generally have lower emissivities than grass and take longer to heat up. As a consequence $L\uparrow$ increases later in the day than its suburban counterpart. Thus daytime values are lower in magnitude whilst night time values are consistently greater in magnitude than the suburban location. Values pertaining to the urban location for $L\downarrow$ are almost identical to those observed at the suburban location and again reflect the relatively spatial consistency of in-coming radiation fluxes. The RB for June 20th revealed much the same patterns for $K\downarrow$, $K\uparrow$, $L\downarrow$, and $L\uparrow$ at the two measurement locations. The magnitude of solar radiation increased relative to April 17th as a result of increased solar inclination towards the sun, which in turn increased the day length and hours where solar radiation was received by the surface. Peak values for $K\downarrow$ increased by more than 100 Wm^{-2} at the two locations, with corresponding increases in the magnitude of $K\uparrow$, $L\downarrow$, and $L\uparrow$. Average radiation values across the two locations for the measurement days are outlined in table 6.

The surface energy balance

The EB corresponding to the suburban location during April 17th is illustrated in figure 8. The EB represents the expenditure of net radiant energy (Q^*) between surface heat fluxes (Q_E , Q_H , and ΔQ_S). The timing, partitioning and magnitude of these surface heat fluxes are determined by the nature of the underlying surface, for example the availability of water for evaporation or the presence of substrate for storage. The smooth pattern of Q^* illustrates the increase of net radiant energy into the local climate system in response to solar inputs ($K\downarrow$ in figure 6). Peak Q^* occurs around solar noon and declines thereafter becoming negative in magnitude around sunset (approx 20:30 in April) (Fig 8). Storage heat is the first of the heat fluxes to increase following sunrise a trend that has also been observed in previous international studies (Grimmond and Oke, 1999, Christen and Vogt, 2004). Following sunrise energy is directly transferred into the substrate at the observation site and ΔQ_S is the dominant heat flux in the morning. ΔQ_S is the first heat flux to become negative, changing sign prior to sunset; this trend illustrates the release of heat from the substrate to the atmosphere via Q_H . Also evident in the diurnal trend of ΔQ_S is a double peak, occurring around 13:00 and 15:30. As solar elevation declines energy is transferred to previously shaded facets giving rise to this second peak in ΔQ_S . Following noon Q_H becomes the dominant heat flux for the afternoon and evening where heat energy is preferentially channelled into the atmosphere via turbulence as oppose to the substrate via conduction (Fig 8). Surface warming occurring in the morning causes vertical temperature gradients to develop and encourages turbulent mixing in the surface layer. In the

absence of solar input via K_{\downarrow} sensible heat decreases at night and the atmosphere continues to cool until the morning (Fig 8). Q_E representing fluxes of latent heat are lower in magnitude relative to values pertaining to ΔQ_s and Q_H . Fluxes of Q_E are influenced by water availability, and the presence and density of natural surface cover which in turn determines the available surface for transpiring and evaporating. Low vegetation density in conjunction with dry antecedent conditions in April would have affected the availability of surface area and water for evaporation and hence fluxes of Q_E . That said however the diurnal trend largely follows that of Q_H and Q^* , increasing following sunrise, peaking in the afternoon (73 Wm^{-2}) and decreasing thereafter (Fig 8).

Difference of the EB over space: April 17th

Within the two study volumes the magnitude and timing of available radiant energy (Q^*) is very similar. Peak values occur at 13.00 and are 535 and 541 Wm^{-2} for the suburban and urban location respectively. Greater night time losses occur at the urban site (approx. -80 versus -60 Wm^{-2}) in response to a greater heat release from the substrate (Fig 9a). Fluxes of sensible heat (Q_H) are driven by surface warming and the consequent convective mixing of warmed air higher into the atmosphere. Q_H is therefore slow to increase and values reach a peak around local solar noon, 290 and 299 Wm^{-2} at the suburban and urban location respectively. Warming of the atmosphere continues into the evening and fluxes can remain positive into the night time. This trend is especially evident at the urban location and gave rise to what is commonly referred to as the nocturnal urban heat island effect (Fig 9b). Fluxes of latent heat are the lowest in magnitude and most variable during the day time at both locations. Fluxes represent the amount of energy spent in the study volume for evaporating water (or adding water to the atmosphere). As mentioned above fluxes at the suburban location increase and decrease in unison with Q^* and the other turbulent flux (Q_H) (Fig 9c). However the urban observations reveal lower values pertaining to Q_E . This trend is expected for a dense urban location that serves to drain water away from the surface and which has a small fraction of greenspace space (10%). The storage heat flux is the most dominant of the fluxes throughout the morning at both locations. Following sunrise heat is quickly and easily transferred to tall building structures. The urban location has a higher storage heat flux during the day time as a result of its higher associated heat capacity (i.e. comprised of more man-made materials) and its greater active surface area (i.e. taller buildings). At night time this trend is reversed and the urban location displays increasingly negative fluxes indicative of greater heat loss from the substrate.

Difference of the EB over time: April 17th versus June 20th

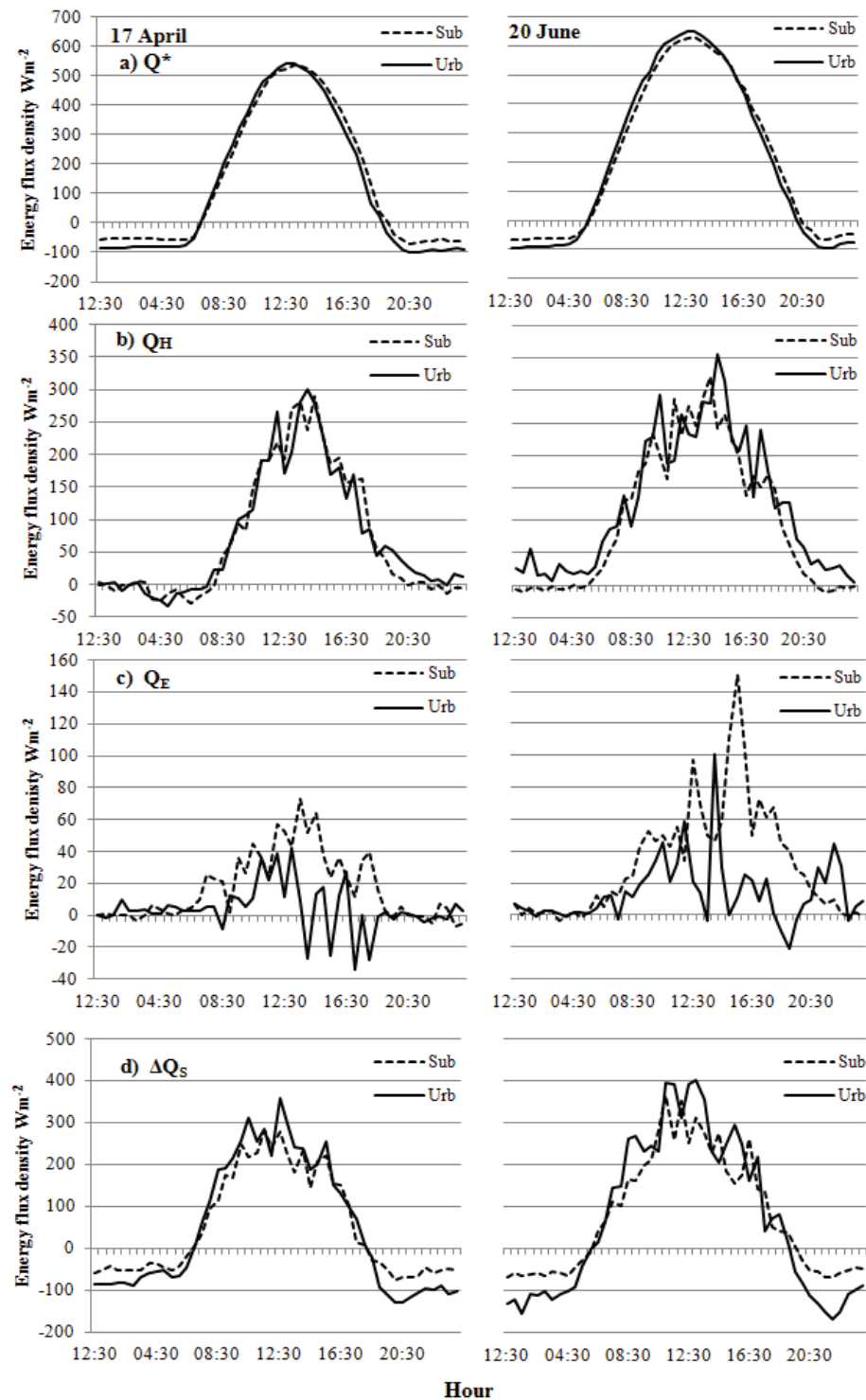
The general trend of Q^* on June 20th does not differ significantly from that observed on April 17th. The increased inclination towards the sun has however increased the day length (affecting the timing) and the maximum possible receipt of radiant energy (affecting the magnitude) at

the surface. Values for Q^* increase earlier in the day and decline later in the evening (Fig 9a), while the peak magnitude increased by 94 and 108Wm^{-2} at the suburban and urban site respectively. Increased day length has also affected fluxes of Q_H . Surface warming occurs earlier in the day hence increasing fluxes of Q_H at the two locations. Peak values increased by 30 and 56Wm^{-2} at the suburban and urban location, and there is more pronounced UHI effect evident at urban location compared to April (Fig 9b). Furthermore the previous day, June 19th, reported clear-sky calm conditions conducive to UHI formation, a trend which can be seen from the fluxes of Q_H at the urban location between midnight and sunrise where values did not fall below zero (Fig 9b). Fluxes of Q_E are again the smallest and most variable of the surface heat fluxes in June. The pattern at the suburban location is more in unison with the other turbulent flux (Q_H) increasing and decreasing with Q^* . The same cannot be said for observations of Q_E at the urban location, where a sharp increase occurs in the late evening (22.00) (Fig 9c) the reason for which is not yet known but may be as a result of an anthropogenic release of moisture into the local system. Peak values of Q_E are significantly greater than those observed in April, increasing by 79 and 59Wm^{-2} for the suburban and urban location respectively (Fig 9c). With regard to average daytime values of at the suburban location Q_E has increased from 33 to 51Wm^{-2} . Although antecedent conditions in June were similarly dry, this increase has been attributed to the vegetation becoming denser thereby increasing the available surface for transpiration and evaporation (Fig 6c). Estimated values pertaining to ΔQ_s increased for June in unison with observed fluxes. Heat is transferred to the substrate earlier in the morning, and although day length has increased ΔQ_s still becomes negative in magnitude prior to sunset at both locations. At the urban location day time values of ΔQ_s are particularly greater while night time values are lower in June relative to April. More heat is channelled into the substrate during the day leading to greater losses at the night (Fig 9d). The heat is lost to the atmosphere via sensible heat, thus helping fluxes of Q_H to remain positive into the night .

Discussion

Given that the heat storage flux, calculated as the residual (ΔQ_{SRES} hereafter), is not an atmospheric or measured variable it will inherently contain errors associated with the measured variables. In order to have confidence in the representativeness and plausibility of the EB results which contain ΔQ_{SRES} , the OHM was employed to generate modelled values for heat storage (ΔQ_{SOHM}) over the measurement campaign. These values are generated using Q^* but are independent of the measured turbulent heat fluxes (Q_E and Q_H) and hence are a useful tool for evaluating the EB residual, ΔQ_{SRES} .

Figure 9. Comparison of urban and suburban surface heat fluxes for 17th April and June 20th 2010. Note the vertical axis scale difference in a, b, c and d.

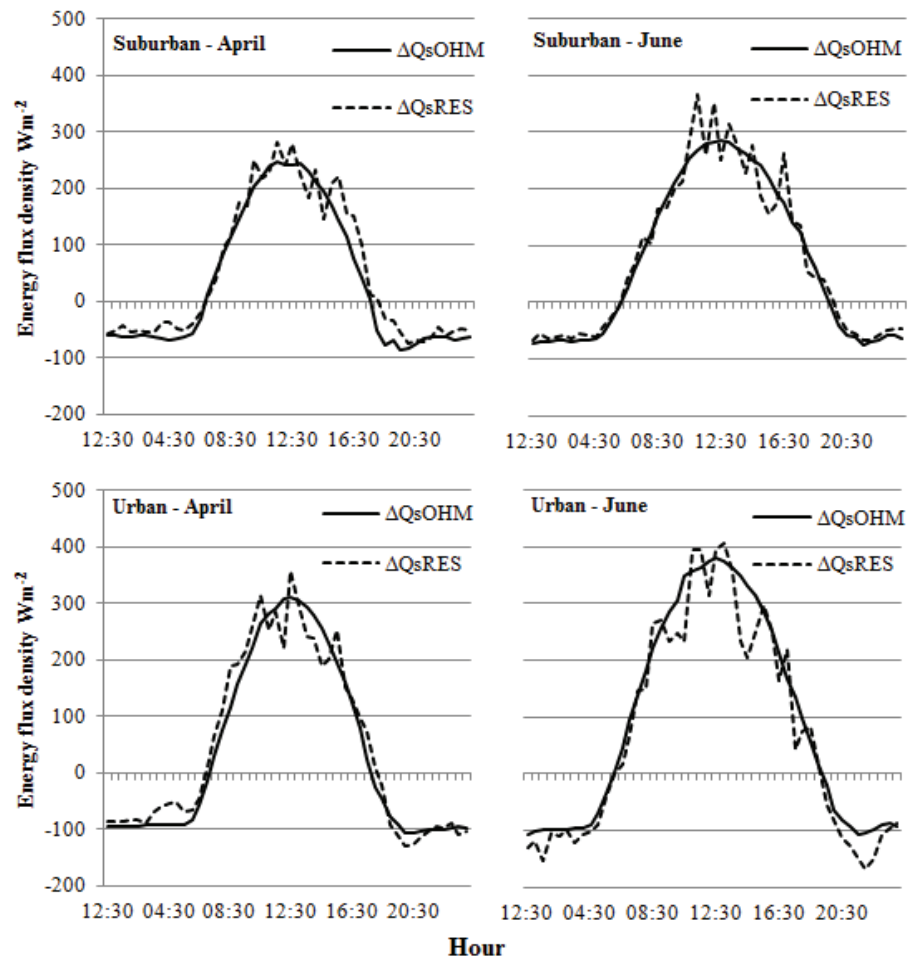


The OHM requires detailed information regarding the fractional cover of surfaces surrounding the measurement location including greenspace, rooftop and impervious (i.e. concrete and asphalt). Each of these surface types have empirically derived coefficients which describe their

1. Direct proportionality to Q^* (a1)
2. Timing in relation to Q^* (which accounts for hysteresis) (a2)
3. Value of ΔQ s when Q^* equals zero (a3).

The coefficients are as a result of previous studies undertaken for urban surfaces and are outlined in table 4. A variety of coefficients are used for each surface type (except greenspace) because their value will be influenced by characteristics of the original study site (Camuffo and Bernardi, 1982). An average of the empirical coefficients is calculated for all but the greenspace or grass surface. In order to calculate site specific model coefficients for the Dublin sites the values of fractional surface cover presented in Table 2 (a) were used in the OHM as land surface weighting factors. The average of each of the surface cover coefficients was then multiplied by the associated weighing factor to generate site specific model coefficients for a1 a2 and a3 (Table 5 a and b). ΔQ_{SOHM} is then calculated according to eqn. 12 for the April 17th and June 20th 2010 and the results are presented in figure10. Overall the EB residuals and modelled values show good agreement regarding the rising and declining limb for all cases (Fig 10). Greater disparity exists however around midday and late afternoon. The OHM is close to estimating peak ΔQ_{SRES} but OHM consistently under predicts values, a trend similar to that reported in Grimmond et al. (1991). Night time values modelled using the OHM are again in good agreement with residuals, particularly at the suburban location. For this investigation residual values were calculated for 30-minute intervals, however Grimmond and Oke (1999) recommend using longer averages (i.e. two hours) especially when dealing with intra-daily data. This would likely improve agreement between values of ΔQ_{SRES} and ΔQ_{SOHM} for a diurnal time series, and in particular around midday. Residual values, although not measured themselves are regarded as the reference values and as the closest to potential correct values given that they are the result of high-grade scientific measurement campaigns (Roberts et al., 2006). Given the good agreement between residual and modelled values it can be assumed that the instruments are observing reasonable EB fluxes for the study campaign. We can therefore have confidence in the EB results as we continue to analyse them in greater detail.

Figure 10. Residual and modelled storage heat fluxes for April 17th and June 20th 2010.



Partitioning of surface energy balance fluxes

Ratios are considered as useful parameters when attempting to identify temporal/diurnal and spatial trends in the partitioning of Q^* . The various ratios are presented in a summary table below (Table 7). The spatial variations in the EB are evident by comparing ratios pertaining to the urban and suburban location. While an increasingly temporal depiction of EB fluxes is provided when ratios are separated into two categories, all hours (i.e. 24hrs) and day time hours (i.e. when $Q^* > 0$). The table outlines the partitioning of available radiant energy (Q^*) into QH, QE and ΔQS and introduces two additional ratios. Firstly, the Bowen ratio (β) describes the relationship between the two turbulent fluxes (QH and QE), when its value is greater than 1 or unity more energy is spent heating the atmosphere than evaporating water. Values of β less than 1 indicate that more energy is used to evaporate or add water to the atmosphere as oppose to adding heat. Secondly, $QH/\Delta QS$ (α) represents the ratio of sensible heat to the atmosphere and to the substrate. When the atmosphere amasses a greater portion of energy than the substrate α

will be greater than 1. Conversely when κ is less than 1 the substrate in the study volume is the more effective energy store.

Latent heat fluxes represent the smallest proportioning of Q^* at the two observation sites in April and June. Q_E accounts for a greater portion of Q^* for all hours than to during day time hours. During the day time other fluxes are more dominant however at night time when storage heat is negative, Q_E can remain positive into the night thus increasing its ratio. Q_E/Q^* increases between April and June for all cases representing the relative increase in fluxes of Q_E in the summer. Maximum Q_E/Q^* occurs at the suburban location in June and represents 15% of Q^* in all hour conditions. Q_H is the greatest consumer of Q^* for all-hours in April and June at both locations, ranging from 44 to 59% of Q^* . This means that over an average 24hr period energy within both systems is predominantly used to heat the atmosphere. Furthermore Q_H/Q^* is consistently greater at the urban location for all hours which means that the urban atmosphere will be relatively drier and warmer than that of its suburban counterpart. The substrate ($\Delta Q_S/Q^*$) is generally the predominant energy sink for day time hours, however ratios are quite similar in magnitude to Q_H/Q^* (Table 7). This trend is reversed for all hours when Q_H/Q^* takes precedence. All hour ratios for $\Delta Q_S/Q^*$ are lower because night time values are negative in magnitude corresponding to losses of heat from the storage substrate.

The Bowen ratio (β) is consistently higher at the urban location for all cases (Table 7). This trend illustrates the significantly lower fluxes of Q_E relative to Q_H . β is greater during day time hours because of the large difference in fluxes of Q_E and Q_H . However β decreases for all hour conditions because of the smaller relative difference in the two turbulent fluxes at night time. β is greater than 1 for all cases indicating that more turbulent energy is used to add heat to the atmosphere as oppose to water. With regard to κ , ratios in Table 7 indicate that the substrate at both locations is the more effective energy sink during the day time (i.e. ratios less than 1). On the other hand for all hour conditions, taking night time values into account, the atmosphere is the dominant store of radiant energy (i.e. ratios greater than 1).

If we return to the RB and recall that the reflected portion of short-wave radiation ($K\uparrow$) at the urban location was unusually greater than that observed at the suburban location; this trend indicated a higher surface albedo at the urban location in comparison to the suburban location. One would expect that the urban environment would have a lower albedo when compared to a well-vegetated suburban location. This unusual trend has been attributed to the nature of the immediate surrounds of the instruments. This area exercises the greatest influence on radiation observations. The Dublin City Council roof and surrounding storage yards are comprised of light coloured asphalt and concrete while the school roof surface and yard are largely made up of darker asphalt.

Darker asphalt would serve to reflect less $K\uparrow$ and hence reduces the surface albedo. The albedo values calculated from the instruments and are presented in table 6. The combined albedos for the observation sites outlined in table 2b are consistent for the urban location (i.e. 0.10-0.25) however the instrument calculated value is outside of the expected range (0.17-0.28) for the suburban location (Table 5a). This indicates that the school yard and roof surface have a greater influence on observations than the extensive greenspace located further from the instruments.

Conclusion

Knowing about the urban landscape, its geometry and surface properties provides researchers with robust explanatory power when deciphering urban meteorological observations. The deployment of high-resolution, meteorological instrumentation in the urban environment has significantly improved our understanding of the energy exchanges operating in the surface layer that give rise to distinctive local climates. The current research was a first attempt at investigating the radiation and surface energy balance for Dublin. This study revealed a spatially conservative radiation budget however the subsequent partitioning of radiant energy among surface heat fluxes was increasingly variable and is a result of the differing surface properties of the observation sites.

The results are broadly consistent with studies undertaken during the summertime in North American cities and suburbs, as well as European campaigns (Grimmond and Oke, 1995; 1999, Christen and Vogt, 2004, Offerle et al., 2006). The magnitude of Q^* was similar at both observation sites in unison with findings reported in Basel, Switzerland (Christen and Vogt, 2004). The urban fabric was a net energy store during the day time, the magnitude of which increased with increasing urban density. The proportioning of energy into heat storage was consistently greater during the day time at the urban location than its suburban counterpart. Fluxes of latent heat were greater at the suburban location which is expected for a location whose greenspace surface is greater in extent; however values for the summertime were still relatively low in comparison to other suburban EB studies where swimming pools and sprinkler systems were present (Grimmond and Oke, 1999). The relatively low magnitude of latent heat fluxes reported may also be as a result of the relative dryness of April and June in 2010. Precipitation recorded at Dublin Airport was 44 and 75% of baseline precipitation for April and June respectively. Furthermore no rainfall was recorded at least 7 days before the selected study days which would have affected the availability of water for evapotranspiration (Met Éireann).

Results reported here also confirm typical assumptions about the relative dryness and warmth of the urban atmosphere when compared to less dense suburban locations. Evaporation at the urban location is less than at the suburban location, as indicated by fluxes of latent heat. Sensible heat fluxes are almost always greater at the urban location, particularly

during all hour conditions. The release of heat from storage during the night time contributes to increases in fluxes of sensible heat. This phenomenon helped to give rise to the nocturnal UHI at the urban location during the observational campaign. At present unquantified advective influences mean that closure of the EB is difficult. The magnitude of storage heat flux, given that it is not a measured flux, presents the greatest uncertainty in the EB. This research employed the OHM to independently validate the EB residuals. Good agreement means that we can have confidence in our EB measured fluxes for the study campaign. That said however, the results reported here are preliminary and represent only two clear-sky, calm, twenty-four hour periods. Future research will require flux footprint modelling and analysis to ensure the spatial consistency of the EB during different meteorological conditions. The study days chosen for this particular study are not necessarily typical for Dublin so it will be necessary to investigate longer term datasets.

The anthropogenic heat flux, omitted for this study, warrants attention and would require data associated with transport use, space heating and cooling and population density. Furthermore instrumentation is in place for an in-depth evaluation of atmospheric carbon dioxide concentrations and fluxes, an increasingly popular and relevant area of urban climate science. A study of this kind would complement research in the area of urban EB studies and would create a more holistic picture of the urban effects on the urban and suburban atmosphere. In addition, observations being recorded at the two locations will prove important for initialising, parameterising and validating a future potential urban climate model for Dublin. The two observation locations were chosen for their widespread applicability. If we know the physical form of a neighbourhood and the associated urban climate response we can then begin to apply this knowledge to more widespread urban areas. In this way you can create a spatially disaggregated energy and emission flux database for urban areas in Dublin and Ireland.

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CHAPTER 39

PLACING NEOLIBERALISM: THE RISE AND FALL OF IRELAND'S CELTIC TIGER

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Introduction

The Irish economic model which prevailed between 1993 and 2007 was widely heralded as a beacon of what the deep liberalisation of a small open economy might deliver. Indeed, the so-called 'Celtic Tiger' years saw a dramatic transformation in the social and economic life of a country that had, until the start of the 1990s, been a relatively poor and peripheral state, perched on the edge of Europe with a weak indigenous economy and a foreign direct investment sector characterised by low-skilled, branch plant manufacturing. In the 1990s, Ireland embraced deregulation, entrepreneurial freedoms and free-market principles and aggressively courted high valued added export oriented foreign direct investment (see O'Riain, 2004). The result was a rapid shift to high-skilled manufacturing, a phenomenal growth in the service sector, the development of a domestic consumer society, a rapid growth in population through natural increase and immigration, and a housing and property boom (see Allen 2007; O'Hearn 1998; O'Riain 2004; Bartley and Kitchin 2007; Jacobson *et al.* 2006; Moore and Scott 2005). Politicians, policy makers, economists, academics, practitioners, think tank gurus and journalists from around the world flocked to Ireland to be inducted in the art of best practice in fast track growth and former Irish leaders have gone on global lecture tours espousing the so-called benefits of the 'Irish model' of neoliberal economic reform for countries wishing to fast-track modernisation.

But since 2008, as a number of worldly dramas have unfolded, so too has the Celtic Tiger model unravelled. The domino effect of the global financial crisis unearthed the fragility, over-extension, and tenuous alignments of the international financial markets. Since then, the world has been plunged into recession, banks have collapsed, others have been the recipients of generous tax-funded bailouts, and national and supra-national governments have scrambled to resurrect their economies from the detritus of the recession. The effects of the international financial crisis, while practically ubiquitous, have been felt more strongly and deeply in Ireland than in many developed countries. As a small open

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economy, Ireland was always going to be exposed to fluctuations in the international markets (O’Hearn, 1998; Jacobson et al, 2006), but the extent of this exposure was significantly exacerbated by the home-grown inflation of a property bubble (O’Toole 2009). Indeed, the Celtic Tiger era of economic expansion was split into two periods: the first period (1993- 2002) characterised by export-led growth dominated by FDI and the second period (2002-2007) involving a property boom largely consisting of Irish developers capitalised by Irish banks, who in turn were borrowing from European banks.

As the global crisis deepened, the Irish property bubble burst and the vast over-exposure of Irish banks to toxic property loans became apparent. The collapse of the property and banking sectors led to a contraction in the wider economy, with the drying up of credit, markets and tax receipts, leading to a huge hole in the public purse; an extensive bank bailout, including the establishment of the National Assets Management Agency (NAMA) that has acquired €88b of property debt and rolled up interest from Irish banks; bank recapitalisation (Bank of Ireland) and nationalisation (Allied Irish Bank, Irish Nationwide Building Society, Anglo Irish Bank); massive state borrowing to service the bank bailout and the public sector spend; rising unemployment; and plummeting house prices. Given the perilous economic state, this ultimately led to the €85bn IMF-EU bailout in November 2010, and the collapse of the Fianna Fail led government in February 2011.

The response of the Irish government (like other national governments) thus far has amounted to ‘more of the same’; to patch up, rather than transform, the political economic system. As such, there is seemingly little appetite for any radical departure from orthodoxies and dogmas which have demonstrably failed. Perhaps unsurprisingly, given the international pressure, Ireland’s response to its crises represents little more than an anxious toeing-the-line in economic policy, cow-towing to the demands of the IMF, and nostalgically dreaming of those halcyon days of perpetual growth. Indeed, Ireland is being touted as an exemplar of the benefits of austerity and is being held up as a model for Greece, Portugal, Italy, and Spain to follow.

In many ways, the story of the rise and rise of neoliberalism in Ireland, the rise and fall of the Irish economy, and the Irish property boom and bust, provides an insight into the travails of proto-neoliberalism in the secular world. And yet to date there has been insufficient and inadequate dialogue between scholarship on neoliberal ideology and practice and the fate of Ireland’s Celtic Tiger. The relative paucity of such dialogue can be attributed to two sets of confusions: the appropriateness of the concept of neoliberalism and the failure to apprehend the Irish state as a neoliberal state. Firstly, the extent to which the term ‘neoliberalism’ may be said to map on to any meaningful empirical referent has become the subject of considerable debate (Larner 2000). Indeed, within some

intellectual communities, we note the palpable mood of hostility which has arisen against those who might use and abuse the notion (Hackworth 2007). Whilst many commentators within Ireland, both populist and academic, speak loosely and often carelessly about an Irish neoliberalism, there remains within more studied commentary a wariness in overstretching the concept and a nagging doubt about its utility. Secondly, in some respects Ireland postures as a somewhat ambivalent case-study of neoliberalization; ideologies of neoliberalism have come to assume a ‘commonsense’ status within the country’s political class to the extent that the term has rarely been explicitly articulated in national political debates. When it has been deployed by the Irish state itself, the label neoliberalism has rather confusingly been bound up with the notion that the Irish economic model represents a hybrid formulation – to use the analogy popularised by former Tanaiste Mary Harney in 2000, somewhere between Boston (American neoliberalism) and Berlin (European welfarism).

Undoubtedly, the limited application of scholarship on neoliberalism to Irish economic history has hampered, and been to the detriment of, academic comprehension of Ireland’s spectacular rise and fall, and in particular to scholarly appreciation of the roots of Ireland’s property boom and subsequent property crash. Reciprocally, it has also impoverished the ongoing agenda of figuring out appropriate ways in which to theorise neoliberalism’s various past, present, and emerging actually existing forms. In this paper, we propose that Ireland is indeed uniquely placed to both instruct and be instructed by theoretical literature on neoliberalism and its discontents. We offer the ideas of *path amplification*, *neoliberalism’s topologies and topographies* and *accumulation by repossession* as central to the structuration of neoliberalism in Ireland and potentially useful additions to ongoing efforts to theorise neoliberalism’s wider biography.

An Irish Neoliberalization?

At the heart of the concept of ‘actually existing neoliberalism’ is the notion that proto- neoliberalism is an economic experiment which has become woven into localities in different ways as a consequence of their unique social, cultural, economic, political and institutional histories. Brenner and Theodore (2002: page 351) note the ‘path dependent’ nature of neoliberal restructuring projects ‘insofar as they have been produced within national, regional, and local contexts defined by the legacies of inherited institutional frameworks, policy regimes, regulatory practices and political struggles’. In these divergent contexts, they have identified key moments of what they call “creative destruction”, involving the dismantling of particular institutional forms and the construction of new (de)regulatory apparatus. Other strands of work have argued for understanding neoliberalism in terms of governmentalities (Larner, 2000), and as a ‘mobile technology’ (Ong, 2007). England and Ward (2007, page 8) suggest that there are important similarities, ‘discursively and

materially in the “restructuring” of markets for currency, energy, public services, transportation and so on’, which highlight the shared characteristics of state neoliberalization, but that the contingency of the ‘project’ on place-specific market and regulatory structures means that it cannot be theorised as a coherent set of global processes.

The propagation of the ideology of neoliberalism of course betrays a long and colourful history. For instance, and representing only one example, before crashing onto the shores of both the United Kingdom and the United States in the 1980s in the guise of Thatcherism and Reaganism, neoliberalism was long experimented with and refined and rejigged in the context of IMF imposed Structural Adjustment Programmes on bankrupt nations in the developing world. There is certainly a tradition of scholarship that has preserved an interest in these multiple past and present laboratories. But it might also be argued that that recent work within Anglo-American Geography has tended to prioritise a limited number of case study sites, both spatially and temporally. Firstly, Brenner and Theodore’s (2002) assertion that the urban scale now constitutes the most appropriate entry point for empirical explorations of the grounding of neoliberalism in concrete histories and geographies has generated a disproportionate drift in interest towards the (western) city. Secondly, to date, the principal antecedent context has been the Fordist Keynesian welfare state. Neoliberalism has generated a period of creative destruction and has junked, metamorphosed and recalibrated prior Fordist Keynesian institutions. And much recent work has sought to develop the New Urban Politics literature to map a purported epochal transition in urban governance from urban managerialism to urban entrepreneurialism (Harvey 1989, Cox 1993, Cox and Mair 1989, and Hall and Hubbard 1996).

Arguably, the development of the concept of actually existing neoliberalism has been colorated, but also limited, by the selective field sites which Anglo-American Geographers have chosen to work on. The Irish case endorses the need for a consideration of a wider range of scales of analyses and spaces and places and an appreciation of prior histories in the longue duree and a deeper reach into the past. Our proposition is that Ireland’s interlacing with neoliberal ideology has been mediated largely by institutions operating at the level of the nation state and within a particular political culture and system inflected by the long history of Anglo-Irish relations and the country’s emergence as an independent postcolonial state. In this sense, the Irish case can be read as an exemplar of a much wider and richer historical geography of encounter between neoliberal ideology and the postcolonial legacy. We propose that Ireland’s neoliberal model has been shaped by at least four important historical factors.

First, British colonisation of Ireland, and annexation through plantation, has created a long history of conflict in Ireland over ownership and

propriatorial control over land and property. Historically, various strands of Irish cultural and political nationalism and Irish Republicanism foregrounded land and property ownership and land reform as central to their mission. Irish cultural and political life is thus marked by a fierce and combative defence of the rights of the citizenry to exercise almost complete freedom and autonomy over land and property.

Second, living under the yoke of British political control, the Irish political model developed in ways which privileged local social relations and in particular a clientalistic and patronage species of politics. The craft of votes for favour and graft were honed in the rural Irish village and through time became sedimented and naturalised. The result is that Irish politics is marked by a triumph of local politics over party and national politics (see Collins and Cradden, 1997). This was combined with a highly centralised bureaucracy inherited from the former British colonial administration (Breathnach, 2010, page 1186). Moreover, local politicians wield power in ways which have actively subordinated the Irish planning system. As a result, Irish planning has never achieved the same status as it has in much of Europe and has always been weakened and compromised by localism, cronyism and corrupt political practices.

Third, although Irish nationalism was infused with strains of Marxist and Socialist politics arguably Ireland's revolution was one of the most conservative in modern history. Since Independence, Irish political life has been dominated by the oscillating fortunes of two hegemonic, right of centre and conservative nationalist parties: Fianna Fail and Fine Gael. These parties were formed out of the Irish Civil War and reflect not left and right divisions in ideology but pro- and anti-treaty sentiments at the time of independence. Irish political cleavages then for the most part do not pivot around ideological differences.

Fourth, in the years immediately following Irish independence, Ireland's principal economic policy was one of import substitution. External capital was to be heavily regulated, limited, and policed, and domestic industries were to be nurtured and protected. By the late 1950s it was becoming evident that this model had and was impoverishing Ireland. From the 1960s on Ireland embraced a model of a liberal and open economy and aggressively sought to court export oriented manufacturing, piloting and adopting policies which would later be labelled neoliberal.

These four factors shaping the Irish political landscape have produced a certain species of neoliberalism in Ireland which is perhaps best characterised as ideologically concealed, piecemeal, serendipitous, pragmatic and commonsensical. Indeed, successive Irish governments have never had an explicit neoliberal ideology (apart from a small number of influential Ministers) (Kirby 2010). Ideology thus remains largely hidden in the apparatus of Irish politics. Its presence is barely articulated and often invisible. And yet Ireland was characterised over the Celtic

Tiger period by a range of practices that bear important similarities discursively and materially with key processes of neoliberalization (Peck and Tickell 2002). As opposed to an ideologically informed project, such as those implemented by Thatcher in the UK and Reagan in the USA during the 1980s (see Harvey 2007), Irish neoliberalism was produced through a set of short-term (intermittently reformed) deals brokered by the state with various companies, individuals and representative bodies, which cumulatively restructured Ireland in unsustainable and geographically “uneven” ways.

Breathnach (2010) argues that the tension between the overwhelming concentration of employment and population in the East of the country and the political, clientelistic motivation towards “balanced regional development” has resulted in an inability on the part of the state to make spatially selective decisions in order to strategically plan for economic growth. During the Fordist period, in which Ireland operated as a branch-plant manufacturing centre, this resulted in an extreme form of industrial decentralisation – manifested during the 1970s by the state’s construction of ‘advance’ factories in 156 locations – but was significantly exacerbated from the 1980s onwards, once services became the main source of employment growth. Although intended as a way of addressing this imbalance, the National Spatial Strategy published in 2002 was effectively disabled by these same political features. Moreover, when export-led growth slowed down, the entrenched system of local clientalism was not superseded by indigenous entrepreneurship that capitalised on Ireland’s new industrial composition, but rather new wealth was invested in property. The Irish state’s moves towards neoliberalisation, then, could be seen to operate at two scales: the international level whereby the state attempted to create a vibrant and open economy that would attract FDI due to the ease of conducting business and generating profit, and the national/local level whereby the state pandered to their political allies by cultivating the conditions for a property boom, which was equally characterised by a lack of spatial selectivity. As the property sector began to take precedence over FDI as the major generator of state revenue, and due to reliance on indirect taxes from this sector, this created an economic model that could only perform adequately in a situation of perpetual growth. This need for perpetual growth was ingrained both structurally in the state’s taxation system, and discursively in the Celtic Tiger myth itself.

The Irish neoliberal model ostensibly takes elements of American neoliberalism (minimal state, privatisation of public services, public-private partnerships, developer/speculator led planning, low corporate and individual taxation, light to no regulation, clientelism) and blends them with aspects of European social welfarism (developmental state, social partnership, welfare safety net, high indirect tax, EU directives and obligations) (Kitchin and Bartley 2007). Rather than being the result of some well conceived economic master plan, however, the Celtic Tiger

was the outcome of a complex set of unfolding, interconnected, often serendipitous processes, held together by a strategy of seeking to attract and service foreign direct investment. Thus, Ireland exhibits a peculiar brand of ‘emergent’ neoliberalization (McGuirk, 2005). The model is perhaps better described as a series of disparate policies, deals, and actions that were rationalised after-the-fact, rather than constituting a coherent plan per-se. As such, the claim that the Irish model sits politically somewhere between ‘Boston and Berlin’ is not so much an indication of a country pioneering a new model of neoliberalism, as it is suggestive of the ways in which new policies and programmes were folded into the entrenched apparatus of a short-termist political culture shadowed by low-level clientelism, cronyism and localism that works to the detriment of long-term, state-wide planning (O’Toole 2009).

Much of the policy transformations of the Celtic Tiger era movements were then, to an extent, the outcome of a certain political pragmatism – doing what was necessary at the time to satisfy the needs of various sectors of the voting public – rather than being characterised by clearly delineated periods of ‘roll back’ and ‘roll out’ neoliberalism (Peck and Tickell, 1994). The rolling out of neoliberal mechanisms such as privatisation and Public Private Partnerships were rarely handled in any sort of ideologically informed or systematic manner, and the state often failed to achieve the appropriate balance between private sector risk and public sector reward in these projects (Hurst and Reeves, 2004; Kirby and Jacobson, 2006; Reeves, 2003; Palcic and Reeves, 2005). Despite the relatively small receipts yielded to the taxpayer by privatisation, the state has continued to roll out privatisation into diverse service areas such as school buses, refuse collection, motor vehicle testing, and urban car parking and clamping, and initiate public private partnerships with respect to public buildings, social housing, and road infrastructure (Barrett, 2004). However, while the state rolled out neoliberal policy mechanisms in fragmented and piecemeal ways into different sectors, this was not accompanied by an equivalent rolling back of social welfarism – unemployment and child support and other benefits remained relatively high – although it should be noted that a) the overall quality of services in many areas of the public sector (such as Health, Education, and Public Transport) failed to reflect the magnitude of the dramatic transformations of the nation’s wealth during this same period (OECD, 2008)., b) social disadvantage was not adequately addressed during this period (NESC, 2005) and c) the response to the current crisis has seen savage cuts in these same sectors. Moreover rather than pitting the state against the trade unions, the period of Irish neoliberalization was characterised by “... the dense networks of institutions of ‘social partnership’ extending across all spheres of the political economy and integrating local actors, state agencies, and European Union Programmes ... [that became] an institutional mechanism of public governance through almost all spheres of public life” (O’Riain, 2004, pages 9-10). These agreements traded work and pay related concessions for union

docility, and were used by the state as a means of manufacturing labour stability. Additionally, “[u]nlike most other countries in Europe, Ireland has consistently rejected the model of decentralised decision making even in policy areas, which many observers might suggest are most sensibly located and managed by the local or regional sub-national levels of government. Ireland’s system of local governance is traditionally poorly organised, in receipt of very limited funding, and responsible for a very limited range of policy” (Stafford and Payne, 2004: p. 3). As a result, Kirby and Jacobson (2006, pages 28-40) argue that the neoliberalization of Ireland has been flimsy and unsustainable and that the Irish state failed to recognise that “market liberalisation requires a more robust and socially responsible state” to achieve equality and stability. Similarly the Irish state has failed to adequately embed FDI industries over the boom period through investing in and growing indigenous companies. Indeed, Ireland’s dependence on foreign investment is starkly identifiable by the degree to which GDP exceeds GNP (O’ Hearn, 1998).

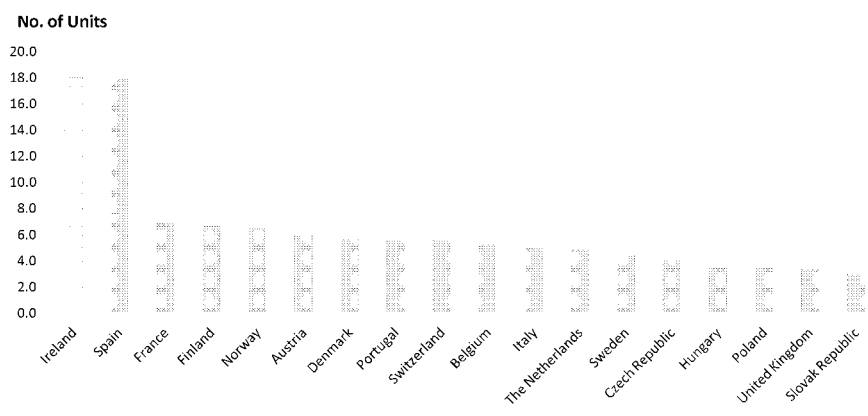
What we need to take away from this discussion is that these particularities of the Irish state’s flirtations with neoliberalism are not anecdotal or addendum to the technologies more ‘representative’ of neoliberalisation globally. Rather, these particularities have been central to how actually existing neoliberalism has emerged in the Irish context. As such, we find the concept of creative destruction, which sits at the heart of ideas such as path dependency and path trajectory problematic and offer instead the concept of path amplification. The relentless focus on the paradigmatic case of neoliberalism’s assault on and dismantling of Fordist Keynesian, and cultural, political, and historical infrastructures at the level of the city, has arguably effaced the recognition that in some cases neoliberalism actually finds itself in harmony with, rather than in opposition to, prior institutional histories. Path amplification points to the importance of forms of path trajectory in which history serves to amplify rather than slow down neoliberalism’s ambitions. Although often seen as a burden, weight, and source of friction, in fact in some cases pasts can serve as catalysts, lubricants, and wellsprings for neoliberal reforms. In light of these arguments, the following section looks more closely at the Irish property boom as indicative of the actually existing ways in which these processes converge.

Actually Existing Neoliberalism in Action: The Irish Property Boom and Bust

In the ten years between January 1996 and December 2005 an unparalleled 553,267 housing units were built in Ireland, with a total stock of 1.733m units in 2005 (DEHLG 2009). By 2007, Ireland, along with Spain, was producing more than twice as many units per head of population than elsewhere in Europe (see Figure 1). This building frenzy was accompanied by phenomenal growth in house prices. The average new house price rose from €78,715 in Dublin, and €66,914 for the country as a whole in 1991, to €416,225 in Dublin (a 429% increase) and

€322,634 for the country as a whole (382% increase) in 2007 (DEHLG 2009). Not unsurprisingly, second-hand homes follow the same trend, costing on average €76,075 in Dublin in 1991, and €64,122 for the country as a whole, rising to €495,576 in Dublin (551% increase) and €377,850 (489% increase) across the country in 2007. In the same period, house building costs and wages only doubled (Brawn 2009). In Q3 1995 the average secondhand house price was 4.1 times the average industrial wage of €18,152, by Q2 2007 secondhand house prices had risen to 11.9 times the average industrial wage of €32,616.

Figure 1:



Similarly, the cost of land spiralled, dramatically increasing in price in 2005 and 2006, with land jumping in value from just under €10,000 per hectare in 1998 to over €58,400 per hectare in 2006 (Savills HOK 2007). This made Irish land the most expensive in Europe, nearly twice the cost per hectare of any other European country and three times greater for all but four countries (Spain, N. Ireland, Luxembourg, Netherlands), despite having a largely unrestricted planning system. Land price inflation was driven by developers competing for urban brownfield sites, agricultural land being sold for housing development, and individuals buying sites for one off houses (S. Kelly, 2009). The result was that land became a significant component of housing cost, up to 50 percent as against a European average of 10-15% (O'Toole 2009).

Correspondingly, the total value of mortgage debt increased from €47.2 billion in 2002 to over €139.8 billion at the end of 2007, with the average size of a new mortgage €266,000, nearly double the 2002 figure (CSO 2008). Moreover, loans to developers for land and developments skyrocketed. As Honohan (2010: 26) notes, “At the end-2003, net indebtedness of Irish banks to the rest of the world was just 10 per cent of GDP; by early 2008 borrowing, mainly for property, had jumped to over 60 per cent of GDP. Moreover, the share of bank assets in property-related lending grew from less than 40 per cent before 2002 to over 60 per cent by 2006.” By 2008 Ireland’s property bubble was

already starting to slowly deflate, but the global financial crisis provided a redoubtable pin.

The Daft.ie house price report for Q4 2010 (Daft 2011) detailed that asking prices, based on stock advertised through its services, were down on average c.-14% in 2009, on top of decreases of -19% in 2009 and almost -15% in 2008. The average asking price for a residential property was just over €222,000, €145,000 below the mid-2007 peak. The drop in asking price from peak prices varies geographically, with the smallest drop in County Limerick (-29%) and largest drop in Dublin city centre, where prices were down -49.6% at the end of 2010. The Permanent TSB/ESRI Index reported in January 2011 that the average national prices, based on mortgage data, had fallen to Q2 2002 levels, with a 38% decrease in prices since they peaked in Quarter 4 2006, falling from €311,078 to €204,830 (outside of Dublin from €267,484 to €174,570 (-34.75%); in Dublin from €427,946 to €237,480 (-4.53%)). Many economic commentators predict that house prices will fall in excess of 60% from peak values (e.g., M. Kelly 2007; Whelan 2010a). Similarly, rents fell for seven quarters in a row to Q1 2010, with private rents being almost 25% below their peak value in Q2 2008 (DKM 2010). House prices have depreciated to the extent that over 250,000 households are in negative equity (c. one third of all mortgages) and, as of the end of Q4 2010, the Central Bank reports that 44,508 mortgages were in arrears for 90 days or more and another 35,205 had been restructured (together totalling 10.13% of residential mortgages) (Finfacts 2011). Further, there has been a steep decline in land values since the height of the boom, reduced 75-98 percent depending on location.

DKM (2010) reports that from 2006 to 2010(est.) the total value of construction output fell from €38,631m to €11,733 (a drop of 69.6%). Further, the number of construction workers fell from their Q2 2007 peak of 269,600 to 105,700 in Q2 2011 (CSO 2010). Property related tax receipts (stamp duty, capital gains tax, VAT, development levies) have also dropped dramatically given the much smaller percentage of sales and the reduction in new commencements.

It is now abundantly clear that during the Celtic Tiger period, property supply and demand became disconnected so that when the bubble burst the state has been left with a staggering level of oversupply. The particular ways in which the property sector emerged over the Celtic Tiger period offers an insight into both how the *geographies of neoliberalism* were spatialised within the Irish context and how this in turn has produced and deposited new *neoliberal geographies*. While the literature has predominantly focused on the former category (the spread of neoliberalisation between places), we suggest that the landscapes and geographies that this subsequently secretes have been equally important in conditioning the course of neoliberal trajectories. These *topographies and topologies of neoliberalism*, therefore, warrant attention not only as effects

of neoliberalisation but as also productive elements in the continuing evolution of neoliberal geographies. The way in which neoliberalism was contaminated and enfolded within the entrenched conditions of Ireland's political and economic culture was instrumental in the articulation of specific relationships between the state, market, and civil society and in the deposition of particular geographies. These relationships, as manifested through the property bubble, produced a cannibalising form of capitalism (not unlike the practices that took down the international financial markets) that evolved through a solipsistic financialised logic: house prices rose while (counter intuitively to market logic) houses were built to excess. Ireland was in the middle of a building and land speculation frenzy when the crisis initiated, and which although it deflated relatively fast led to 244,590 units being built between January 2006 and December 2009 (that were connected to the ESB electricity grid). This is despite the fact that in April 2006, the Census revealed that 266,322 housing units were unoccupied (216,533 vacant units and 49,789 holiday homes; 15% of stock). The preliminary results of the 2011 Census report a total housing stock of 2,004,175 of which 294,202 units were vacant (including holiday homes), with many areas of the country having vacancy levels above 25% (see Figure 2)

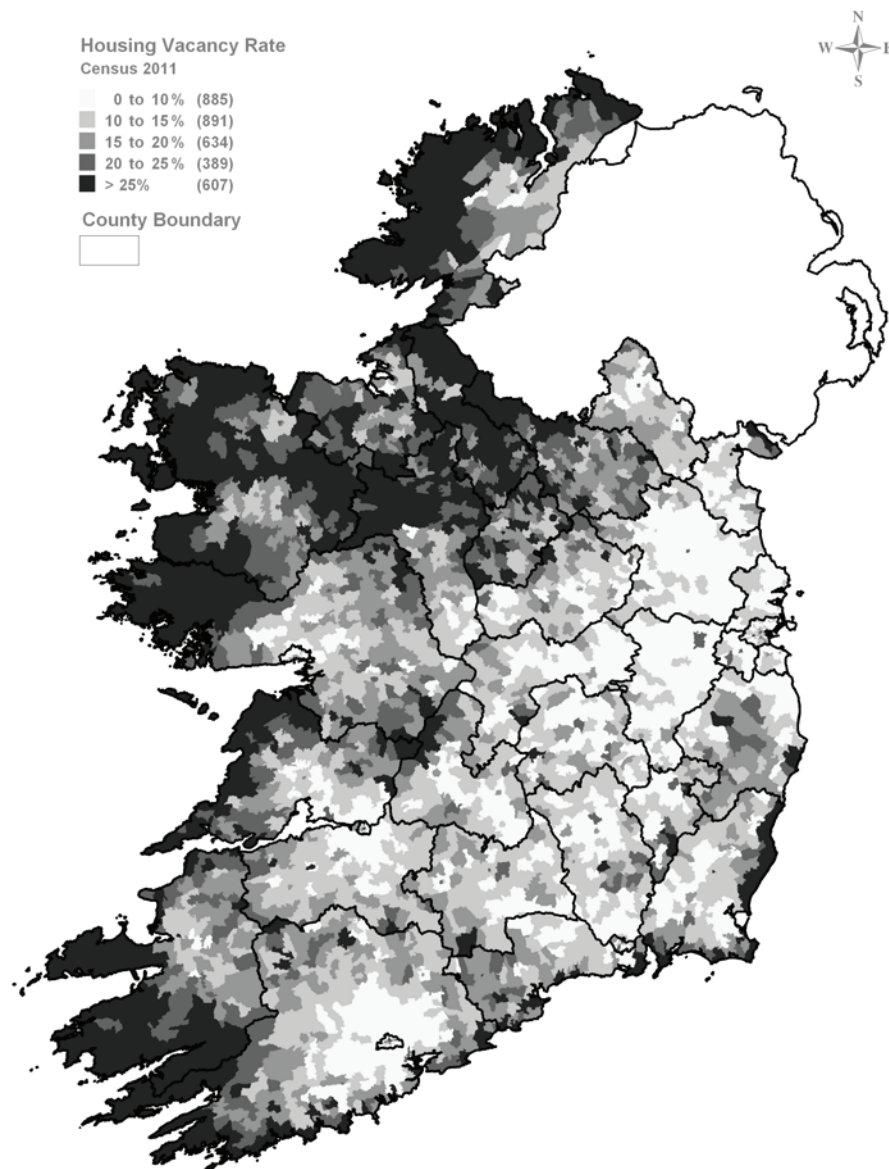
One highly visible result of housing supply being out of sync with housing demand has been the creation of a new phenomenon, so-called 'ghost estates'. Our research detailed that there were 620 such estates in Ireland at the end of 2009, where a 'ghost estate' was defined as a development of ten or more houses where 50% of the properties are either vacant or under-construction (Kitchin et al., 2010), while a Department of the Environment and Local Government survey in May 2010 revealed that there are 2,846 unfinished estates in the country, 777 of which meet the criteria of a 'ghost estate', and only 429 of which were active at the time of the survey. The total number of units in these estates is 121,248, with planning permission for an additional 58,025: 78,195 units are occupied. Of the 43,080 units that are unoccupied, 23,226 are complete, 9,976 nearly complete and 9,854 where construction has started. There are multiples of unfinished estates in every county in the state (see Figure 3).

In addition to housing and land there is also an oversupply in offices, retail and hotels. In Dublin, 23% of office space (some 782,500 sqm) is vacant (Savills HOK 2010). By the end of 2010 there was estimated to be over 2m sqm of shopping centre space and 1.32m sqm of retail park space in the state, double that of 2005 (CBRE 2010). At the end of 2008, there were 905 hotels with 58,467 rooms, 15,000 of which are deemed excess to supply (26%) (Bacon 2009).

Much of the literature has highlighted that neoliberalisation entails not so much a retraction of the state as opposed to the deployment of different types of state interventions. Similarly, the Irish property bubble was not

only the result of deregulated markets, but was facilitated by a range of contributory factors. There is no question that Ireland did need from the early 1990s onwards to cater for a significant transformation in its demographic profile. Between 1991 and 2006 the population of Ireland grew by 714,129 (20.25%) from 3.525m to 4.239m, with the number of households growing by 440,437, up from 1.029m to 1.473m (CSO 2006).

Figure 2. 2011 housing vacancy in Ireland



The growth in population was driven by both immigration and natural increase. Household growth was also driven by household fragmentation. One would have thought that such changes in demand

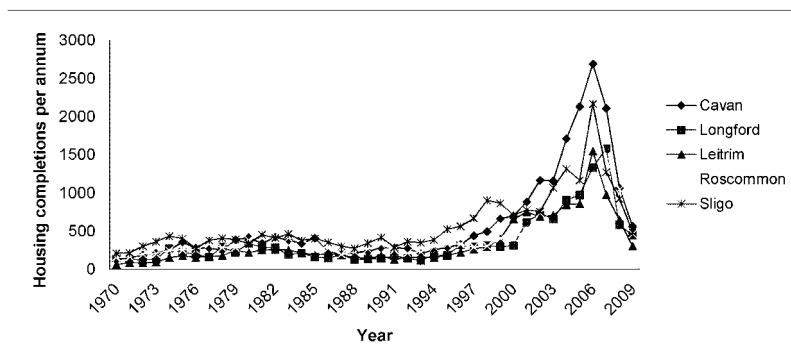
introduced 'in an effort to alleviate the increasing problem of dereliction and dilapidation which had affected large parts on the inner areas of towns and cities nation-wide' (Department of Finance, 1999). A number of urban renewal schemes ran from 1986 to 2008 (termination date depending on the scheme and a number were extended), including a Town Renewal Scheme (100 towns throughout the state covered), Living Over the Shop (LOTS) and a Seaside Resort Scheme (15 towns covered) which enabled access to Section 23 tax relief on capital expenditure incurred in the construction, refurbishment or conversion of rented residential accommodation. Section 23 encouraged development for rental purposes (including holiday homes) by allowing developers and small investors to offset tax up to 90% of direct costs occurred against income for up to ten years. These schemes also marked the beginning of a new entrepreneurial approach to urban development in Ireland, which was specifically manifested in an effort to make Dublin fit for purpose for the new forms of economy that were becoming spatially fixed in cities in the post-industrial era.

Many critics noted the neoliberal character of these urban strategies, and despite being widely criticised in terms of their redistributive effects on local areas (Corcoran, 2002), they were successful in terms of bringing new wealth to the capital and, over time, attempts were made to replicate the model in other Irish cities (O'Callaghan and Linehan, 2007). The stimuli for development were supplemented with state funded redevelopment projects such as the International Financial Services Sector (IFSC) in Dublin docklands, the Digital Hub, and the regeneration of Temple Bar as a cultural quarter that were significant in attracting inward investment in advanced producer services and digital industries (MacLaran and McGuirk, 2001; Montgomery, 1995; Moore, 2008). These tax initiative and redevelopment schemes were essentially deals struck between the Department of Finance and the private sector, with little role afforded to local authorities.

The urban tax relief schemes were accompanied from June 1998 by the Pilot Rural Renewal Scheme for the Upper Shannon Region (introduced under the Finance Act, 1998). The scheme was designed to encourage people to live and construct new dwellings in designated areas and to promote new economic activity and consisted of two main elements were: (1) business tax incentives: tax relief for the expenditure incurred on the construction or refurbishment of industrial buildings (from July 1st, 1999); and (2) residential property tax incentives: tax relief for both owner occupiers and renters (Department of Finance, 1999). The result was the massive incentivisation of building long after such incentives were needed. In the case of the five counties in the Upper Shannon Scheme – Longford, Leitrim, Cavan, Sligo and Roscommon – housing stock was increased by 45,053 (49.8%) between 2002 and 2009, from 90,491 to 135,544 dwellings, with 1 in 3 houses built in this period (see Figure 4). Between the 1996 and 2006 censuses 30,695 houses were built

in these counties and yet household numbers only grew by 18,896 – in other words, house building was progressing at a pace well in excess of household growth.

Figure 4.



Somewhat running against notions of balanced and sustainable development advocated in national spatial planning policy, the boom in construction encouraged local authorities to be pro-growth because it enabled the accrual of development levies (in the absence of more sustainable local residential property taxes), with local councillors pursuing zero-sum games with regards to their constituency where if one area got a certain kind of facility or development, then their area needed the same (hence several regional shopping centres in each region instead of one). Chambers Ireland (2006) reported that development levies had risen from €0.11bn to €0.55bn between 2000 and 2005, representing 13.6% of local government expenditure. This is indicative of how new neoliberal interventions in the property sector were interwoven with the localised nature of Irish politics to produce particular spatial articulations of capital.

This was replicated at the national level through the government’s pro-cyclical fiscal policy and taxation system, which worked to both boost the construction industry and to make it critical to sustaining public spending, rather than acting as a counterweight to ensure sustainable growth. Stamp duty, capital gains taxes and VAT were significant contributors to the public purse, despite capital gains tax being halved to 20% in 1997, justified by normative neoliberal faith in the market that the sale and purchase of assets becoming less costly would free capital to be invested within the wider economy. Significantly, development land was also included under capital gains tax, in an attempt to ensure that a greater amount of land was released for enterprise purposes. Davy Research (2006) reported that the property market accounted for 17% of total tax revenue in 2006, up from 5% in 1998. Revenues from stamp duty on property transactions were c. €2.98b in 2006, up from 387m in 1998, and there were c. €3.2b in VAT receipts (CSO 2008, Davy Research 2006). Stamp duty rates were lowered several times between

2001 and 2007, and the ceiling on income tax deductibility of mortgage interest for owner occupiers was increased four times between 2000 and 2008 in order to further stimulate the housing market (Honohan 2010). In addition, a significant number of people were employed in the construction and related sectors and construction was accounting for a significant chunk of growth in GDP (in 2006 construction accounted for 9% of GDP and 10.4% of GNP; DKM 2008, cited in CSO 2008).

In turn, the planning system became beholden to development, being pro-growth in orientation with a presumption for development operating, and was consistently undermined with localism, clientelism, cronyism and low-level corruption. At the local scale, individuals and developers lobbied and sought to curry favour or do deals with county councillors and constituency TDs for zoning and permissions in return for support, votes and remuneration of various kinds (favours, kick-backs, fees for 'planning consultancy', etc). The Irish planning system lends itself to such a relationship as a result of its division of legislative and executive functions between councillors and planners. The formulation and adoption of development plans and zoning decisions fall under the remit of elected local councillors, whilst the planning authority adjudicates over planning applications (with the planning authority a part of the local authority that local councillors oversee). The function of local authority planners is as advisors on all development planning matters, rather than being formal decision makers; elected representatives have the final say on all development plan and zoning matters, and are under no obligation to take the recommendations of experts into account. Moreover, councillors can use mechanisms such as Section 140 (of the Local Government Act 2001 – formerly Section 4 of the City and County Management (Amendment) Act, 1955) to override a specific planning decision. And, while local authority staff are legally bound not to engage in work that might imply a vested interest, there is no such monitoring for councillors. This is exemplified by examples of elected representatives 'double jobbing' as planning agents (or consultants).

The result was too few checks and balances to stop excessive zoning and permissions being granted, despite the fact that detailed demographic profiling would have indicated limited demand in many locations, and the absence in many cases of essential services such as water and sewerage treatment plants, energy supply, public transport or roads. This is exemplified with respect to land zoning. In June 2008, the DEHLG recorded that there were 14,191 hectares of serviced land zoned nationwide for 462,709 potential new units (and an additional 30,000 hectares of unserviced zoned land), with many counties having enough land zoned to last many years. For example, Monaghan, which had a stock of 21,658 houses in 2006 had enough serviced land zoned for an additional 18,147 units, which would cater for a household increase of 83% and last over 50 years if households continued to grow at the 1996-2006 rate. The national average is 16.8 years.

At the national level, developers and vested interest organisations lobby and pressure Ministers with respect to regional and planning policy formation and key legislation (Allen, 2007). The property sector thus maintains close relationships with the major political parties, providing funding donations, the use of services and facilities, access to elite networks, employment/directorships after politics, and so on, in order to influence development plans, zoning and planning decisions, and planning policy. As the revelations of the Mahon Tribunal into planning corruption have suggested, this relationship has been characterised as one of mutual benefit, along with direct and indirect bribery and coercion of elected officials at all levels of government (see O'Toole 2009).

The vicious circle of politicians and developers was completed by the domestic banking sector, which got involved in a lending war driven by personal bonus schemes and inter-bank rivalry to generate record annual profits, flooding the market with development and mortgage capital that catered to speculator and buyer demand, but also actively encouraged it. Rather than using their own deposits to underpin loans, given favourable lending rates, banks borrowed money from other international banks and private equity funds to offer evermore easier forms of credit to home buyers and investors. Utilising the international financial markets for credit “greatly increased banks’ vulnerability to changing market sentiment” (Honohan 2010: 6). This reckless lending, often conducted without proper due process and exceeding stress test criteria, was exacerbated by financial deregulation and a regulatory system that failed to adequately police the banking sector (Ross 2009; Murphy and Devlin 2009). The involvement of international banks in the Irish property crash forms another critical component to understanding the relational geographies of the financial crisis. The flow of international capital into Irish institutions effectively provided the means by which the property boom could occur. While we are acutely aware of the importance of these financial flows to the predicament that Ireland currently faces, and indeed the fate of the entire Eurozone, it is nevertheless both empirically and conceptually beyond the scope of the current paper to account for this in detail. Rather, we limit our analysis to the manifestations of these processes within Ireland.

The Honohan Report (2010) makes it clear that there were catastrophic regulatory and governance failures both in the financial sector itself (with respect to senior management decisions, bank auditors and accountants, and financial intermediaries such as mortgage brokers) and the Central Bank and Financial Services Authority of Ireland which overemphasised process rather than outcomes, downplayed quantification of risks, applied ‘light-touch’ and deferential regulation, and failed to implement any penalties for breaches of rules and regulations. Moreover, they created a false sense of security by producing reports that were overly optimistic and reassuring, regardless of the evidence base. This was compounded by similar reports from the IMF, OECD and other bodies

such as rating agencies and vested interest groups. As the Honohan Report (2010) notes, Ireland's banking performance was the second poorest after Iceland during the present global downturn, and was entirely homemade on the basis of the Irish construction boom, rather than exposure to sub-prime mortgages or aggressive overseas acquisitions.

The frenzy of house building were exacerbated by the dispersed deployment of strong discourses around home-ownership and buy-to-let or flip speculation, combined with a simultaneous retreat from social housing provision. Ireland has a relatively high rate of home ownership, with almost three quarters of private dwellings in the State being owner-occupied in 2006 and the housing boom was almost exclusively targeted at the home owners and investors, with: first time buyers feeling harried to get onto the property ladder at all costs (driven by arguments such as 'being left behind' and 'rent is dead money'); existing home owners encouraged to take advantage of the equity in their homes to scale-up or purchase second or holiday homes or release equity to enable their children to get onto the housing ladder; and small investors encouraged to invest in buy-to-let purchases as a long term, secure investments that lacked the volatility of stocks and shares. The latter group were particularly important in keeping demand high and pushing up prices. By 2007, the Bank of Ireland Group were lending as much money to buy-to-let and flip speculators (28%) as to first time buyers, with the Irish Banking Federation noting that they typically paid c.€100,000 more on a property purchase (Brawn 2009).

Thus, Irish neoliberalism exhibits a particular form of path dependency, which is indicative of both a commonsense approach to neoliberalization and the avoidance of its contradictions. While the Irish state essentially bought into a free market ideology, the implementation of neoliberal policies and reforms in the property market were at the same time undermined by folding them into a system of entrenched localism, cronyism, and low-level corruption, both perpetuated and exacerbated by the interwoven short-term policy goals of the political system, and the unsustainable circulation of capital between banks, developers, and investors. Thus, a range of state interventions in the property market perpetuated the privileging of the property market in geographic areas where essentially there was no market, and supported the capitalist accumulation of a small range of interests (who had close political ties) to the ultimate detriment of more sustainable redistribution of Celtic Tiger wealth. As O'Hearn (1998: page xi) observed, "[t]he main benefactors of growth – foreign computer firms and Irish professionals – disposed of most of their fortunes in ways that were either fruitless (in the case of profits removed from Ireland) or downright harmful (property speculation that drove the costs of housing through the roof)".

The result of these various factors, underpinned by a neoliberal philosophy of free market development and market-led regulation, was a housing bubble. Whilst many of the factors we have discussed do not differ greatly from the role that property development and speculation plays in many nations undergoing neoliberalisation, the ways in which these factors were articulated in Ireland was also contingent upon its particularities. The sheer frenzy around home-ownership was clearly a latent outcome of a postcolonial anxiety around land. Rather than being a mere footnote illustrating the more recent (and thus important) histories explaining the property boom, the postcolonial context was in fact integral to how it was produced and sustained over time; without the widespread desire for home-ownership at any cost, the ever escalating market could not have been sustained for as long as it was. Similarly, the inherent localism and cronyism of Irish politics produced a series of affects that structured the property sector, its geographical manifestation, and the architecture of its downfall. Ireland provided a lubricated laboratory for neoliberal expansion, wherein resistance to these reforms were minimal, and their articulation exhibits a type of path amplification that mutates both Ireland and the 'neoliberal'. The variants of neoliberalism produced must be seen in light of these historic specificities, but cannot be reduced to that which is predictable or foreseeable. Ireland's geography and the 'neoliberal' mutate together and amplify each other.

The Government's Solution to the Banking and Property Crisis: NAMA

The government's response to the banking and property crisis in Ireland has been characteristic of the short-termist and reactionary *modus operandi* of Irish politics that then unfolds into a *de facto* longer term response (O'Toole 2009; Ross 2009). Rather than rethink the Irish economic model, the solution to the crisis has employed a deepening of neoliberalised policy designed on the one hand to protect as much as possible the interests of the developer and financial class, and on the other to implement widescale austerity measures and severe cutbacks in public services and to consider the privatization of state assets, all framed within a post-political discourse of 'there is no alternative'. While this is perhaps unsurprising given the prevalence of similarly hermetic responses elsewhere, and neoliberalism's ability to mutate to reinforce certain types of class power at the expense of others (Harvey 2007; see also Fox-Rogers et al 2011 for a review of how changes in Irish planning law reinforces class bias), in particularly utilising and mobilising crisis as a way of solidifying these arrangements (Klein, 2008; Zizek, 2010), it is worthwhile to elaborate empirically on how such processes were operationalised and rationalised in the Irish context with respect to property.

The government's initial reaction to the faltering economy was to insist that the banks were well capitalised and that the housing market would

slow to 'soft landing'. However, as the crisis deepened and liquidity started to dry up on the international money markets, it became clear that there were significant problems of capitalisation in the Irish banking sector. Banks neither had the funds to lend to investors and businesses, nor to pay back loans to international banks. Irish bank share prices collapsed (between May 2007 and November 2008 Irish shares fell in value from €55b to €4b) resulting in the introduction of a state backed bank guarantee scheme to prevent a run on the banks, wherein the state underwrote €440b of deposits and other assets (Murphy and Devlin 2009). Property buyers and investors, already cautious because of the slow down in the housing market, found it increasingly difficult to source credit, thus developers found themselves left with liquidity problems that prevented them from finishing out developments. If evidence was needed of the failure of the neoliberal model not only to provide equitable redistribution, but also to support those interests most central to its functioning, this case offered a clear example. In order to introduce liquidity into the Irish banking system the state took a two-pronged approach: (1) direct recapitalisation or nationalisation, wherein the state took a stake in the banks for preferential shares or took direct ownership, using the national pension reserve and finance procured on the international markets; (2) relieving the banks of their toxic assets by purchasing all property loans of €5m or more issued before December 1st 2008 and placing them in a new state agency to manage on behalf of the taxpayer. Somewhat controversially, all Irish banks were to participate in the strategy adopted, meaning that the two institutions with the smallest depositor base and largest portfolio of toxic debt (Anglo Irish Bank and Irish Nationwide) were protected from being wound down.

The new property agency to manage the second scheme is the National Assets Management Agency (NAMA), part of the National Treasury Management Agency (NTMA). Plans for NAMA were announced in the Minister for Finance's Supplementary Budget on 7th April 2009, with the National Asset Management Agency Bill (2009) published September 10th of that year. The Bill enables NAMA to acquire bank assets relating to land and development loans and associated loans, and to manage those assets for the benefit of the taxpayer. The first loans were transferred from the banks to NAMA in March 29th 2010 (NAMA 2010a).

The NAMA Draft Business Plan (2009) details that in total, €88bn worth of assets with a loan book of €77bn and €9bn in rolled up interest, are being transferred to NAMA from five Irish banks (AIB - €24.1bn, Bank of Ireland - €15.5bn, EBS - €0.8bn, Irish Nationwide - €8.3bn, and Anglo Irish Bank - €28.4bn): €27.8bn (36%) relates to 'land', €21.8bn (28%) relates to 'development loans', €27.7bn (36%) relates to 'associated loans'. In return for the impaired assets, the agency issues the five banks with government-backed bonds, which the banks could use to borrow from the European Central Bank, and thus, in theory at least, inject liquidity into the Irish banking system. Rather than paying present

market value of the underlying assets, NAMA paid 15% more to represent long term economic value. Based on the first payments to banks, the state is paying on average 50% of the loan value for the asset (NAMA 2010b), though the developer will continue to repay the full value of the loan. NAMA estimates that 40% of the loans will be cashflow generating and that 80% of loans will be repaid by borrowers, with 20% defaulting. NAMA has up to €5bn to selectively spend on completing projects.

At present, there is very little detail available with respect to the 22,000 loans that have been transferred into NAMA and the properties they relate to, nor the specific geography beyond national territories (see Table 1). As a consequence, it is difficult to determine the present status of assets and their future potential worth.

Table 1: Geographical breakdown of NAMA portfolio

	<i>L&D loans</i>	<i>Associated loans</i>	<i>Total</i>	<i>% of total</i>
Ireland	33.13	18.35	51.48	66.80%
Northern Ireland	3.29	1.51	4.8	6.20%
Great Britain	10.34	5.59	15.93	20.70%
USA	1.39	0.66	2.05	2.70%
Germany	0.05	1.01	1.06	1.40%
Portugal	0.46	0.14	0.6	0.70%
France	0.39	0.13	0.52	0.70%
Czech Republic	0.11	0.07	0.18	0.20%
Italy	0.04	0.09	0.13	0.20%
Spain	0.05	0.07	0.12	0.20%
Other	0.13	0.11	0.24	0.30%
TOTAL (€ billions)	49.38	27.73	77.11	100.00%

Source: NAMA (2009)

Since its announcement, the NAMA project has been roundly criticized by politicians and economists (see for example, Gurdgiev 2010, Lyons 2010, Lucey 2010, McWilliams 2010, Whelan 2010b). There is a broad concern as to whether NAMA has been the right vehicle to deal with the property crisis and whether it can succeed given the make-up of the portfolio (particularly given the geography of assets and the amount of land and redundant property such as ‘zombie hotels’), the extent of the property crash, the sums being paid by the state to the banks for their ‘assets’, the validity of ascribed long-term economic values and rent yields, and the veracity of valuations and underlying economic models and calculations. Others question the fact that NAMA has paid a notional long term economic value rate rather than present market prices, thus second guessing the market and inflating the transfer to the banks at the state’s risk; and that to recover the state investment the property market will need to be re-inflated, which will mean the re-inflation of the

surrounding apparatus of interests in banking, property, planning, and government. Moreover, if land is purchased by the state on the basis of existing zoning then any future de-zoning by local authorities will deflate its value and lead to a loss on the investment.

For those on the Right, NAMA represents state interference in the logic of the free market, disrupting its 'natural' recovery by artificially controlling large elements of the property market and protecting failed developers and speculators in the short term who otherwise would have gone bust, thus blocking the growth of more resilient players or new start-ups. For those on the Left it protects those who created the crisis but it does nothing to protect home owners and tenants struggling to pay mortgages and rent and who are also underwriting NAMA's costs. Moreover, it is employing as experts (bankers, estate agents, property consultants, planners, lawyers) the very same people who acted irresponsibly to create the bubble, some of whom are overseeing transfers from their former employers. These experts are being handsomely rewarded for their services, with fees expected to run to €2.46bn over the projected ten year life course of the agency (NAMA 2009). Further, NAMA is exempt from freedom of information requests and despite managing a vast amount of state managed assets it is particularly opaque in its operation.

Interestingly, very few of the critiques of NAMA question the underlying neoliberal ideology that underpins the creation and operation of the agency and the whole Irish economic model. Indeed, there seems to be widespread acceptance that the core logics and principles underpinning Ireland's economy during the Celtic Tiger period were fundamentally sound, and that the crisis and crash were simply the result of misfortune with respect to the timing of the global financial crisis, poor management and regulation, and cronyism and greed (in other words, how it was (mis)applied). In general then, criticisms do not extend to the Irish economic model, with its narrow tax base of low corporate and income tax, high indirect taxes, and lack of property taxes, and its laissez faire approach to planning and regulation. As Marcuse (2009) has noted, "today's-more-than-financial-crisis" is being rationalised away as an anomaly within the system of neoliberal capitalism, a cog to be corrected rather than indicative of more systemic failures.

In Ireland, as with other countries, the solutions to the crisis are a selection of alternative tactics wherein the overall strategy is a new round of neoliberalisation. In other words, rather than seeking radical (or even moderate) change with respect to the economic, political and planning systems, a fresh dose of neoliberalisation is seen as the solution to the failings of previous rounds of neoliberalism. The apparatus that created the conditions for crisis are not only left in place, their positions are strengthened through affirmation. Harvey (2007) argues that the neoliberal project was designed as a means to restore class power to an

elite by strategically aligning state resources and supports to this strata of society. The Irish state's response to the crisis supports this argument. It is indicative of free market fundamentalism "losing both its claim to legitimacy and its claims on democracy" (Giroux and Searls Giroux, 2009, page 1), having to abandon the assumption that markets can operate in the absence of state interventions. In Ireland, we are now witnessing the rolling out of public money and resources to rescue poorly performing private institutions and restore a faulty system from ruin, an example of what we term "accumulation by repossession". In a period of 'roll with it' neoliberalism (Keil, 2009), the investment in these types of responses has reached a point where it is less politically contentious to continue to invest in these ideologically contradictory responses of state regulated free-markets than to either follow through on the promise of the free-market or to implement more socially responsible models.

Conclusion

This paper has sought to bring the Irish economic 'miracle' which prevailed between 1993 and 2007 and its spectacular collapse since 2008, into dialogue with recent literature on neoliberalism, its actually existing forms, and its path trajectories in specific and concrete milieu. Given its pivotal status in global debate on fast track growth in small open economies and on the causes and consequences of collapse and crises, we note a surprising absence in academic literature of sustained conversation between the Irish case and theoretical ruminations over neoliberalism and its political pretensions today. This paper stands as a contribution towards the filling of this lacuna. Our discussion has focussed upon the causes of the massive property orgy that Ireland indulged in at the height of its prowess as a Celtic Tiger, the disastrous social and spatial costs and consequences that this glut has left in its wake, and the (re)commitment to neoliberal policies which proposed solutions to Ireland's property crises betray.

At one level, the follies, excess, gluttony, greed, defaults, bankruptcies, repossessions, and bail outs, which have marked Irish life in the past two decades reflect simply the cultural flotsam and jetsam of a classic crises of over-accumulation. Inherent in the capitalist system is a tendency towards over-accumulation, signposted by a series of desperate displacement strategies which include the switching of capital from primary circuits to secondary circuits and in particular into land and property. Overheated housing markets are emblematic of the endemic and innate drift of capitalism into spatially and temporally specific crises which are then exacerbated by capitalism's will to find what turn out to be fallacious solutions. Ireland's particular and dramatic encounter with the creative and destructive powers of unregulated and insufficiently regulated market processes is but the latest chapter in the now well populated and inglorious history of capitalism and property bubbles more widely. Ireland's crises are simply capitalism's crises rendered visible and naked.

But Ireland's story was home grown too. Both fiscal and planning policy formation, implementation and regulation were overtly shaped by the neoliberal policies adopted by the state, particularly in the period from 1997 onwards. During this time, the government pursued a neoliberal agenda of promoting the free market, minimising regulation, privatising public goods, and keeping direct taxes low and indirect taxes high. The state thus loosened regulation of the financial sector, introduced tax incentive schemes, changed the parameters of stamp duty, lowered capital gains tax, allowed developers to forego their affordable and social housing obligations, promoted a laissez faire planning system, failed to address the vestiges of clientelism and allowed elected representatives to abandon basic planning principles, and encouraged local authorities to produce ambitious, localised growth plans framed within a zero-sum game of potentially being left behind with respect to development. In short, it allowed the property sector to be driven by developers, speculators and banks, rewarding them with tax incentives, less tax obligations, and market-led regulation; it enabled buyers to over-extend their indebtedness; and it provided too few barriers to development by failing to adequately oversee, regulate and direct local planning. Whilst the global financial crisis might have been a contributing factor, the Irish housing market was already running out of control, with supply outstripping potential demand in all parts of the country, and house and land prices skyrocketing to amongst the most expensive in the world. And banks had massively over-extended themselves lending to developers. The crash was inevitable. The severity of the crash was significantly exacerbated by the state's neoliberal agenda and lack of oversight, foresight and poor policy formation with respect to both the planning system and banking sectors.

In mobilising the idea of actually existing neoliberalism we have made a case for widening the laboratories within which the grounding of neoliberalism is scrutinised. We have argued that the vital context which has mediated Ireland's specific encounter with neoliberal doctrines has been Irish attachments to land and property, Ireland's coloration by clientelistic and patronage politics, the dominance of right of centre political parties that prioritize localism, and the desire for a FDI dominated, open economy that collectively helped broker the rise and fall of Ireland's Celtic Tiger economy, and have given the property bubble and its implosion a unique Irish fingerprint. We have characterised Irish neoliberalism then as a common sense, partial, happenstance and emergent piling up of market oriented policy orientations, strategies, and instruments, framed within its localist, clientelist political culture and system that operates across modes and scales of governance.

In framing Ireland's encounter with neoliberalism in terms of the country's emergence from a troublesome colonial past we are not of course suggesting that Ireland is particularly exceptional. It may be that Ireland's puzzling conservative revolution, its brand of clientelistic and

patronage politics, its culture of reverence towards and deferral to property rights, and its rejection of import substitution and embrace of open markets, resonates with other states emerging from a colonial experience. To the extent that the social, cultural, economic, and political milieu in which neoliberalism took root in Ireland might be more typical than unique, arguably the theoretical innovations piloted in this paper assume wider significance. Whilst to date much work on actually existing neoliberalism has focussed upon the creative destruction of institutions of urban governance in the western city, the Irish case may well serve to invigorate a fresh focus upon neoliberalism's journeys in states who still carry the imprint of their colonial past and where colonial and postcolonial histories provides the essential context in which the structuration of the neoliberal experiment takes place. The Irish case can be located against the backdrop of neoliberalism's early experimentation in Structural Adjustment Programmes, but it clearly surpasses, extends, and suggests new directions, for scholarship with this parentage.

In concluding we ruminate on the wider significance of the Irish case for critical human geographies of actually existing neoliberalism in the context of the global economic crises. To this end we offer three concepts which emerge from the Irish story but which may have wider resonance and might constitute a useful fleshing out of theoretical framings of concrete and particular neoliberalisms; *path amplification*, *neoliberalism's topologies and topographies* and *accumulation by repossession*.

Firstly, the concept of path trajectories and path dependencies have become important denotations of the place specific character of local and particular neoliberalisms and their development. Because emphases to date has tended to be focussed upon neoliberalism's working on antecedent city-based Fordist Keynesian institutions and infrastructures the concept of creative destruction has tended to be foregrounded, both cerebrally and viscerally. The idea of creative destruction itself implies that to move forward neoliberalism has to destroy prior spatial and ideological fixes. The idea of neoliberalism's path trajectories and path dependencies has become preoccupied with ideas of friction and inertia; obstacles have to be overcome. Given Ireland's unique social, cultural, economic, and political history arguably neoliberalism encountered a more conducive incubator. Perhaps for this reason it did not have to become an overtly political and ideological project as such and was paraded as little more than commonsense. To counter assumptions of friction, inertia, and stases which can unwittingly pervade concepts such as path dependency and path trajectory we offer the idea of *path amplification*. In some spaces and places neoliberalism finds itself in harmony with, rather than in opposition to, prior institutional histories and can germinate exponentially and benefit from local amplification.

Secondly, whilst much work to date has focused upon geographies of neoliberalism it is equally the case that neoliberalism produces its own

geographies. We refer to this as *neoliberalisms topographies and topologies*. All too often the full significance of these geographies and their importance in conditioning the subsequent path trajectories of neoliberalism are insufficiently understood; where they are ill defined and under specified notions of uneven development are mobilised. The importance of debates over ghost estates and zombie hotels to the future trajectory of neoliberalism in Ireland merits attention. Alongside Dubai and Japan, Ireland might become the most appropriate laboratory within which to study the impact of such haunted landscapes of despair on the future of neoliberal thinking and its possible mutations. The growth in the Irish housing market, both in terms of revenue and land-use, and subsequent crash and legacy of oversupply, has had an era-defining impact on Irish society and space. It has affected all aspects of social and economic life in urban and rural communities leaving in its wake a topology of vacancy, unfinished estates, and empty offices and retail parks and a topography of broken lives, shattered dreams, terminal indebtedness, and for some chronic stress, anxiety, depression, and even suicide. Neoliberalism's spatial imprint needs to be considered as central to its structuration, both before and during the present crises.

Finally, worryingly, the present government's solution to the crisis has been another round of short-termist neoliberalism in the form of the public collectivization of private debt through detoxification, recapitalisation, and nationalisation of the banks and the protection of the interests of developers and speculators at the potential expense of the taxpayer. We are entering it seems a period in which capitalism is folding in on itself, where perhaps one would expect it to implode, instead it regenerates and thrives on its own contradictions; 'the more it breaks down, the more it schizophrenizes, the better it works' (Deleuze and Guattari, 1977, 166). We are seemingly entering a period of paranoid, schizoid, and cynical neoliberal capitalism, wherein any utopian dream of efficiency through markets, democracy through accumulation, has been lost within the scrapheap of the international crisis. Ireland has been buried under this detritus more than most. According to Harvey (2007), the recent history of neoliberalism can be read as a decisive development in class war over the division of the national product. Through what Harvey (2003) calls accumulation by dispossession, capital has reversed the gains to labour which were ushered in with the Fordist Keynesian state and restored inequalities in wealth to Victorian levels. In Ireland's case capital is being saved from its later folly not only by the privatisation of social assets but also by the socialisation of private loss. Productive state assets are to be deployed to save and in some cases further (perhaps more than we currently know about) enrich capital, whilst capital's losses are to become the public's losses. We suggest the concept of *accumulation by repossession* to capture this latest development and offer it as an accompaniment to Harvey's concept of accumulation by dispossession.

In the present-post political climate of manufactured amnesia it is useful to remind ourselves that a different future remains possible, despite the fact that Ireland's neoliberal state seems presently incapable of envisioning and embracing another future. Indeed, it is somewhat ironic that in many ways the Irish state has never been better placed to choose a different future given the state ownership of huge tracts of land and property, along with the country's primary banking institutions. The era of neoliberalism, however, has also seismically shifted the context of the state into which such reforms/reclamations would need to be implemented. Gleeson (2010), in his book *Lifeboat Cities*, likens the past thirty years of welfare retrenchment and the rise to prominence of neoliberal rule as akin to being 'handcuffed to a madman'. During this period Gleeson suggests, we have witnessed a period of reconstitution in which socio-spatial relations have degenerated such that they are no longer fit for purpose for human flourishing. For Gleeson, the global economic downturn has raised the stakes and created new opportunities. No longer must the call to resist or contest neoliberalism rest on an agenda of moderate reform. The scale of the task is now so great, and the sense of urgency so crushing that much more ambition thinking is required. Perhaps the core of the problems lies in what Žižek (2002, page 152) considers as the difference between the capacity of states and individuals *to React* and *to Act*: "An act always involves a radical risk ... it is a step into the open, with no guarantee of the final outcome ... [b]ecause an Act retroactively changes the very co-ordinates into which it intervenes". Thus far, the Irish response to the crisis – like that of many other nations – has been to React rather than to Act, thus exhibiting a fundamental conservatism that seeks to recover rather than reform. To certain extent this is now inevitable given the complex interweaving of political and economic geographies, the new post-crisis relational geopolitical configurations both within and external to the Eurozone, and the embrace of the IMF/ECB bailout, that enable and constrain the ground on which national institutions can react to and act upon the crisis. But perhaps, only in taking that step into the unknown can Ireland begin the search for the opportunity inherent within crisis.

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CHAPTER 40

SPACED AND TIMED IN THE NEW YORK MARATHON

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Original essay for this collection.

Introduction

We inhabit a world of near ubiquitous information and communications technology (ICT) presence. Mobile communication networks now have a carrying capacity (bandwidth) to allow user-friendly communication tools (software) to transmit information rich (e.g. text and imagery) messages in real-time, across the globe. As consumers of the bandwidth capacity on offer, we are being presented with many additional means of using this possibility to contact each other. Combined advances in ICT and software functionality produce new types of information (e.g. spatial location) that might be ‘valuable’ to receive, and thus worthwhile to pay to transmit. Our telephones are no longer just phones, but advanced microcomputers with all the modifiable functionality which that implies (via hosted software applications or ‘Apps.’). Mobile devices offer new opportunities to communicate new types of information from new situations to new ‘audiences’ or ‘constituencies’. ICT infrastructures (e.g. cellular networks) allow trans-global communication instantly and relatively cheaply. It is argued that when accompanied by mobile devices running such software, they are creating personal ‘coded spaces’ (Kitchin and Dodge, 2011) that are significantly modifying how interpersonal contact, or lack of it, may be interpreted. In this essay I detail my experience of one such coded space, the New York City (NYC) Marathon, and discuss some of the implications of communications software infiltration into this and similar situations.

Running the NYC Marathon, 2011

On the 6th of November 2011 I competed in the New York City (NYC) Marathon. Competed might be a bit of an exaggeration. I took part in the event, running as best I could along the 26.2 mile course through five New York boroughs (Staten Island, Brooklyn, Queens, The Bronx and Manhattan). I was accompanied by 47,000-odd other runners and walkers. As with the vast majority of ‘competitors’ involved, the only competition I had was with the distance and ‘the clock’. Completion of the NYC Marathon was a long held desire, on my ‘bucket list’. The arbitrary marathon distance of 26.2 miles is talismanic, and for many is the ultimate challenge of their endurance. It truly is an endurance event, and few technological advances have or will diminish the extreme physical effort required to complete the distance. It is therefore likely to remain and even increase in popularity as a motivational tool. When I decided to undertake the challenge in April 2011, it was also intended as

a way to encourage my perseverance with an extended training programme, which it proved to be.

As a physically extreme task however, attempting but failing to complete the marathon is always a distinct possibility, no matter how much training is undertaken. This may happen for many reasons on the day, including injury, illness or just exhaustion. As an amateur athlete, bringing oneself to the starting line in optimal condition is not easy. The incorporation of trans-Atlantic travel and a couple of day's hotel living in the immediate pre-race period is also not an ideal way to prepare! As the strain imposed upon the body is so extreme during the event, the physical well-being of participants is everyone's primary concern. This includes the event organisers and the constituency of spectators concerned about any participant in the event.

This was to be my first marathon attempt in six years, which should really have caused me more concern than it did. My previous attempt in 2005 had made me and my family (in attendance that day) very aware of the difficulties associated with completing the 26.2 mile marathon distance. This time around, I travelled to the event without those spectators. However many people were aware of my participation including family, friends and colleagues who had all kindly donated money to a fundraising effort.

Coded spaces in the Marathon

Coded spaces (Kitchin and Dodge, 2011) are inventions or transductions (Mackenzie, 2003) of our inhabited spaces due to the use of, but not wholly functionally determined by, software information processing. Mass public participation running events, of which the NYC marathon is a long standing and one of the most popular examples, function in their current form with the use of automated 'chip' timing of each participant's progress along the course. Each participant's numbered bib carries an ultra-lightweight machine-readable device which is automatically scanned and logged at designated locations along the route. These 'waypoints' will critically include the start/finish lines, but also in such major events each mile marker and other significant distances e.g. 40k (see Fig 1). These recorded times at each distance are known as 'split times'.

Due to this extensive use of ICT and computer processed code I'd argue that the events themselves are recognisably 'coded spaces'. Without such extensive use of automated surveillance to allow in excess of 45,000 participants to run the NYC marathon in such a streamlined, informed and efficient manner, a 'marathon' could possibly still happen. However it would be a radically transformed and practically unrecognisable version of the same event. Thus it is debatable if the modern 'major' marathon is in fact an example of code/space (Kitchin and Dodge, 2011), invented and defined by the essential formative role of said software.

My personal ‘coded space’

Before departing for New York, I had used an internet-based charity fundraising facility to let supporters of my marathon attempt know about the possibility of tracking my progress through the race, if so desired. To this end, just before the beginning of the race, I registered as a ‘runner’ on a mobile phone App. The App. requested my permission to use the phone’s built-in GPS receiver to log my position. The positional signal was then to be relayed via the App.’s communication channel with a data server to anyone with the App. (for a small charge) and knowledge of my bib number, or with access to a web browser (a free service).

Thus, although unconfirmed at the time, I was conscious that an ‘audience’ might be aware of my location from that time on. I was also unaware if any or in what form (constant or intermittent updates) information was being transmitted or received. I interpreted the App. initiation instructions as indicating that only my split-times (arrival times at each mile marker along the course) were being transmitted to any ‘audience’ This was indeed true, but not only that. My spatial location was actually being semi-continuously updated on the spectator’s version of the App. and the race website. The App. interface was map-based, with my position indicated by an icon which moved gradually along the marathon route. The location update occurred after a short lag, estimated at about <10mins, based on the arrival time of messages following my eventual completion of the event.

Connectivity as a motivational tool

The App. was presumably designed as a means by which course-side spectators could increase their participation in, and enjoyment of, the race. A large proportion of spectators are present to offer support to individuals or groups taking part, as well as supporting all participants and witnessing the spectacle. However in a field of circa 47,000 athletes it is very easy for spectators to miss an individual or group as they pass. With both participant and spectator using the App. however, arrival times at any location can be better estimated and anyone’s imminent arrival anticipated.

However, as a runner, the technology also worked unexpectedly as a motivational tool during the event. I became increasingly aware that those monitoring my progress online, whilst not based physically in New York, would also be deriving information from the signal. What I inferred was that they might be interpreting what my position, or progress speed, might imply in terms of my physical well-being. An increase in ‘split times’ could be read as a signal of problems I was having, such as injury or exhaustion. Thus, achieving each mile marker to alleviate such concern became a new and additional motivation to maintain a constant pace; despite the difficulties I increasingly had to do so!

This was over and beyond, and to some degree replaced, the usual motivation of achieving a desired race time; especially when that time became obviously unachievable. Once any ability to run at a desired pace was no longer possible, the motivation to reach the next mile marker in a reasonably good time i.e. consistently became about sending a message via this medium of ‘all is well, still moving, thus still OK, healthy and not suffering too much’. It became as much about this as it was to reduce the distance to the finish.

Fortunately, I had done enough training to be able to maintain a reasonable (if not expected) pace, and a post-event analysis of split times (recorded on a pedometer which I also carried) showed a fairly consistent pattern. However at several times I was forced to slow to walking pace, something that I was very conscious might raise alarm in those observing the split times, and so something I worked especially hard to avoid for this reason also. In my previous marathon attempt in 2005, a lack of sufficient training had led to much greater difficulties. Many of those I was concerned might be monitoring my progress had witnessed these at first hand, and it was a reluctance to evoke those memories that helped motivate me to begin running again, and make the next waypoint.

Despite advising my family and friends of an intention to use the tracking system, during the event I was still unsure who, if anyone was actually monitoring my progress. However the possibility of being ‘watched’ was enough to provide the motivation to try to perform in the way described (and for those reasons) for an ‘audience’. Thus the positional broadcast was a self inflicted ‘Big Brother’ (which in reality was my little brother!). The technology did work, and an audience was in fact ‘watching’. As text messages of congratulations indicated, I found at the finish line that I had been far from the (physically) solo runner, inhabiting the isolated space I was used to running within on the streets of Dublin or along the banks of the Royal Canal.

I had been accompanied by many concerned family and friends, with the technological aid of an ‘eye in the sky’. I was later told in a rather poignant statement by my mother that ‘your father took every breath with you’. I would argue that the connection between myself and my constituency was transformed, deepened and strengthened by transduction of my (and their spaces) into ‘coded spaces’ that respectively transmitted and received real-time spatial information.

Human connectivity and telecommunications

New possibilities in human connectivity across space are offered by modern telecommunications. A revolution in technological availability has standardised the inclusion of GPS within handheld personal phones. This allows the streaming of positional data to other devices connected and programmed to listen. As before, all runners in a marathon or travellers around the globe are connected by multiple invisible strands to

all corners of the world. Indeed this international aspect to the entry field to the NYC Marathon is something which characterises the event.

However by carrying a GPS enabled phone I was voluntarily implanted with a personal tracking device. I was mapped in an Orwellian 'Big Brother' way, linked by new, stronger, digital, strands to my 'audience'. I had agreed to temporarily become a cyborg, effectively coupled to a device that was augmenting my functionality. My personal connectivity to family and friends took on a new digital reality, invisible bonds turned into a communication stream. Mapping my spatial location effectively fed a virtual CCTV camera. An audience ran with me along the streets and avenues of New York's boroughs, vicariously seeing the city, imagining the streets as I would be seeing them. As I also suspected it might, it also worked effectively as a health status report to those concerned for me. My physical condition was being interpreted from my speed and particularly the difference in times I was taking to complete each mile 'split'.

Postcards from the Edge: Spatial location as a virtual surrogate of well being

Through the marathon App. described here, spectators are now involved in new ways through a detailed awareness of runner location. The software-enabled runners are 'prosumers' (Ritzer and Jurgenson, 2010), using the service provided but also producing content that can be 'sold' on in the form of App. content or as a vehicle for associated advertising. They are motivated by the knowledge that a concerned 'audience' of supporters may be in continuous awareness of progress being made. The signal of spatial location, as transmitted over social networks or event-specific applications is thus effectively an accelerated, high frequency version of the postcard.

The near real-time postcard is, by its real-time nature, now also enabled or loaded with new interpretative levels. In the marathon, those in the 'audience' concerned with the well-being of a participant now have a way of obtaining pseudo-real-time location updates which may be interpreted as a measure of health status or 'well being'. As the objective in such an event is to maintain a constant pace throughout, deviation away from an established progress rate may signal trouble. For instance, imagine what might be suspected if the information feed ceased entirely? The effective distance of 'concern' (c.f. Gregory and the 'distance of death', pers comm. 2011) between observer and the observed has decreased to the distance from the observer to the screen. The new levels of contact created by the marathon App. are analogous to the intimacy generated by immersive video games, involving the audience vicariously in the efforts of those completing the endurance event.

Similarly, but not generating similar levels of immediate concern perhaps, the intermittent detailing of journeys via updates to social networking

platforms (e.g. Facebook, Twitter) provides similar mechanisms as the marathon App. onto which physical location and by inference, physical status, can be broadcast. It is the act of emitting a spatial signal, if part of an expected series of location updates particularly, that may be transformed into a signal of health, safety and achievement. For some audiences (e.g. family and friends) this the most important information sought, not whether the location of information transmission is actually worth visiting. Problems could be signalled by an unexpected change in location, or a failure to update information after an expected period or journey.

During the marathon, my spatial location was translated by the recipients of this information into a signal which acted as a stimulus for a set of human emotions e.g. concern. However I would also argue more widely that the potential for quasi-continuous information updates may in itself be a cause of concern. In this case, having a desire to know of current 'status' is present solely because it is possible to obtain, not because there is inherent danger or problems expected. For those waiting on news of travelling family or friends, before the widespread penetration of App.-enabled status updates, waiting for a postcard or a phone call once a week often at a scheduled time were possibly the only opportunities for such concerns to arise. Thus before the 'personal coded space' era, anxiety over the status of others was not something that could be expressed or assuaged by action, as it can via the network of connectivity provided by modern ICT.

Discussion: The marathon as a performance space

During the marathon, my space comprised my route and the totality of all other environmental variables that assailed me. In addition, I essentially created another coded space, the one I inhabited whilst being tracked by my phone's GPS signal. My space was an event, something I was creating as I moved along; just as the marathon event itself created the (strangely) unique space New York was for that day (cf Doel, 1999). My audience's spaces were also transmuted into coded spaces, for it was web-hosted software that allowed them to 'observe' me during the race. This audience space also became part of my space during the event, as I felt they were 'there'. The space that was my NYC was occupied in some part by them also. My audience were experiencing NYC vicariously, invited onto the streets by my 'performance' (Rose, 1999).

As in combat simulation video games the increasingly accurate rendering of digital landscapes promotes a reduction in the distance between player and game, creating intimacy and an immersion in the virtual reality. The military personnel controlling remotely operated armed drones on today's battlefields achieve an intimacy with the physically very distant that is traumatically real (Gregory, pers comm. 2011). The visibility of targeting in military operations has changed and moved from the blind to the visible across a modified space, due to sensor and communication

networks. Similarly, spatial information signals allowed my 'audience' to vicariously share in my experiences, to position themselves closer to me. In their case, separation became shortened somewhat to the distance of the screen onto which my location was appearing. For the subject of voluntary tracking (i.e. the marathon participant) the audience is also an intimate mental companion. Separation from the audience is not metaphysically measurable but comprises an almost haunting ethereal immediacy.

Coded spaces and their modification of space

As exemplified by this example, the world is increasingly populated, and I would argue our experience of it modified, by 'coded spaces' (Kitchin and Dodge, 2011). Cellular telecommunication networks facilitate increasingly diverse formats of digital communication between connected devices. High penetration rates of mass produced 'smartphones' also offer rich data-transfer services to all sections of society relatively cheaply. The variety of communication tools (e.g. SMS and Multimedia messaging, social networking) increase our usage and expectations of the ubiquity and quality of on-demand, rapid communication with other mobile and non-mobile devices e.g. PCs.

Practically all places seem within the reach of a cellular/mobile phone network. The high levels of market penetration by such phones and the almost complete coverage of space by the information transmission network permit the expectation of never falling 'out of contact'. This can now redefine 'wilderness' as a place beyond network reach. According to an off-road vehicle manufacturer's marketing campaign in 2011, finding such a location is the justification for exploring 'off-road'. These spaces are now only found in the most hard to reach, secluded locations. The goal of the 'off-road' exploration is to thus to locate a refuge away from invasive modern communication streams. This, according to the advertisement brings the desired opportunity to peacefully spend time with ones' immediate group (also in the spacious vehicle alongside voluminous camping gear of course!). Only when outside network coverage can peace and tranquillity be assured i.e. without any interruption.

What does this mean in terms human independence and quality of life? Is it of benefit to our 'well-being' to reduce the number of locations outside the possibility of unwanted contact, because of a cellular network? For example, such a world of potentially 'perpetual contact' (Katz and Aakhus, 2002) removes the possibility of 'quiet' time from those of whom constant connectivity is being demanded e.g. travelling employees. The hermit's goal of being deliberately and unalterably 'unreachable' due to geographic isolation is rapidly becoming one that is harder to achieve. It is a concept relegated to a pre-networked world.

However, providing a network does not automatically require contact to be availed of; after all, any telephone, 'smart' or not, can be switched off. However for the current generation, connectivity may now exist as an expectation in a world experience that has known nothing else. Constant connectivity does not need to be availed of; but habit will probably dictate that it is. To current and future generations in particular it denies an opportunity to experience places and events independently of others. It possibly precludes opportunities to experience isolation and decision making without recourse to the viewpoint of others, thus forgoing a significant maturation process and part of the long-term reward of travel.

Coding concern

However, over an above these dystopian opinions, I argue that the mere expectation of connectivity and 'contactability' has a meaning that is independent of any actual contact. Critically, the ubiquity of possible contact mechanisms and media also now mean that contact is 'expected'. This then raises the issue of how to interpret periods of non-contact. Is lack of contact a signal in itself, or in some situations interpretable as an indication of distress? This inference will be especially relevant when undertaking a relatively dangerous pursuit e.g. a marathon or when located in an apparently hazardous location.

Major changes in global interpersonal connectivity and its meaning are being facilitated by information and communications technology (ICT) and the software applications being written to make use of the infrastructure and our access to it. My experiences of using GPS during participation in the 2011 New York City (NYC) marathon exemplifies how ICT and its attendant software applications are shrinking the experiential distance between two personally connected groups of event participants (runners and supporters). As a technology the GPS enabled personal device is shortening the distance between an audience and the spectacle (the runner). The distance between 'connected' parties is now no more than the distance to the screen onto which the spatial location information is cast. The distance between runner and spectator is metaphysically reduced, as has been the distance between soldier and target through the use of remotely operated, visually guided armaments (Gregory, 2011). The sense of contact and participation in the journey being undertaken is heightened in the observer. The technology enables a new level of concern to be created. The possibility of receiving more information creates new desires to obtain this information.

It is proposed that contact between the observer and the observed in the form of spatial position updates may be translated into information about physical 'well being'. In a wider context, it is considered that ICT is revolutionising both the means and meaning of contact between migratory individuals and a connected 'audience' or concerned constituency. In any situations where physical well-being might be a

cause for concern, use of the traveller's coded space is increasingly a means of assessing their well being.

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