



IIS Discussion Paper No.340/ October 2010

Rescaling climate justice: sub-national issues and innovations for low carbon futures

Climate Justice Series

Anna Davies
Geography, School of Natural Sciences, TCD

Niamh Kirwan
Geography, School of Natural Sciences, TCD
Moving beyond the Legacies of the Celtic Tiger



IIS Discussion Paper No. 340

Rescaling climate justice: sub-national issues and innovations for low carbon futures

Climate Justice Series

Anna Davies
Geography, School of Natural Sciences, TCD

Niamh Kirwan
Geography, School of Natural Sciences, TCD

Disclaimer

Any opinions expressed here are those of the author(s) and not those of the IIS.
All works posted here are owned and copyrighted by the author(s).
Papers may only be downloaded for personal use only.

Rescaling climate justice: sub-national issues and innovations for low carbon futures

Working Paper

Not to be cited without prior consent

Prof Anna Davies (TCD) & Niamh Kirwan (Comhar)

Abstract

Climate justice is emerging as a discourse for mobilising activism around the globe. The language of justice is less explicit as a policy principle despite long standing attention to negotiating responsibilities for causing climate changes and bearing costs related to reducing climate change emissions. Nevertheless there are significant justice issues in terms of how mitigation and adaptation will have differential impacts for people in different places. Even where responsibility and equity negotiations have taken place they have tended to occur at the nation state scale through global institutions and events. However, justice implications of climate change are much more socially and geographically variegated than this would suggest. This paper will examine the arena of beyond-national climate justice issues and actions specifically highlighting the range of beyond-national innovations that seek just transitions to low carbon futures. It will examine the regulatory conditions for supporting such initiatives and relate these findings to the current Irish rhetorical commitment to a green economy.

Introduction

The scientific evidence showing that the earth's climate is changing is well established, as is the fact that much of this is due to man-made greenhouse gas emissions. The 2007 Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report states that:

Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level (pg 30).

The Earth has warmed by 0.76°C on average during the last 100 years with eleven of the last twelve (1995-2006) being the warmest on record and the global average sea level rose at an average rate of 1.8mm per year over the period 1961 to 2003 with a rise of 3.1mm per year over the period 1993 to 2003. In addition, there have been significantly increased precipitation amounts in some areas with more intense and longer droughts in others (IPCC 2007).

The effects of climate change have been investigated in two significant studies; The Stern Review on Climate Change (2006) and the IPCC Fourth Assessment Report. The main impacts include temperature extremes, changing precipitation rates, sea level rise, habitat destruction, increased disease transmission, changes in agricultural productivity, changes in water availability, changes in ocean chemistry and an increase in the frequency and intensity of extreme events. Indeed climate change is already causing widespread devastation and suffering around the world impacting on people in terms of food and water availability, health, natural disasters, poverty, human displacement, economic losses and security. Every year it is estimated that 300,000 people die due to the effects of climate change and that a further 325,000 people are seriously affected, mainly due to malnutrition, diarrhoea, malaria and weather related disasters (Global Humanitarian Forum 2009). The costs of climate change are not just social and environmental. The 2006 Stern Review on the economics of climate change projects that, in the long term, climate change could cut global gross domestic product (GDP) each year by between 5% and as much as 20%. The cost of addressing climate change now could be about 1% of GDP by 2050. There are likely to be enormous costs for failing to act early. Climate change may initially have small positive effects for a few developed countries, but is likely to be very damaging for the much higher temperature increases expected by mid- to late-century under Business As Usual scenarios. However, worryingly, global emissions are still increasing as fast-growing economies invest in high carbon infrastructure and as demand for energy and transport increases around the world (IPCC 2007).

Ireland is already experiencing the consequences of global warming. It is now on average 0.7°C warmer than a century ago and six of the ten warmest years have occurred since 1995. We now have fewer frost days, and a shorter frost season (McElwain and Sweeney 2007). In the future, the most important factors in Ireland will be our changing rainfall patterns and rising sea levels. These changes will have a significant effect on our water supply, ecosystems and agriculture, and increase the risk of flooding and coastal erosion. Overall Ireland can expect more seasonal rainfall, with wetter winters and drier summers on average (IAE 2007). Longer heat waves, lengthier rainfall events in winter and more intense downpours in summer are all projected (Sweeney et al. 2007). Warmer water will impact on the frequency and intensity of sea storms and sea surges. This will have an effect on vulnerable coastal areas around Ireland (C4I 2008). Ireland may benefit in the short term from a 1°C increase in terms of agriculture and food production. In the longer term, higher temperatures will have a negative impact on agriculture, as well as marine, biodiversity and water resources (McElwain and Sweeney 2007). Despite the current recession household emissions continue to rise in Ireland. Household emissions grew by 8.8% in the residential sector in Ireland in 2008 (SEAI 2009).

It is a truism to say that climate change knows no boundaries; emissions from one part of the world do not just have an effect on that location and different regions will experience different climate change effects. It is already clear that among the first hit and worst affected by climate change are the world's poorest groups. Developing regions are at a geographic disadvantage as they are, on average, already warmer than developed regions. They also suffer from high rainfall variability. As a result, further warming will bring poor countries high costs and few benefits. Their low incomes and

vulnerabilities make adaptation to climate change particularly difficult. Particularly vulnerable are people in semi-arid dry land belts, sub-Saharan Africa, South Asian waterways and small island developing states (Stern 2006; Global Humanitarian Forum 2009). This is especially true for people in developing countries where natural resource dependency is high (Thomas and Twyman 2005). It is also significant that these countries have contributed least to climate change (Wittman and Caron 2009). Impacts on this scale could spill over national borders with rising sea levels and other climate-driven changes driving millions of people to migrate (Stern 2006).

Mary Robinson, former UN High Commissioner for Human Rights and an honorary president of Oxfam International, has declared that climate change is not just an environmental concern but is a social and humanitarian issue¹. Indeed, it has been acknowledged that in order to completely assess and evaluate the range of social and economic impacts of climate change and ensure that equality, justice, and peace are promoted alongside climate and environmental benefits these issues must be looked at from the point of view of human rights (International Human Rights Law Clinic *et al.* 2009, McInerney-Lankford 2009, Knox 2009; Webster *et al.* 2009; Limon 2009). In 2008, the Office of the U.N. High Commissioner for Human Rights conducted a study on the relationship between climate change and human rights. The study depicts the way climate change negatively impacts on human rights, such as the rights to life, health and self-determination. It also examines the impacts on specific groups, such as women, children and indigenous people. It does not conclude that climate change violates human rights; however, human rights law places duties on states that are relevant to climate change. For example, the flooding that occurred in Ireland in 2009 was devastating for those involved and interfered with human rights, but was not a violation of human rights. However, the state has a duty to protect people who were impacted. The International Human Rights Law Clinic *et al.* (2009) are calling for all international mitigation and adaptation policies to incorporate international human rights standards and best practices. This would allow human rights to be a cross-cutting issue and would strengthen the sustainability and effectiveness of climate change policies.

The climate justice debate has centred on the issue of fair distribution (procedural justice) and burden sharing (distributional justice) between the global north and the global south (Paavola and Adger 2002). The United Nations Convention on Climate Change states that countries should participate on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Climate justice stipulates that those most responsible for the climate crisis have to act first and do the most to reduce their own emissions. They should also provide money and technology so that those least responsible and most affected can develop sustainably and adapt to the effects of climate change. As such international developments on climate justice have implications for Ireland as a developed nation that has benefited from high emission growth in recent years (even if it is not a high historical emitter or a large emitter on the world scale) and its responsibility to cut emissions and assist developing countries financially and otherwise.

¹ Human Rights: A Global Perspective, UN Global Compact U.S. Network Meeting, "Business and Human Rights", Mary Robinson, 28 April 2008, Harvard Business School http://www.realizingrights.org/index.php?option=com_content&task=view&id=325&Itemid=134

The climate change policy and politics arena has been dominated to date by two areas, carbon trading and finance for climate change adaptation and mitigation both of which have justice implications.

Carbon Trading: it has been argued that allocating and trading carbon credits will permit a smooth transition to a global low carbon society² (Chakravarty *et al.* 2009). However difficult issues related to how carbon credits are costed, distributed, exchanged and governed remain. In particular there are concerns that trading carbon obscures justice issues. Specifically it has been argued that carbon trading, especially in the form of carbon offsets, does not encourage individuals in developed countries to take responsibility for their large current and historical emissions, hiding the roots of climate change (Bumpus and Liverman 2008; Lohmann 2008). Secondly, carbon markets tend to favour large organisations and large scale development projects over community based initiatives. For example, Sarona village along the fast-flowing Bhilangana River in mountainous Uttaranchal, India has developed a local low-carbon irrigation system. The irrigation practices work with the natural water flows, are not too hard on local ecology and feed water back into the system. However, the procedure is now under threat from Swasti Power Engineering with prospective Kyoto Protocol carbon finance. They plan to build a 22.5 megawatt run-of-the-river hydropower system. Sarona residents were never consulted and first learned about the project only in 2003 when construction machines arrived. Conflict, police brutality and arrests have followed. The development of the hydropower system would result in loss of livelihoods, migration and loss of a type of knowledge that will be especially valuable in a low carbon society (Lohmann 2008).

Financing: The need for adequate assistance, including through financial means, from developed countries to developing countries to ensure mitigation and adaptation to climate change has been the focus of much debate in the literature³. Certainly it is clear that the scale of existing transfer of climate change finance is not sufficient to meet the mitigation and adaptation needs of the developing world. In particular the suggestion that money given as development aid by developed countries should be considered climate finance has led to concerns that this will increasingly divert money from education and health programmes. Equally there are strong arguments that climate finance should not be seen as aid but as compensation for the negative impacts of climate change being borne disproportionately by those who have contributed least to those changes. Undoubtedly there needs to be better integration between adaptation, mitigation, development and disaster risk reduction (LaFleur *et al.* 2008⁴). Even where co-ordinated climate investment funds have been established such as the Clean

² Further references: Shukla (1999), Cazorla and Toman (2000), Kasperson and Kasperson (2001), Muller (2002), Posner and Sunstein (2007), Watkins (2007), Lohmann (2008), Ayers (2009), Brookings Blum Roundtable (2009), Chakravarty *et al.* (2009), Global Humanitarian Forum (2009), Johnston (2009), South Centre (2009)

³ Further references: Grubb (1995), Byrne *et al.* (1998), Shukla (1999), Adger (2001), Kasperson and Kasperson (2001), Caney (2005), Paavola and Adger (2006), Watkins (2007), OECD (2008), LaFleur *et al.* (2008), Brookings Blum Roundtable (2009), Dellink *et al.* (2009), Feinstein (2009), Global Humanitarian Forum (2009), Johnston (2009), International Human Rights Law Clinic *et al.* (2009), South Centre (2009),

⁴ The Climate Funds Update is an independent website that provides information on the growing number of international funding initiatives designed to help developing countries address the challenges of climate change. The list of funds is based on work undertaken by the Overseas Development Institute and was last updated in December 2009. Out of \$18,719.9 (USD million) pledged through various funds including among others the Adaptation Fund, UN-REDD programme, International Climate Initiative, Least Developed Countries Fund, The MDG Achievement Fund (Environment and Climate Change), The Global Energy Efficiency and Renewable Energy Fund (GEEREF), only 2001.95 (USD million) has been deposited and only 734 (USD million) disbursed with proof of spend. Over 80% of funds went towards mitigation projects and less than 15% to

Technology Fund (CTF) and the Strategic Climate Fund (SCF) of the World Bank balancing donors' desire for control, accountability, and supervision with developing countries' demands for greater voice and control has been a challenge (LaFleur et al. 2008).

Fundamentally structural inequalities between nations in terms of rights to emit carbon and funding for developing a low carbon society are not being fully addressed by the current climate change policy mechanisms despite the claims that fair and equitable solutions to climate change challenges are being sought. This governance failure has resulted in an increasingly visible campaigning discourse around climate justice as illustrated by the Tables below. Table 1 summarises a range of specifically climate justice activist campaigns. Table 2 details climate campaigns that have emerged within organisations that have broad concerns with matters of justice and development. In addition a range of Irish charities working on global development matters have started to raise the issue of climate justice, such as Concern and Trócaire. It is clear that climate justice is an emerging concern for development agencies, climate activists and climate campaigners and there is scope for more research to examine the geographies of the resultant climate justice campaigns. These geographies would relate to: the structure (members), origin (location of initiating actors), scope (the target scale of the campaign e.g. local, regional, national or global) and reach of the campaigns (the current location of participating members).

<p>The Climate Justice Programme a collaboration of lawyers and campaigners around the world encouraging, supporting, and tracking enforcement of the law to combat climate change.</p>	<p>http://www.climatelaw.org/</p>
<p>Mobilization for Climate Justice is a North America-based network of organizations and activists who have joined together to build a North American climate justice movement that emphasizes non-violent direct action and public education to mobilize for effective and just solutions to the climate crisis.</p>	<p>http://www.actforclimatejustice.org</p>
<p>Climate Justice Chicago (CJC) is a grass-roots coalition. It is dedicated to reversing global warming through a radical change in both the perception and definition of the problem, and prescriptions for action.</p>	<p>http://www.climatejusticechicago.org/Welcome.html</p>
<p>Climate Justice Action is a new global network of people and groups committed to take the urgent actions needed to avoid catastrophic climate change.</p>	<p>http://www.climate-justice-action.org/</p>

adaptation projects. The Adaptation Fund, financed by the Clean Development Mechanism under the Kyoto Protocol, was established to finance adaptation projects and strategies in developing countries. It is thought that this tax could raise anywhere from \$160 million to \$950 million for adaptation by 2012. However, only \$154 million of the \$320 million pledged by the UNFCC funds have been distributed so far. On top of this, it has become clear that \$320 million is not nearly enough to meet the adaptation needs (LaFleur et al. 2008).

<p>Climate Justice Project is a student-led campaign advocating contraction & convergence - an international framework for reducing global carbon emissions, which they believe that it is the fairest and most effective solution for curbing climate chaos.</p>	<p>http://www.climatejustice.org.uk/</p>
<p>Climate Justice Fast! is an international hunger strike to call for strong, just action on the climate crisis. It took place from the 6th of November 2009 until the conclusion of the failed Copenhagen climate talks on the 18th of December.</p>	<p>http://www.climatejusticefast.com/</p>

Table 1: Activist Based Climate Justice Organisations

<p>Fair Climate Project is an initiative of National Wildlife Federation's Global Warming Solutions Program. The goal of the Fair Climate Project is to empower under-served communities to advocate for fair and equitable solutions to the climate crisis.</p>	<p>http://fairclimateproject.org/</p>
<p>The World Development Movement (WDM) is a UK-based anti-poverty campaigning organisation with a worldwide reputation for tackling hard-hitting, controversial issues. One of its key concerns is raising awareness of climate justice.</p>	<p>http://www.wdm.org.uk/</p>
<p>Germanwatch Following the motto "Observing, Analysing, Acting", Germanwatch has been actively promoting global equity and the preservation of livelihoods since 1991. It advocates for fair trade relations, responsible financial markets, compliance with human rights, and the prevention of dangerous climate change.</p>	<p>http://www.germanwatch.org/english</p>
<p>Tck Tck Tck: Time for Climate Justice This campaign is an initiative of the Global Humanitarian Forum (GHF) and HAVAS Worldwide/EuroRSCG. The Forum's current focus is to increase awareness on the human face of climate change and to boost support to vulnerable populations, worst affected by global warming.</p>	<p>http://www.timeforclimatejustice.org/</p>
<p>Glúaiseacht brings together grassroots organisations, concerned individuals and student groups from all over Ireland to raise awareness and take non-violent direct action on social, environmental and political issues with the aim of achieving a sustainable society.</p>	<p>http://gluaiseacht.nologic.org/wordpress/</p>

<p>Climate Camp has been using direct action to raise awareness of both climate change and climate justice.</p>	<p>http://www.climatecamp.ie/</p>
--	--

Table 2: Climate Justice Based Organisations

While a detailed examination of these campaigns has not been conducted (although see Saunders 2008 for a preliminary analysis of the Stop Climate Chaos Campaign) even a brief analysis of the campaigning websites reveals the geographical complexities of networks and associations that transcend the nation state negotiations. Fundamentally attention to the geography of campaigning discourses of climate justice helps to unsettle the dominant policy focus on nation state negotiations and the conflation of concerns into a simplistic North-South divide. Certainly given the inequalities within as well as between nations a complicated picture of climate justice and injustice appears when a different scalar approach to analysis is undertaken.

Climate Justice within and beyond nation states

While a growing body of work documents climate justice issues with regard to international policy regimes and their outputs, less work has been conducted, particularly with an explicit climate justice framework, in terms of climate justice within nations. Given the plethora of indexes demonstrating inter-nation inequalities it is not hard to argue that the pre-existing power and income structures, as well as specific geographical conditions, means that certain sectors of societies are more likely to be affected more severely, and earlier, by climate change than others (Polack 2008). The aftermath of Hurricane Katrina highlighted starkly how existence of inequalities can leave communities unequally exposed to environmental risks, even in a developed country. Therefore need to look at burden sharing and the fair distribution of adaption and mitigation with respect to climate change within countries is extremely important (Mohai *et al.* 2009). Environmental justice research provides a useful background for looking at climate justice issues because of its emergence within nations (Agyeman *et al.* 2010). Traditionally environmental justice has involved tackling poor natural and built environmental conditions from a social justice perspective (Roundtable on Climate Change and Health in the UK 2008) and has demonstrated links between environmental pollution and low income and ethnic minority populations. While the environmental justice movement started in the USA focusing on environment and race issues; it is a conceptual framework that is spreading geographically. In the UK, a report by the Environment Agency (2003) concluded that deprived communities suffer the worst environments in terms of a number of key issues. Following this in 2004, a report was published by the London Sustainability Exchange which made recommendations to address environmental justice within the city. It specifically recognised climate justice as an important element of environmental

justice and that poorer populations and ethnic minorities may be more vulnerable to its potential impacts.

Not only are people in poverty most vulnerable to the negative effects of climate change, as they tend to have a lower level of physical and mental health, live in worse housing with less access to insurance, have fewer measures to cope with rising costs and may live in vulnerable areas including flood plains or coastal zones (LaFleur et al. 2008). Likewise the measures to combat climate change and reduce greenhouse gas emissions have the potential to hit the poorest hardest. For example, taxing fossil fuels indiscriminately in order to reduce greenhouse gas emissions could affect the poorest most if they are unable to improve the energy efficiency of their houses or afford to purchase alternative fuels. Research has already found that the food and fuel spikes of 2008 demonstrated the damage that fluctuations in price have on low income families and individuals, with many more households finding themselves in poverty (Roundtable on Climate Change and Health in the UK 2008). While it would be a mistake to tackle climate change through a price mechanism without having a mechanism for transferring resources to the poor will only worsen poverty, at the same time, it would not be wise to attempt to tackle poverty without regard for fossil fuel emissions, incurring serious negative impacts of climate change in which the poorest are most vulnerable (Roundtable on Climate Change and Health in the UK 2008). A just framework for providing the correct signals to shape behaviour appropriately while protecting the most vulnerable is clearly required.

As a developed nation, Ireland is fortunate not to have cases of extreme poverty and has social and welfare systems in place to protect vulnerable people. However, social inequalities, social exclusion and poverty are prevalent and Ireland has one of the highest poverty rates in the EU (more detail below). In order to develop just responses to climate change, responses must take account of concerns for people facing poverty or disadvantage. There needs to be much more targeted research conducted to identify climate vulnerabilities spatially and by marginalised groups. For example visioning scenarios with potential sea level rise and its impacts on coastal zones and those who live within them should be constructed and be made publicly accessible. Deprivation indices should be cross referenced with climate vulnerabilities to identify those most at risk from climate changes and potential solutions (socio-technological, structural, infrastructure etc) should be explored. However it is not just through the impacts of climate change that climate justice issues will be revealed. Adaptation and mitigation strategies also have the potential to affect people differently depending on, for example, their age, income, gender and occupation. The following sections examine mitigation and adaptation measures that have climate justice implications for marginalised groups with a particular focus on Ireland. First, attention to the potentially regressive aspects of carbon pricing as a coercive policy tool to encourage moves towards low carbon futures and, in particular, the potential impact of carbon taxation on incidences of fuel poverty is outlined. This is followed by an examination of how positive incentives to encourage energy efficiency are approaching marginalised groups. Attention to the current rhetoric on promoting a green economy and its potential impact on marginalised groups is the third area of consideration and finally sub-national spatial initiatives which focus on different scales of governance (the city, the town and smaller communities) are critically

examined for attention to climate justice impacts. In conclusion it is argued that all of these areas are currently under-theorised and under-researched in terms of climate justice proofing.

Reactive transitions: carbon pricing and fuel poverty⁵

There is concern that the introduction of coercive measures, such as carbon taxes, to stimulate a shift to low carbon futures and to mitigate climate change will have negative effects on those without the facilities to reduce their carbon budgets. These concerns are embedded within an appreciation of already existing conditions of fuel poverty. Within Ireland the Sustainable Energy Authority (SEAI) define fuel poverty as the inability to heat ones home to an adequate (i.e. safe and comfortable) level owing to low household income and poor, energy inefficient housing and also the need to spend greater than 10% of household income on fuel to achieve an acceptable level of comfort and amenity. In 2008 an ESRI study estimated that 19.4% of Irish households were in fuel poverty. This amounts to around 301,368 households (Scott *et al.* 2008). A study by MABS in Finglas and Cabra in Dublin showed a high number of people with little insulation and problems with damp, as well as some households without any form of central heating (Harris 2005). Ireland and Northern Ireland have among the highest levels of excess winter mortality in Europe (Healy 2004). Fuel poverty is a major issue for low-income households with nearly one third of households headed by an unemployed person in Ireland unable to adequately heat their home. The highest prevalence of fuel poverty in Ireland is among lone parent families, with older people, young children, those with disabilities and/or long-term illness also being especially vulnerable (IPH 2009).

Low-income householders tend to use the most carbon intensive fuels and inefficient heating systems (McAvoy 2007). 7% of households in the bottom income decile use open fires for heating, which deliver 20-30% efficiency compared to 65-90% efficiency for central heating boilers. Not only are these low income households getting less heating for each euro, they also have less money to spend on heating. Fuel poverty is both a capital and current expenditure problem, due to volatile fuel prices and the cost of efficient appliances and energy saving features (Scott *et al.* 2008). Policies following the 'Polluters Pays' philosophy must be mindful of the social consequences for low income groups. Schemes should allow for the generation of adequate capital investment to fund structural improvements to dwellings occupied by low-income householders (McAvoy 2007).

Fuel poverty in rural areas is a significant problem. Rural households spend more on fuel than households in urban areas. Rural households also tend to use more carbon intensive fuels, spending 3 times as much on turf and peat, approximately 2 times as much on coal and oil and have less access to piped gas (CSO 2007). In 2009, a ban of turf-cutting on protected bogs was introduced.

⁵ A different type of fuel poverty, not explicitly covered in this working paper, can be delineated when focusing on transport and mobility, particularly in rural areas lacking a public transport system. A carbon tax or cap and share policy is likely to affect those living in isolated areas than urban dwellers.

While this is an important step to protect a rare natural habitat, concern is raised over its impact on rural households (IPH 2009).

There is no lead government department assigned responsibility for tackling fuel poverty in Ireland, although it is acknowledged in a number of government documents. There is financial assistance to alleviate fuel poverty provided under various schemes which are the responsibility of the Minister for Social and Family Affairs, such as the National Fuel Allowance and the Electricity/ Gas Allowances. HSE has a Keep Safe This Winter as part of the Keep Well This Winter information campaign. The Keep Well and Warm booklet is updated with 150,000 copies printed for distribution.

There have also been developments in policy to address fuel prices. The Commission for Energy Regulation published a Draft Strategic Plan 2010-2014 for consultation. One of the goals of this strategy is to set out how the Commission will ensure that energy prices charged are fair and reasonable. The electricity market has been opened up allowing more competition and the natural gas market is due to undergo a similar process. The Commission will undertake 5 yearly reviews to ensure value for money and efficiency. The Commission also endeavours to fully implement the National Smart Meter Pilot Programme, which was established in 2007 (more details below). However, some households may not be in a position to avail of the cheapest domestic offerings as they may not, for example, have bank accounts to avail of the direct debit discount or are unable to afford the deposit required to switch to cheaper suppliers (Interdepartmental Group on Affordable Energy 2010).

The Energy Policy Framework 2007-2020 commits to addressing fuel poverty. It references the National Action Plan for Social Inclusion 2007-2016 as the main instrument of delivery. The National Action Plan for Social Inclusion 2007-2016 refers to proposed developments by the Department of Social and Family Affairs regarding social welfare payments, increases in budget allocation to local authorities to improve heating in rented dwellings, funding for the Warmer Homes Scheme and supporting fuel poverty research through the work of the Sustainable Energy Authority of Ireland (McAvoy 2007). In the last annual review of the National Action Plan, it was reported that the Department had co-funded the installation of central heating, and associated energy efficiency measures, in approximately 24,000 houses at a cost of €115.5 million. In relation to fuel poverty research, €2 million was provided to the Sustainable Energy Authority of Ireland for fuel poverty research in Waterford. Preliminary reports indicate that the energy efficiency measures implemented have had positive effects on the overall health of householders and have also led to decreased CO₂ emissions, increased energy ratings and increased thermal efficiency of houses (Department of Social and Family Affairs 2008).

The National Energy Efficiency Action Plan identifies 90 measures to reduce Ireland's energy usage by 20% in 2020, with a chapter devoted to affordable energy. A number of measures are targeted at low income and vulnerable households. The action plan will be monitored by the Interdepartmental Implementation Group that will report to Government at regular intervals. Updated Action Plans will be published in 2011 and 2014, in accordance with European Commission requirements. The

Department of Communications, Energy and Natural Resources have also published the Energy Demand Reduction Target Programme for consultation. The draft programme seeks to establish views on the introduction of a new programme to deliver energy efficiencies and the extent to which low income households should be targeted.

Ireland's National Climate Change Strategy also commits to ensuring low-income homes have access to cost-effective heating, hot water and lighting through the installation of energy effective measures. The Strategy recognises the Renewable Electricity Feed-in-Tariff (REFIT) Scheme as important in meeting renewables and carbon reduction targets. From 2009 householders and businesses that install renewable energy micro-generators have been able to avail of this feed-in tariff. They are guaranteed a price of 19 cent per kilowatt hour for any surplus electricity generated and sold to the national grid. From a social justice perspective, the capital investment needed to avail of this scheme excludes low income groups and those who do not own their own property or land.

Promoting energy efficiency: low carbon transition with justice components

Research by the Grantham Research Institute and World Resources Institute shows that investment in energy efficiency measures offer one of the most cost effective and timely ways to tackle greenhouse gas emissions, reduce fossil fuel use and eliminate fuel poverty. As a labour intensive activity, it also has the potential to create significant employment opportunities at a time when increasing numbers of people are joining the live register. Insulation in the home and community energy schemes are examples of the types of integrated solutions which tackle climate change in conjunction with poverty, rather than resorting to inaction or dealing with one agenda at the expense of the other (Roundtable on Climate Change and Health in the UK 2008). There are a number of Government grants and schemes that help individuals insulate their homes.

- The National Insulation Programme for Economic Recovery was announced in February 2009. It consists of a number of schemes applying to low income and social housing as well as private homes and is implemented on the ground through The Sustainable Energy Authority of Ireland (SEAI). The Home Energy Saving Scheme is aimed at private middle income homes. The Warmer Homes Scheme is aimed at low income private homes
- The Home Energy Saving Scheme is aimed at older houses that would not typically have the energy efficiency features of recently built homes. The objectives of the Home Energy Saving Scheme are to reduce energy use and CO₂ emissions from the existing housing stock, and to support the development of the energy services industry in Ireland. Householders can avail of grants for heating controls and boilers, insulation and conducting a Building Energy Rating⁶. However, a minimum level of investment is required of householders to participate in the

⁶ Legislation was introduced in 2009 which requires a Building Energy Rating certificates (BER) for all houses sold and rented. The BER enables house buyers and tenants to assess the energy efficiency of a house prior to purchase or rental decision.

scheme. The benefits of the Scheme accrue mainly to the house-owner, in terms of a higher re-sale value of the home and increased comfort and savings on energy bills. The full scheme is expected to result in annual GHG savings of 175,000 tonnes. The Warmer Homes Scheme is a programme to tackle fuel poverty by improving the energy efficiency of low income housing. €20 million was provided for the scheme in 2009, which includes €5 million provided by ESB and BGE to make structural improvements to 15,000 homes. The Warmer Homes Scheme provides energy efficiency improvements to homes in, or at risk of, fuel poverty at zero or nominal cost. The scheme is primarily delivered by 22 community based organisations (CBOs). The Fuel Poverty Action Research Project was established by Combat Poverty and SEAI to assess the energy, environmental, thermal comfort and health benefits of the Warmer Homes Scheme. Combat Poverty Agency has since been subsumed into the Department of Social and Family Affairs, but this work is ongoing (Pers.comm).

- The ESB also run the HALO scheme which offers a free energy efficiency assessment of the home. The scheme was initiated in response to Ireland's 20% energy reduction target by 2020 set out in the National Energy Efficiency Action Plan. The scheme is open to everyone that owns their own home (which must be built before 2006). The assessment provides a report with advice on how to make the home more energy efficient along with relevant cost estimates, but participants are not obliged to implement any of the recommendations.
- The Housing Aid for Older People Scheme was introduced in November 2007 as an amalgamation of the previous Essential Repairs Grant scheme, as operated by local authorities, and the Special Housing Aid for the Elderly scheme, as operated by the Health Service Executive. Part-funded by this scheme, a pilot Central Heating Scheme has been run in association with Dublin City Council and Energy Action. Covering about 150 houses and aimed at houses occupied by older people, the scheme covers installation of central heating systems, associated insulation works, smoke alarms, energy advice and energy audits. A means test is used to determine eligibility.
- Energy Action Ltd was established in 1988. It is an Irish Registered Charity with a voluntary Board of Directors drawn from a variety of backgrounds in both the public and private sector. Energy Action provides a free insulation service in the homes of the elderly and disadvantaged. In 2009, 1,592 houses received attic insulation, energy advice, energy light bulbs, draught-proofing and other services in Dublin City. The primary benefit to the community is increased comfort due to greater heat retention in their homes. Added to this, however, is the fact that older people often appreciate being visited by the Energy Action crews, thus helping to combat the sense of isolation in the home. Energy Action are funded through FÁS, Community Employment (CE) schemes, Full Time Job Initiative (FTJI) and Pobal's Community Services Programme which are designed to take previously long term unemployed people, provide work opportunities in the domestic energy sector and train them in various skills to enable them gain productive full time employment. To ensure delivery of this, they have developed a suite of energy efficiency training modules. With funding support from ADM (now Pobal) and later from the Sustainable Energy Authority of Ireland (SEAI),

Energy Action mentored and helped establish 22 Community Based Projects in most counties in Ireland. There are now over 600 people employed in these projects.

Although there seems to be some consideration of energy efficiency measures for low income sectors of society the same cannot be said of technological developments in the renewable sector. While there are grants available for people who wish to install renewable energy in their home through The Sustainable Energy Authority of Ireland (SEAI) Greener Homes Scheme. However participation requires significant investment from the consumer and there are currently no grants aimed at private low income home owners who wish to install renewable energy. Equally there is currently little community involvement in the development of renewable energy generation facilities within Ireland and with few guidelines for the location of such facilities relating to matters of social justice future problems might arise in this development sector. Certainly some justice-proofing framework for deliberating siting decisions should be developed.

The green economy and climate justice

Virtually all sectors of the economy will be affected in some way by the transition to a low-carbon economy, with implications for the nature, location and security of jobs. Previous periods of economic restructuring have often happened in a chaotic fashion leaving ordinary workers, their families and communities, bearing the brunt. Indeed, many individuals and communities in the UK are still paying the price for the rapid shift away from industrial production over the last 30 years (Roundtable on Climate Change and Health in the UK 2008). In addition, many jobs created in sectors that are nominally in support of environmental goals, such as the electronics recycling industry in Asia, or biofuel feedstock plantations in Latin America are characterized by extremely poor practices, exposing workers to hazardous substances or denying them the freedom of association. Public policy can and should seek to minimize disparities among putative winners and losers that arise in the transition to a green economy, and avoid these distinctions becoming permanent features (UNEP 2008). Re-structuring needs to be done in a way that is sensitive to all workers but particularly low-income workers, who are the most vulnerable to food or fuel price shocks. Just transition means minimising job loss and ensuring that change is not at the expense of decent work with decent terms and conditions. There must be education and training to aid sustainable employment, and flexible transition packages for workers whose jobs may be lost or changed (Roundtable on Climate Change and Health in the UK 2008). Some governments, employer's organizations, and trade unions are in a number of social dialogue arrangements presently set up to help achieve just transition at the national level. In Spain, industry-based roundtables have been established in order to identify and reduce adverse effects on Spain's competitiveness and workforce as the country seeks to comply with the Kyoto Protocol. In the United States, the idea of a just transition is embedded in proposed Congressional legislation on climate protection. The provisions include quality job training to any workers displaced, temporary wage assistance, health care benefits to workers in training programs, and other measures (UNEP 2008).

UNEP (2008) published an extensive document outlining the impact of Green Collar jobs in the developing world. The bulk of documented growth in green jobs has so far occurred mostly in developed countries, and some rapidly developing countries like Brazil and China. However, green jobs are also beginning to be seen in other developing economies. However, urgent action is needed in some areas, such as food, agriculture and recycling. Farming is a politically sensitive sector that is affected by virtually the whole array of distortions, including – trade protectionism, perverse subsidies, wastage of water, unsustainable farming practices, overuse of harmful chemicals. With over a billion workers, agriculture continues to be the single largest sector in the world in terms of employment. It is also the sector that where the majority of the world's poor and extremely poor are concentrated. Irrigated agriculture uses 70 percent to 80 percent of global freshwater supplies. Some of the solutions lie in changing the institutional architecture of water management but there is a case for directly investing private and public capital in water systems.

The development of green employment across the developing world is compromised by the low levels of financial assistance made available. Donor countries have largely failed to make good on their commitments. The UNFCCC recommends that nearly \$15 billion in development assistance is required by developing countries if they are to adopt hybrid and alternative fuel vehicles, improve the efficiency of all motorized transport and develop second-generation biofuels. Shortfalls in development assistance will also impose a severe handicap on the necessary improvements in the sustainability of primary production in developing economies. It was also noted that the water and sanitation sector in 2006 accounted for less than 5 percent of development assistance, yet aid flows would need to double in order to bring within reach the Millennium Development Goal of halving the proportion of the population without these services by 2015 (UNEP 2008).

The concept of a Green New Deal (GND) can be traced back to a report first published by the New Economics Foundation (2008). This report draws inspiration from the former U.S. President Franklin D. Roosevelt's 'New Deal' programme designed to pull the United States out of the Great Depression. The Green New Deal that the New Economics Foundation proposes includes structural changes to the financial and taxation systems coupled with a sustained investment programme in energy conservation, renewable energies and demand side management. Since then other organisations such as the United Nations Environment Programme and the UK Sustainable Development Commission (2009) have produced their own interpretations as to what a Green New Deal should include. There have been many recommendations and strategies published in the last two years. A few strategically selected reports have been summarised throughout the next few sections, highlighting the social and climate justice components.

The United Nations Environment Programme (UNEP 2009) considers that a Global Green New Deal would make a major contribution to reviving the world economy, saving and creating jobs, and protecting vulnerable groups, in the short term. In the medium term, it should promote sustainable and inclusive growth and the achievement of the Millennium Development Goals, especially ending

extreme poverty by 2025. Also in the medium term, it must reduce carbon dependency and ecosystem degradation. These are key risks along a path to a sustainable world economy. A common misconception is that there is a trade-off between economic development and environmental stewardship. In reality, all human activity depends on the existence of a responsible framework for using environmental assets. This is especially true about the poorest populations as they depend disproportionately on the ecological commons both for livelihoods and for consumption.

The UNEP report examines the impact of climate change, as well as the oil, water and food crises on social problems of job losses, socio-economic insecurity and poverty in developed as well as developing countries. They note, however, that the multiple crises are affecting developing countries disproportionately even though they have contributed little to causing them and have limited capability and resources to confront these crises. The report warns that in promoting a Global Green New Deal, the principle of common but differentiated responsibilities must be upheld with regard to developed countries, emerging economies, countries with economies in transition, and least developed countries. Every 1 percent fall in growth in developing economies translates into an additional 20 million people consigned to poverty. A Global Green New Deal can embody the necessary international understanding and cooperation needed to achieve stability and development in some of the poorest countries. The main areas that fiscal stimulus should prioritise include energy efficient buildings and investments in sustainable transport and renewable energy (UNEP 2009). A 2009 research paper commissioned by UNEP argues that an investment of 1 percent of global GDP over the next two years could provide the critical mass of infrastructure needed to seed a significant greening of the global economy (Barbier 2009). It is clear the UNEP consider the concept of a Green New Deal fundamental to the sustainable development of the world's economy.

The Commission (2008¹) tabled its European Economic Recovery Plan (EERP) which sets out a package of measures to be taken at the EU and national levels in response to the economic crisis. The Plan proposes investing 1.5% of EU GDP (€200 billion) and a series of smart investments into economic opportunities to develop new technologies that will address climate change, enhance energy security and create jobs. Three major partnerships for clean technology innovation were proposed: European green cars initiative; a European energy-efficient buildings initiative and factories of the future initiative. Roughly €170 billion is to come from Member States and the remaining €30 billion from the EU's internal budget. There is however no clear timeline of when these funds will be dispersed.

The Green European Foundation (2009) define a Green New Deal as targeted state investment in activities which produce goods and services to measure, prevent, limit, minimise or correct environmental damage to water, air and soil, as well as problems related to waste, noise and ecosystems. This includes innovation in cleaner technologies and products and services that reduce

environmental risk and minimise pollution and resource use. In the EU, eco-industries already generate a considerable turnover and employment. Different studies confirm excellent potential for further growth. They also show that this is unevenly distributed within the EU. A Green New Deal should support cities and regions to develop zero-emission zones or zero-emission cities. They outline key areas as; energy performance of buildings, investments in new public transport vehicles and infrastructure improvements, investments in services to make public transport more user-friendly, investments in infrastructure for bicycles and pedestrians, incentives for retro-fitting cars and public transport vehicles, fiscal measures to subsidise high-efficiency vehicles, research on energy-efficiency technologies, marketing of more sustainable modes of transport and education about eco-driving.

The UK Sustainable Development Commission (2009) propose that the UK Government should commit up to £30 billion per annum for the next 3 years which would represent around 50% of a total economic recovery package amounting to 4% of the UK's annual GDP. The priority areas identified for spending include: upgrading existing housing stock, scaling up renewable energy supply, redesigning the national grid, promoting sustainable mobility, low-carbon investments in the public sector, skills for a low-carbon, sustainable economy. They identify high-ranking options including energy efficiency in buildings, renewable energy, the electricity grid and public transportation. The plan does envisage many benefits for vulnerable groups. The implemented plan would create new jobs quickly, and in places that matter, including some of the UK's most deprived communities. It would also reduce inequalities, particularly by tackling the root causes of fuel poverty and poor access to transport. The social returns to a green stimulus package that impact on all sectors of society include: reduced reliance on scarce and imported energy resources, reduced carbon emissions, economic savings from lower fuel bills, reduced congestion, fewer road traffic accidents and reduced air pollution, improved quality of life through healthier lifestyles, lower levels of obesity and better neighbourhoods and protection and creation of a significant number of jobs.

The Department of Economics and Political Economy Research Institute (PERI) has devised a Green Recovery Programme for the US which aims to expand job opportunities by stimulating economic growth, stabilizing the price of oil, and make significant strides toward fighting global warming and building a green, low-carbon economy. The report envisages that \$100 billion dollars would be spent in six green infrastructure investment areas over two years; retrofitting buildings and energy efficiency, expanding mass transit and freight rail, constructing smart electrical grid, transmission systems, wind power, solar power, next-generation biofuels. Proceeds from auctions of carbon permits under a greenhouse gas cap-and-trade program are seen as one way of financing this programme. In the US, employment in construction fell considerably in 2008. A green economic recovery program would replace lost construction jobs over the two years. It would also reduce unemployment more generally and produce employment opportunities across a broad range of

occupations, including roofers, welders, electricians, truck drivers, accountants, and research scientists. The report highlights the need to ensure that jobs are created on a geographically equitable basis throughout all regions of the country. Expanding investments in energy efficiency and renewable energy sources would help stabilize demand for oil, which in turn could slow the long-term rise in oil prices. Reducing demand by providing real energy alternatives and transportation choices is one of the only effective long-term options for offering consumers sustained relief from rising gas prices (Political Economy Research Institute 2008).

The World Resources Institute (2009) follows a similar line of thinking; green components of a recovery effort can create jobs and stimulate the economy while achieving significant energy cost savings for businesses, consumers, and the government. They estimate that, on average, for every billion dollars invested in green recovery, 30,100 jobs are created and \$450 million per year is saved in energy costs. However, they warn that a green stimulus is no replacement for comprehensive climate and energy policy. Even the most aggressive short-term spending will have only a modest impact on greenhouse gas emissions and dependence on foreign sources of energy. On average, the green policy scenarios suggested by them reduce annual CO₂ emissions by 592,600 tons for every billion dollars spent. Some of the investment areas they suggest include; household weatherization, federal building efficiency, renewable energy production tax credit, renewable energy investment tax credit, carbon capture and storage demonstration projects, car scrappage scheme, hybrid car tax credit, mass transit investment, battery research and development, smart metering and energy transmission investment.

The potential for job creation in the green sector in Ireland is huge. An example of an Irish company working in this sector is Wavebob. They are developing a Wave Energy Converter. Wavebob is a floating buoy device that uses energy from the waves in the ocean to produce clean, renewable energy. Wavebob automatically adjusts its response to suit the prevailing wave climate, maximising the amount of useful power that may be delivered to the electricity grid on-shore. The company has invested significantly in Research & Development over the past ten years and is now considered one of the world's leading wave energy technologies. Forfás (2008), the Government's advisory body for enterprise and science, produced a report on the Environmental Goods and Services Sector on the Island of Ireland. The report estimates that the size of the EGS sector in Ireland is valued at €2.8 billion, with Northern Ireland accounting for an additional €790 million approximately. The numbers directly employed in the sector totals more than 6,500. The Government has established a High Level Action Group on Green Enterprise to take forward a number of the recommendations from this report. In 2009, they published the Developing a Green Economy in Ireland report. It focused on the energy, waste and water sectors. It also included recommendations on developing a Green IFSC and world class research centres.

The Irish Government's commitment to addressing the current economic challenge is contained in its publication A Framework to Sustainable Economic Renewal 2009-2014. This policy document sets

out the Government's vision for the next phase of Ireland's economic development. It focuses on creating the Smart Economy which combines elements of the enterprise and innovation economy while at the same time ensuring the delivery of a high quality environment and social cohesion. A key feature of this approach is building the innovation or ideas component of the economy through the utilisation of human capital, the knowledge, skills and creativity of people, and its ability and effectiveness in translating ideas into valuable processes, products and services. A second important aspect is the greening of the economy and the development of green enterprise. The Government has since announced the establishment of an innovation taskforce to assist it in making the Smart Economy become a reality. The taskforce is to advise on options to increase innovation and entrepreneurship and to ensure that investment in science, technology and research translates into high-value jobs and sustainable economic growth. Comhar SDC (2009) summarised the sustainability measures contained in the Smart Economy document.

Renewable electricity	The Government will increase the production of renewable electricity in a cost effective manner to meet the new increased target of 40% of electricity from renewable resources by 2020; A framework will be in place in early 2009 to support the development of auto generation projects by large industry as well as micro-generation in the small business, agriculture and domestic level;
Infrastructure	EirGrid will spend €4 billion between now and 2025 building a new electricity transmission system to tap into renewable energy resources; The East West interconnector will be completed in 2012 while planning further interconnection to the UK and the Continent;
State Bodies	The ESB has set out its own zero emissions corporate plan for 2030 and a related €22 billion long term investment budget; Bord Gáis have set out a €5 billion investment strategy to develop the gas network and clean energy technologies;
Energy efficiency	€30 million will be spent in 2009 helping the installation of better insulation in over 25,000 houses; In the first quarter 2009 the Government will publish its National Energy Efficiency Action

	Plan including the targeted 33% improvement in energy efficiency in its own services by 2020;
Transport	The Government will publish a National Sustainable Transport and Travel Action Plan early in 2009; The Government will work towards our target of 10% of Ireland's road transport fleet being electrically powered by 2020;
Fiscal policy	An announcement on the issue of a Carbon Levy, assisted by recommendations of the Commission of Taxation, will be made in Budget 2010; The Irish Government will support measures at EU level to have a lower rate of VAT apply to eco-friendly products;
Social policy	Under the Strategic Innovation Fund, priority will be given to flexible learning initiatives that can be targeted at up-skilling people in the workforce; Specific actions include increased Job Search Supports capacity; an initiative to target young people who become unemployed; additional places, predominantly in training for the unemployed;
Natural resource policy	Investment in the agriculture, fisheries and food sectors including environment enhancing schemes, R&D and continued support for sustainable forestry; Continued support for the development of eco and green tourism;

Table 3: Sustainability Measures in the Smart Economy Strategy (Comhar SDC 2009)

Some of the actions outlined in the report have been implemented. Work has begun on rolling out SMART metres, the ESB have hired nearly 4000 people in the areas of smart meters, smart networks, electric vehicles, wind energy, home insulation and green technology and courses have been provided for unemployed people to re-train in green economy sectors. While both the Developing a Green Economy in Ireland report and Smart Economy strategy include some investment areas that will benefit vulnerable people, it does not address inequalities directly and does not identify

potential developments that would help vulnerable people in particular. Such strategies are fundamental to our future development to a low carbon economy and need to clearly state the climate justice implications and actions that address social justice concerns.

A number of other prominent Irish political parties have also produced their own policy documents setting forward a vision for the Irish economy. Fine Gael recently published their strategy entitled 'Rebuilding Ireland'. This proposes an investment of €11 billion over the period 2010-13 in key technologies and infrastructures. The investments are to be undertaken by new and restructured state companies, operating under a new state industrial holding company and financed in part from the National Pension Reserve Fund. The priority areas identified for investment include: (i) smart grid (ii) smart meters (iii) electricity storage (iv) broadband (v) renewables (vi) water. The Labour Party produced their economic recovery plan called 'Restoring Confidence' in June 2009. It views the challenge for Ireland as being to 'manage a transition back to export-led growth, and to build the foundations of a new competitive advantage, focused on smart, eco-growth.' The Green Party produced their version of a Green New Deal in March 2009 which contains a commitment to establish a new action group charged with formulating a green tech plan for Ireland.

It is clear from a review of international, national and Irish strategies and policy documents that the concept of a Green News Deal is credited with the potential to offer a fair transition to a low carbon economy. However, it is unclear how well this theory has been tested. While climate justice is indirectly addressed in some of the Irish documents, it is not addressed explicitly in detail. The documents do suggest actions that deal with climate justice issues, such as fuel poverty and access to jobs; but do not single out climate justice as an area for concern and pick out strategic actions to ensure equality of opportunities. It would be valuable to assess whether climate justice is not addressed effectively or whether it is considered, but the language is not used. The full sustainability dimensions, including the social implications, of a Green New Deal for Ireland need to be urgently dealt with to ensure that the already high level of inequality in Irish society is not exacerbated and that vulnerable people are not negatively affected by new developments. More consideration of the justice implications of a transition to a green, low carbon economy is needed.

Sub-national low carbon initiatives and climate justice

Attempts to make a transition to a low-carbon green economy are being mooted in various fora. In recent years, a number of cities and regions have developed their own reduction targets and programs. The City of London has established a goal of 60% CO₂ reduction relative to 2000 by 2050 and has set out a detailed strategy of how it aims to achieve this target. The actions centre around four main programmes- Green Homes, Green Organizations, Green Energy and Green Transport. Västra Hamnen is a new carbon neutral residential area in Malmö (Sweden). Its 1000 homes get their energy supply from renewable sources; solar energy, wind power and water, the latter through a heat pump that extracts heat from seawater and an aquifer. The 100 % renewable energy equation is

based on an annual cycle, meaning that at certain times of year the city district borrows from the city systems and at other times the Västra Hamnen area supplies the energy systems with its surplus. An important part of the concept is low energy use in the buildings. Urban density and sustainable transport complement the activities to contribute to the mitigation of climate change.

Initiatives are also occurring through networks of cities and local authority regions. In October 2005, representatives of 18 leading world cities met in London to discuss joining forces to tackle global warming and climate change. At the end of the conference, a communiqué was signed which recognised the need for cities to take action and to cooperate on reducing climate emissions. The cities also promised a number of action points, including most notably the creation of procurement policies and alliances to accelerate the uptake of climate-friendly technologies and influence the market place. In August 2006, the initiative was further strengthened when former President Clinton and the former Mayor of London Ken Livingstone announced a partnership between the Clinton Climate Initiative and the Large Cities Climate Leadership Group (since then renamed C40). This new partnership pledged to reduce carbon emissions and increase energy efficiency in large cities across the world. Some of solutions include

- Pooling the buying power of cities to help lower the prices of energy saving products and encourage development and uptake of new energy saving technologies
- Mobilising expert assistance to help cities develop and implement programmes that will lead to reduced energy use and lower greenhouse gas emissions
- Creating and deploying common measurement tools so that cities can establish a baseline on their greenhouse gas emissions and track reductions. An online information network will allow experts in different cities to access data and engage in dialogue on best practices.

Some best practice examples that include a social component include;

- Dongtan aims to be the world's first purpose-built eco-city. The city is designed not only to be environmentally sustainable, but also socially, economically and culturally sustainable. Its goal is to be as close to carbon neutral as possible, with city vehicles that produce no carbon or particulate emissions and highly efficient water and energy systems. Dongtan will generate all of its energy needs from renewable sources including bio-fuels, wind farms and photovoltaic panels. A majority of Dongtan's waste will be reused as biofuel for additional energy production and organic waste will be composted. Even human sewage will be composted and processed for energy and composting, greatly reducing or entirely eliminating landfill waste sites. The social sustainability plan includes integrating the current population (a small fishing community and agricultural workers) into the city design rather than displacing them. The strategy for attracting and determining who will make up the additional population and how they will move into Dongtan is still being developed; however, in order to be socially sustainable, the population will need to come from a wide range of socio-economic backgrounds, as there will be jobs for every person able to work.

- Houston's retrofitting program has dramatically reduced the consumption of energy in 641 homes in poorer communities through simple energy efficiency improvements, such as weather stripping windows and doors, insulating attics and hot water pipes, and caulking windows. It has cut 1,100 tons CO₂e emissions and improved the lives of many families, saving them \$870 USD annually.
- The Toronto Atmospheric Fund (TAF) is funding sustainable projects that often cannot be financed through traditional sources. Its successes include Canada's first municipal combined heat, power, and cooling system; its largest solar power plant; an energy efficiency financing program that targets new condominium construction; and a pilot test of outdoor LED white lighting. Since its inception TAF has reduced CO₂ emissions by 500,000 tons and created a funding model that is a world leader.

These initiatives are certainly ambitious and essential in mobilising action in moving towards a low carbon society. However, how they fit within the sustainable development framework and address climate justice concerns is unclear. A quick review of a sample of the actions plans under the C40 cities initiative did not reveal overt references to climate justice. Some of the plans did refer to actions that could be classified under the social justice framework, such as the retrofitting of social housing, using social participation methodologies and green job creation. For example, New York has pledged to work with vulnerable communities to develop site specific protection strategies. This involves creating a community planning process and toolkit to engage all stakeholders, specifically in relation to adaptation plans. It is not clear in these cases whether there is a lack of action in tackling climate justice issues, or whether they are considered but the language of climate justice is not utilised. There is evidence of an ambiguous understanding of the need for consideration of justice implications of reducing carbon emissions based on analysis of various city plans and low-carbon based initiatives.

Similarly approximately 2,500 local authorities around Europe have signed up to the Aalborg Charter. The Governments involved are united through the European Sustainable Cities and Towns Campaign, which is a network representing more than 100 million people. The Aalborg Charter sets a vision of inclusive and sustainable towns and cities that provide a good quality of life for all who inhabit them. Signatories make commitments to meet targets and submit progress reports on a regular basis. Kilkenny Borough Council is the only local authority signatory in Ireland. Through the European Sustainable Cities and Towns Campaign local authorities can access a Sustainability Kit, which provides practical tools and ideas. It is important to assess the impact of participation in these various networks. They can be time consuming; therefore evaluating their success and value is necessary. Davies (2005) reviewed Ireland's participation (specifically in terms of Local Energy Agencies) in transnational networks for climate change. The research concluded that the transnational networks examined have had limited impact in the Irish context. Governance in Ireland is centralised in nature. Local authorities have not been provided the support, either financially or otherwise to effectively implement carbon reduction programmes. While the Sustainable Cities and Towns campaign includes social equity and justice as considerations; how much this is emphasised in

practice is difficult to decipher from the published material. In addition, these networks are not always suited for smaller or more rural areas.

Actions which have tended to be more embedded within communities include the Transition Towns Movement, Eco-Villages and Power down communities. The Transition Town Initiative was first established in Kinsale, County Cork in 2005. The transition town network focuses on generating local responses to the dual challenge of peak oil and climate change. There are a growing number of towns signing up to Transition Towns. For example, Future Proof Kilkenny joined up and is seeking to raise awareness about the challenges and opportunities and explore how Kilkenny can make its transition to a more sustainable future. The focus is on small-scale positive solutions that strengthen communities, promote local food production and create economic resilience. The Village is an eco-village currently under construction in Cloughjordan in North Tipperary. An eco-village integrates human development with the natural landscape to ensure sustainable development. The idea first took root in Crystal Waters in Australia but has been adopted by diverse societies and in response to diverse problems and issues. The village will house a new community with a commitment to sustainable development. It will offer community allotments for growing food and a woodland/wildlife area. The Irish Eco-Village Information Network links together various eco-villages around Ireland. The Powerdown Community is motivated by the book *Powerdown* by Richard Heinberg. It is a network of community groups concerned with developing responses to the issue of peak oil and our dependence on fossil fuels and imported energy. Each community is obliged to develop strategic plans outlining how they will become more self-reliant, reduce their carbon emissions and environmental impact and create a more balanced community.

Concluding comments

The climate change arena is dominated by theories and principles related to common but differentiated responsibilities predominantly applied to nation-state levels of analysis. The examination of marginalised groups within populations along lines of vulnerability to climate changes and to the changes arising from climate change adaptation and mitigation strategies from a justice perspective have been limited (Polack 2008). In particular, and as Polack notes, 'research on how such a 'common but differentiated responsibility' approach at different scales could inform the rights of different groups to adaptation finance is needed' (2008: 17). Certainly being vulnerable to climate change is affected by poverty, dependence, discrimination and political marginalisation and holding any, or indeed a combination of, these characteristics makes it difficult to ensure procedural, distributional and sustainability-related justice issues are upheld. Clear and explicit attention to the tripartite pillars of environmental justice through the framing lens of climate change is essential.

References

- Adger, Neil W. (2001) Scales of Governance and Environmental Justice for Adaptation and Mitigation of Climate Change, *Journal of International Development*, Vol. 13, pp. 921-931.
- Ayers, Jessica (2009) International funding to support urban adaptation to climate change, *Environment and Urbanization*, Vol. 21, pp. 225.
- Barbier, E.B. (2009) Global Governance: the G20 and a Green New Deal. Economics, The Open Access, *Open-Assessment E-journal*, Available on <http://www.economicsejournal.org/economics/discussionpapers/2009-38>.
- Boardman, Brenda (2007) Home Truths: A Low Carbon Strategy to Reduce UK Housing Emissions by 80% by 2050, Available on <http://www.eci.ox.ac.uk/research/energy/hometruths.php>.
- Brookings Blum Roundtable (2009) Climate Change Policy: Recommendations to Reach Consensus, Available http://www.brookings.edu/papers/2009/09_climate_change_poverty.aspx
- Brown, J, Frey J and Rainey M (2004) Interim House Condition Survey, Housing Executive, Belfast.
- Bumpus, Adam G and Liverman, Diana M (2008) Accumulation by Decarbonization and the Governance of Carbon Offsets, *Economic Geography*, Vol. 84, Issue 2, pp. 217.
- Byrne John, Wang Young-Doo, Lee, Hoesung, Kim, Jong-dall (1998) An equity- and sustainability-based policy response to global climate change, *Energy Policy*, Vol 26, No. 4, pp. 335-343.
- C4I (2008) Ireland in a Warmer World Scientific Predictions of the Irish Climate in the Twenty-First Century, Community Climate Change Consortium for Ireland, Available on www.c4i.ie/docs/IrelandinaWarmerWorld.pdf.
- Caird, Sally, Roy, Robin and Herring, Horace (2008) Improving the energy performance of UK households: Results from surveys of consumer adoption and use of low- and zero-carbon technologies, *Energy Efficiency*, Vol. 1, pp. 149–166.
- Caney, Simon (2005) Cosmopolitan Justice, Responsibility, and Global Climate Change, *Leiden Journal of International Law*, Vol. 18, pp. 747–775.
- Cazorla, Marina and Toman, Michael (2000) International Equity and Climate Change Policy, Resources for the Future, Climate Issue Brief No. 27, Available on <http://rff.org/RFF/Documents/RFF-CCIB-27.pdf>.
- CCMA (2008) Local Authority Climate Change and Energy Efficiency Measures: Best Practice and Current Initiatives, City and County Managers Association, Available on http://www.aiea.ie/download.ashx?f=CCMA_paper.pdf.
- Central Statistics Office (2007) EU Survey on Income and Living Conditions (EU-SILC), Central Statistics Office, Dublin, Available on http://www.cso.ie/releasespublications/pr_EUSILC.htm.
- Central Statistics Office (2008) Survey on Income and Living Conditions in Ireland, Available on http://www.cso.ie/eusilc/pub_rel_eusilc.htm
- Central Statistics Office (2008¹) Transport 2008, Available on http://www.cso.ie/releasespublications/pr_transport.htm
- Central Statistics Office (2009) Measuring Ireland's Progress, Available on http://www.cso.ie/releasespublications/other_publications.htm

- Chakravartya, Shoibal, Chikkaturb, Ananth, de Coninck, Heleen, Pacalaa, Stephen, Socolowa, Robert and Tavonia, Massimo (2009) Sharing global CO2 emission reductions among one billion high emitters, PNAS, Vol. 106, No. 29, Available on <http://www.pnas.org/content/106/29/11884.full.pdf+html>
- Chance, Tom (2009) Development (BedZED) and beyond, *Environment and Urbanization*, Vol. 21, pp. 527.
- Comhar SDC (2008) Comhar SDC Budget 2009 submission, Available on <http://www.comharsdc.ie/files/comhar%20budget%202009%20submission.pdf>
- Comhar SDC (2008¹) A Study in Personal Carbon Allocation: Cap and Share, Available on [http://www.comharsdc.ie/files/45745 Comhar Cap and Share Report \(Screen\).pdf](http://www.comharsdc.ie/files/45745%20Comhar%20Cap%20and%20Share%20Report%20(Screen).pdf).
- Comhar SDC (2008²) Response to Public Consultation on Sustainable Travel and Transport, Available <http://www.comharsdc.ie/files/Comhar%20STTAP%20report.pdf>.
- Comhar SDC (2009) Towards a Green New Deal for Ireland, Available on [http://www.comharsdc.ie/files/2009 TowardsAGreenNewDealComhar rpt.pdf](http://www.comharsdc.ie/files/2009%20Towards%20a%20Green%20New%20Deal%20Comhar%20rpt.pdf)
- Commission for Energy Regulation (2009) Draft Strategic Plan 2010-2014 for Stakeholders Comments, Commission for Energy Regulation, Dublin, Available on <http://www.cer.ie/en/about-usstrategic-plan.aspx?article=d60a49e4-4167-4119-95f7-99844e9f397a>.
- Commission on Taxation (2009) Commission on Taxation Report, The Stationery Office, Dublin, Available on <http://www.commissionontaxation.ie/downloads/Commission%20on%20Taxation%20Report%202009.pdf>.
- Committee on Climate Change (2008). Building a low carbon economy – the UK’s contribution to tackling climate change, London, Available on www.hmccc.s3.amazonaws.com/pdf/TSO-ClimateChange.pdf
- Corrigan, Carmel (editor), Fitzgerald, Eithne Bates, Jessica and Matthews, Anne (2002) Data Sources on Poverty, Institute of Public Administration and Combat Poverty Agency, Available on http://www.cpa.ie/publications/DataSourcesOnPoverty_2002.pdf
- Dale, Ann and Newman, Lenore L. (2009) Sustainable development for some: green urban development and affordability, *Local Environment*, Vol. 14, No. 7, pp. 669–681.
- Darby, L. and Jenkins, H. (2006) Applying sustainability indicators to the social enterprise business model: The development and application of an indicator set for Newport Wastesavers, Wales, *International Journal of Social Economics*, Vol. 33, issue 5/6, pp. 411-431.
- Davies, Anna R. (2005) Local action for climate change: transnational networks and the Irish experience, *Local Environment: International Journal of Justice and Sustainability*, Vol. 10, Issue 1, pp. 21 – 40.
- Dellink, Rob, den Elzen, Michel, Aiking, Harry, Bergsma, Emmy, Berkhout, Frans, Dekker, Thijs and Gupta Joyeeta (2009) Sharing the burden of financing adaptation to climate change, *Global Environmental Change*, Vol. 19, pp. 411–421.
- Deloitte and IWEA (2009) Jobs and Investment in Irish Wind Energy: Powering Ireland’s Economy, Available on http://www.iwea.com/contentFiles/Documents%20for%20Download/Publications/IWEA%20Policy%20Documents/2009_06_Deloitte_IWEA_Employment_in_Wind_Energy_Report.pdf?uid=124576815689

Department of Environment, Heritage and Local Government (2005) Building Sustainable Communities, Available on <http://www.environ.ie/en/DevelopmentandHousing/Housing/HousingPolicy/>.

Department of Environment, Heritage and Local Government (2007) Delivering Homes, Sustaining Communities, Available on <http://www.environ.ie/en/DevelopmentandHousing/Housing/HousingPolicy/>.

Department of Environment, Heritage and Local Government (2007) National Climate Change Strategy 2007-2012, Available on <http://www.environ.ie/en/Environment/Atmosphere/ClimateChange/NationalClimateChangeStrategy/>

Department of Social and Family Affairs (2008) National Action Plan for Social Inclusion Annual Report 2008, Available on http://www.socialinclusion.ie/documents/AnnualSocialInclusionReportFinal_pub_000.pdf

Department of Taoiseach (2006) Towards 2016: Ten-Year Framework Social Partnership Agreement 2006-2015, Available on http://www.taoiseach.gov.ie/attached_files/Pdf%20files/Towards2016PartnershipAgreement.pdf.

DTI (2002) Social enterprise: a strategy for success, Social Enterprise Unit, Department of Trade and Industry, Available on www.dti.gov.uk

Ellerman, Denny Convery, Frank and De Perthuis, Christian (2010) Pricing Carbon: The European Union Emissions Trading Scheme, Cambridge University Press.

EPA (2008) Ireland's National Greenhouse Gas Emissions Projections to 2020, Environmental Protection Agency, Available on <http://www.epa.ie/downloads/pubs/air/airemissions/name,25200,en.html>.

ESRI (2009) Policy Options to Reduce Ireland's Greenhouse Gas Emissions, Economic and Social Research Institute, Available on <http://www.esri.ie/UserFiles/publications/20090728100858/RS009.pdf>.

European Climate Platform (2005) Improving the Clean Development Mechanism, Available on <http://www.ceps.eu/book/improving-clean-development-mechanism>

European Commission (2007) Limiting global climate change to 2 degrees Celsius - The way ahead for 2020 and beyond, Available on <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52007DC0002:EN:NOT>

European Commission (2008) 20 20 by 2020: Europe's climate change opportunity, Available on <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52008DC0030:EN:HTML:NOT>

European Commission (2008¹) European Economic Recovery Plan, Available on http://ec.europa.eu/economy_finance/publications/publication13504_en.pdf

Fine Gael (2009) Rebuilding Ireland – A New Era for the Irish Economy, Available on <http://www.finegael.org/upload/NewERA.pdf>

Fitzpatrick Associates (2004) External Evaluation of the Rural Transport Initiative, Area Development Management Limited, Available on <http://67.43.0.86/media/Publications/RTI/RTI%20external%20evaluation.pdf>.

Forfas (2006) A Baseline Assessment of Ireland's Oil Dependence, Available on http://www.forfas.ie/media/forfas060404_irelands_oil_dependence.pdf

Forfás (2008) Environmental Goods and Services Sector on the Island of Ireland – Enterprise Opportunities and Policy Implications, Available on <http://www.entemp.ie/trade/environment/greenenterprisedevelopment.htm>

- Forfas (2009) Developing a Green Economy in Ireland, Available on <http://www.forfas.ie/publication/search.jsp?ft=/publications/2009/Title.5065.en.php>.
- Global Humanitarian Forum (2009) Human Impact Report, Global Humanitarian Forum, Available on http://ghfgeneva.org/Portals/0/pdfs/human_impact_report.pdf.
- Government of Ireland (2007) National Development Plan 2007-2013: Transforming Ireland – A Better Quality of Life for All, Available on http://www.ndp.ie/docs/NDP_Homepage/1131.htm
- Government of Ireland (2008) Building Ireland's Smart Economy – A Framework for Sustainable Economic Renewal, Available on http://www.taoiseach.gov.ie/eng/Publications/Publications_2008/Building_Ireland's_Smart_Economy.html.
- Grantham Research Institute (2009) An Outline of the Case for a 'Green' Stimulus, Available on <http://www.lse.ac.uk/collections/granthamInstitute/publications>.
- Green European Foundation (2009) A Green New Deal for Europe: Towards Green Modernisation in the Face of Crisis, Wuppertal Institute for Climate, Environment and Energy, Available on <http://www.gef.eu/index.php?id=25>.
- Grubb, Michael (1995) Seeking Fair Weather: Ethics and the International Debate on Climate Change, *International Affairs*, Vol. 71, Issue 3.
- Haase, Trutz and Foley, Ronan (2009) Feasibility Study for a Local Poverty Index, Combat Poverty Agency, Available on http://www.cpa.ie/publications/FeasibilityStudyForALocalPovertyIndex_2009.pdf
- Harris, Gwen (2005) Fuel Poverty: A Local Perspective A study of Fuel Poverty among users of Finglas/Cabra, Money Advice Budgeting Service, Available on http://www.mabs.ie/publications/reports/Fuel%20Poverty_Finglas%20MABS_March2005.pdf
- Healy, J.D. (2004) Housing, Fuel Poverty and Health – A Pan-European Analysis, Ashgate Publishing, Hants.
- Heinburg, Richard (2004) Powerdown: Actions and Options for a Post-Carbon World, New Society Publishers, Canada.
- Hourcade, Jean Charles and Crassous, Renaud (2008) Low-carbon societies: a challenging transition for an attractive future, *Climate Policy*, Vol. 8, pp. 607-612.
- HSBC (2009) A Climate for Recovery – The Colour of Stimulus Goes Green, Available on http://www.sefalliance.org/fileadmin/media/sefalliance/docs/Resources/Green_Economy/HSBC_A_Climate_for_Recovery_Feb_09.pdf.
- IAE (2007) Ireland at Risk, Irish Academy of Engineering, Available on http://www.iae.ie/site_media/pressroom/documents/2009/Jun/09/Ireland_at_Risk_Water.pdf.
- Indecon (2008) Indecon Review of County/City Development Board Strategic Reviews and Proposals for Strengthening and Developing the Boards, Department of the Environment, Heritage and Local Government, Available on http://www.cdb.ie/pdf/taskfrdocs/Indecon_Report_CDBs-FINAL.pdf.
- International Human Rights Law Clinic, University of California, Berkeley, School of Law, Miller Institute for Global Challenges and the Law University of California, Berkeley, School of Law, Center for Law & Global Justice University of San Francisco, School of Law (2009) Protecting People and the Planet: a

- proposal to address the human rights impacts of climate change policy, Available on <http://www.law.berkeley.edu/6139.htm>
- IPCC (2007) Climate Change 2007: Synthesis Report, Intergovernmental Panel on Climate Change, Available on http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.
- IPH (2009) Annual Update on Fuel Poverty and Health, Institute of Public Health, Available on <http://www.publichealth.ie/files/file/Annual%20Update%20on%20Fuel%20Poverty%20and%20Health%202009.pdf>.
- Irish Rural Link (2009) Ignoring rural realities: The Implications of a Carbon Tax for Rural Ireland, Meath, Available on <http://www.irishrurallink.ie/Publications/IRL%20Briefing%2009.01%20Carbon%20Tax%20and%20Rural%20Ireland.pdf>.
- Jackson (2009) Prosperity without Growth?, Sustainable Development Commission, Available on <http://www.sd-commission.org.uk/pages/redefining-prosperity.html>
- Jaraite, Jurate, Convery, Frank and Di Maria, Corrado Assessing the Transaction Costs of Firms in the EU ETS: Lessons from Ireland, *Climate Policy*, Vol. 10, Issue 2, pp. 190-215.
- Johnson, Seth (2009) Climate Change and Global Justice: Crafting Fair Solutions for Nations and Peoples, *Harvard Environmental Law Review*, Vol. 33, Issue 2, pp. 297-301
- Jones, Phil (2009) A Low Carbon Built Environment, *Indoor and Built Environment*, Vol. 18, pp. 380.
- Kasperson RE, Kasperson JX (2001) Climate Change, Vulnerability and Social Justice, Stockholm Environmental Institute, Available on http://hdr.undp.org/en/media/HDR_20072008_EN_Overview.pdf.
- Knox, John H. (2009) Linking Human Rights and Climate Change at the United Nations, *Harvard Environmental Law Review*, Volume 33, Issue 2.
- Labour Party (2009) Restoring Confidence – Labour’s Proposals for Economic Recovery, Available on www.labour.ie/download/pdf/economic_recovery.pdf
- LaFleur, V., Purvis, N., and Jones, A. (2008) Double jeopardy what the climate crisis means for the poor, Brookings Global Economy and Development, Brookings Blum Roundtable 2008.
- Limon, Marc (2009) Human Rights and Climate Change Constructing a Case for Political Action, *Harvard Environmental Law Review*, Vol. 33, Issue 2.
- Lohmann, Larry (2008) Carbon Trading, Climate Justice and the Production of Ignorance: Ten Examples, *Development*, Vol. 00, pp. 1–7.
- London Sustainability Exchange (2004) Environmental Justice in London: Linking the Equalities and Environmental Policy Agendas, Available on <http://www.lsx.org.uk/docs/page/2604/Environmental%20Justice%20in%20London%20-%20Linking%20the%20Equalities%20and%20Environment%20Policy%20Agendas.pdf>
- Lowe, Robert (2000) Defining and meeting the carbon constraints of the 21st century, *Building Research & Information*, Vol. 28, Issue 3, pp. 159-175.
- McAvoy, Helen (2007) All-Ireland Policy Paper on Fuel Poverty and Health, Institute of Public Health in Ireland, Dublin.
- McDonagh, John (2006) Transport policy instruments and transport-related social exclusion in rural Republic of Ireland, *Journal of Transport Geography*, Vol. 14, pp.355-366.

- McElwain and Sweeney (2007) Key Meteorological Indicators of Climate Change in Ireland: Environmental Research Centre Report, Environmental Protection Agency, Available on <http://www.epa.ie/downloads/pubs/research/climate/erc-6-climate%20change-web-ready3.pdf>.
- McInerney-Lankford, Siobhan (2009) Climate Change and Human Rights: An Introduction to Legal Issues, *Harvard Environmental Law Review*, Vol. 33, Issue 2.
- Mohai, Paul, Pellow, David and Timmons Roberts, J. (2009) Environmental Justice, *Annual Review of Environment and Resources*, Vol. 34, pp. 405-30.
- Muller, Adrian (2007) How to make the clean development mechanism sustainable: The potential of rent extraction, *Energy Policy*, Vol. 35, pp. 3203–3212.
- Muller, Benito (2002) Equity in Climate Change: The Great Divide, Oxford Institute for Energy Studies, Available on <https://www.oxfordenergy.org/pdfs/EV31.pdf>
- Naess, Petter (2009) Residential Location, Travel Behaviour, and Energy Use: Hangzhou Metropolitan Area Compared to Copenhagen, *Indoor and Built Environment*, Vol. 18, No. 5, pp. 382-395.
- New Economics Foundation (2008) A Green New Deal, Available on <http://www.neweconomics.org/gen/greennewdealneededforuk210708.aspx>.
- OECD (2008) Poverty and climate change: Reducing the vulnerability of the poor through adaptation, Available on http://ec.europa.eu/development/icenter/repository/env_cc_varg_poverty_and_climate_change_en.pdf.
- Office for Social Inclusion (1997) National Anti-Poverty Strategy: Sharing in the Progress, Available on <http://www.socialinclusion.ie/NationalAnti-PovertyStrategy-SharinginProgress1997.pdf.pdf>
- Office for Social Inclusion (2007) The National Action Plan for Social Inclusion 2007 – 2016, The Stationery Office, Dublin, Available on <http://www.socialinclusion.ie/nationalactionplan2007.html>
- Office for Social Inclusion (2008) National Report for Ireland on Strategies for Social Protection & Social Inclusion 2008-2010, Available on <http://www.socialinclusion.ie/publications/NSSPI2008-2010.html>
- Office of the Attorney (2008) General Housing (Standards for Rented Houses) Regulations 2008 -Statutory Instrument No. 534, Irish Statute Book, Dublin, Available on <http://www.irishstatutebook.ie/2008/en/si/0534.html>.
- Office of the U.N. High Commissioner for Human Rights (2008) The relationship between climate change and human rights, Available on <http://www2.ohchr.org/english/issues/climatechange/study.htm>
- Paavola J and Adger WN (2006) Fair adaptation to climate change, *Ecological Economics*, Vol. 56.
- Paavola, Jouni and W.Neil Adger (2002) Justice and Adaptation to Climate Change, Working Paper 23 – Tyndall Centre for Climate Change Research, Mimeo, October
- Page, Edward (1999) Intergenerational Justice and Climate Change, *Political Studies* XLVII, pp. 53-66.
- Palmer, Guy and Rahman, Mohibur (2002) Poverty reduction Indicators: a discussion paper, Available on <http://www.npi.org.uk/publications/poverty.htm>
- polack E. (2008) A right to adaptation: securing the participation of marginalised groups, *IDS Bulletin* 39(4):16-23

- Political Economy Research Institute (2008) Green Recovery – A Program to Create Good Jobs and Start Building a Low-Carbon Economy, Available on http://www.americanprogress.org/issues/2008/09/green_recovery.html.
- Posner, Eric A. and Sunstein, Cass R. (2007) Climate Change Justice, Available on <http://www.law.uchicago.edu/files/files/354.pdf>
- Rau, Heinrik (2007) Social Impacts on Improved Public Transport, Department of Political Science, NUI Galway.
- Review of Environmental Economics and Policy (2007) *Review of Environmental Economics and Policy*, Vol. 1, No. 1.
- Roundtable on Climate Change and Health (2008) Tackling climate change, reducing poverty: The first report of the Roundtable on Climate Change and Poverty in the UK, Available on http://www.oxfam.org.uk/resources/policy/climate_change/downloads/tackling_climate_reducing_poverty_uk.pdf
- Sachs, Jeffery (2008) *Common Wealth: Economics for a Crowded Planet*, Penguin, London.
- Saunders C (2008) The Stop Climate Chaos Coalition: climate change as a development issue, *Third World Quarterly* 29(8): 1509-1526
- Scott, Sue and Eakins, John (2004) Carbon Taxes: Which households gain or lose? Environmental Protection Agency, Wexford, Available on www.esri.ie/pdf/BKMNEXT043_Carbon%20Taxes.pdf
- Scott, Sue, Lyons, Seán, Keane, Claire, McCarthy, Donal and Tol, Richard S.J. (2008) Fuel Poverty in Ireland: Extent, Affected Groups and Policy Issues, Economic and Social Research Institute, Available on http://www.esri.ie/publications/latest_publications/view/index.xml?id=2663
- SEAI (2007) Energy in Ireland 1990 – 2006, Sustainable Energy Authority of Ireland, Available on http://www.seai.ie/Publications/Statistics_Publications/Energy_in_Ireland/Energy_in_Irl_1990-2006_Fnl_07_rpt.pdf
- SEAI (2009) Energy in Ireland 1990 – 2008, Sustainable Energy Authority of Ireland, Available on http://www.seai.ie/Publications/Statistics_Publications/EPSSU_Publications/Energy_in_Ireland_2009.pdf
- Seyfang, G., Lorenzoni, I. and Nye, M. (2009) Personal Carbon Trading: a critical examination of proposals for the UK, Tyndall Working Paper 136, Available on <http://www.tyndall.ac.uk/Tyndall-Publications/Working-Paper/2009/Personal-Carbon-Trading-critical-examination-proposals-UK>.
- Seyfang, Gill (2007) Personal Carbon Trading: Lessons from Complementary Currencies, CSERGE Working Paper ECM 07-01, Centre for Social and Economic Research on the Global Environment (CSERGE), Available on www.infotek.fph.ch/d/f/2277/2277_ENG.pdf?public=ENG&t=.pdf.
- Shukla, P.R. (1999) Justice, Equity and Efficiency in Climate Change: A Developing Country Perspective, Available on <http://www.decisioncraft.com/energy/papers/ecc/sidc/Equity/ecc.pdf>
- Skea, Jim and Nishioka, Shuzo (2008) Policies and practices for a low-carbon society, *Climate Policy*, Vol. 8, pp. 5-16.
- South Centre. (2009) Developed Country Finance Initiatives weaken the UNFCCC, South Centre, Global Governance Programme for Development, Analytical Note, January, Available on http://www.southcentre.org/index.php?option=com_content&task=view&id=909&Itemid=1

- Stephens C. (2007) Environmental justice: a critical issue for all environmental scientists everywhere, *Environmental Research Letters*, Vol. 2.
- Stern, Nicolas (2006) Stern Review Report on the Economic of Climate Change, HM Treasury, Available on http://www.hm-treasury.gov.uk/sternreview_index.htm.
- Sustainable Development Commission (2009) A Sustainable New Deal, Available on <http://www.sd-commission.org.uk/publications.php?id=928>.
- Sustainable Development Commission (2010) Smarter Moves: How Information Communications Technology can promote Sustainable Mobility, Available on <http://www.sd-commission.org.uk/publications.php?id=1050>
- Sweeney, John, Murphy, Conor, Fealy, Rowan and Charlton, Ro (2007) Climate Change Scenarios and Challenges for the Water Environment, The Irish Academy of Engineering, Available on http://www.iae.ie/site_media/pressroom/documents/2009/Jun/09/Ireland_at_Risk_Water.pdf.
- The Green Party (2009) A Green New Deal – Getting Ireland Back on Track, Available on http://www.greenparty.ie/en/policies/green_new_deal.
- The New Economics Foundation (2009) I.O.U.K. Banking failure and how to build a fit financial sector, Available on <http://www.neweconomics.org/publications/iouk>.
- Thomas, David S.G., Twyman, Chasca (2005) Equity and justice in climate change adaptation amongst natural-resource-dependent societies, *Global Environmental Change*, Vol. 15, pp. 115-124.
- Toke, David and Taylor, Simon (2007) Demand reduction in the UK—with a focus on the non-domestic sector, *Energy Policy*, Vol. 35, pp. 2131–2140.
- UNEP (2008) Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World, United Nations Environment Programme, Available on http://www.unep.org/labour_environment/features/greenjobs.asp
- UNEP (2008) Public Finance Mechanisms to Mobilise Investment in Climate Change Mitigation, United Nations Environment Programme, Available on <http://www.sefi.unep.org/>.
- UNEP (2009) A Global Green New Deal, United Nations Environment Programme, Available on http://www.unep.org/greeneconomy/docs/ggnd_Final%20Report.pdf.
- United Nations Department of Economic and Social Affairs (2008) United Nations Population Estimates, Available on <http://esa.un.org/unpd/wpp2008/index.htm>.
- Walker, Gordon, Fairburn, John, Smith, Graham and Mitchell, Gordon (2003) Environmental Quality and Social Deprivation, R&D Technical Report E2-067/1/TR, Environment Agency, Available on <http://www.geography.lancs.ac.uk/envjustice/downloads/technicalreport.pdf>
- Watkins, K. (2007) Human Development Report 2007/2008, Fighting climate change: Human solidarity in a divided world, United Nations Development Programme. New York, Available on http://hdr.undp.org/en/media/HDR_20072008_EN_Overview.pdf.
- Webster, Mackinnon, Ginnetti, Justin, Walker, Peter, Coppard, Daniel and Kent, Randolph (2009) The Humanitarian Costs Of Climate Change, Feinstein International Center.
- Wier, Louise and McCabe, Fintan (2009) Towards a Sustainable Rural Transport Policy, Comhar Sustainable Development Council, Available on http://www.comharsdc.ie/files/Final%20Rural%20Transport%20Report_Website%20Version.pdf

- Wilkinson and Pickett (2009) *The Spirit Level: Why More Equal Societies Almost Always Do Better*, Penguin Books, London.
- Wittman, Hannah K. and Caron, Cynthia (2009) Carbon Offsets and Inequality: Social Costs and Co-Benefits in Guatemala and Sri Lanka, *Society & Natural Resources*, Vol. 22, Issue 8, September, pp. 710 – 726.
- World Economic Forum (2009) Slim City Knowledge Cards, Available on <http://www.weforum.org/en/initiatives/SlimCity/index.htm>.
- World Resources Institute (2009) A Green Global Recovery? Assessing US Economic Stimulus and the Prospects for International Coordination, Available on <http://www.wri.org/publication/green-global-recovery>.



Institute for International Integration Studies

The Sutherland Centre, Trinity College Dublin, Dublin 2, Ireland

