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Making policy in the “new economy”: the case of biotechnology in Karnataka, India

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Summary

This paper is a story of the making of a policy, one that included many different players, located across a variety of sites. By tracing the origins of the millennium biotechnology policy in Karnataka state, south India, examining the content of and participants in the debate that led up to it, and analysing the final result and some of its consequences, the paper attempts to understand what policy-making means in practice. Who are the policy-makers? What is a policy? What are the technical, political and bureaucratic inputs to policy-making? These questions are asked for a much hyped, hi-tech sector – biotechnology – seen by some as a key to future economic development, and central to the “new economy” of the post-reform era in India. The paper argues that a new style of politics is emerging in response to the changing contexts of the “new economy” era. This is particularly apparent in the hi-tech, science-driven, so-called knowledge economy sectors, where a particular form of science-industry expertise is deemed essential. The paper shows how the politics of policy-making is a long way from previous understandings of the policy process in India, based on the assumptions of a centralised planned economy where states danced to the centre’s tune and the private sector was not a major player. Biotechnology with its global R and D chains, its internationalised market for products or contract research, its multi-million dollar venture capital requirements and its need for top-level scientific expertise is worlds away from this earlier context. The new politics of policy-making, the paper argues, is characterised by the involvement of an influential business-science elite, able to push their demands through groups, task forces and commissions. Being associated with success in a global, competitive economy, key individuals provide iconic symbols of great value to politicians, and become important policy entrepreneurs in the new space opened up by the post-reform, federal politics of India. But such individuals, while projecting the assured image of global success, are also local, and great play is made of their Bangalore roots. Biotechnology in Karnataka, this paper argues, has got intimately wrapped up in such a new politics of policy-making, and this has some major consequences for how biotechnology is seen in the context of the economic development of the state, and the policy prescriptions that flow from this.

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Preface

Biotechnology Policy Series

This IDS Working Paper series emerges from a series of three interlinked projects. They involve collaboration between IDS and the Foundation for International Environmental Law and Development (FIELD) in the UK and partners in China (Center for Chinese Agricultural Policy (CCAP)), India (Centre for the Study of Developing Societies, Delhi; Research and Information Systems for the Non-Aligned and Other Developing Countries (RIS), Delhi; National Law School, Bangalore), Kenya (African Centre for Technology Studies, Nairobi) and Zimbabwe.

Three key questions guide the research programme:

- What influences the dynamics of policy-making in different local and national contexts, and with what implications for the rural poor?
- What role can mechanisms of international governance play in supporting the national efforts of developing countries to address food security concerns?
- How can policy processes become more inclusive and responsive to poor people's perspectives? What methods, processes and procedures are required to "democratise" biotechnology?

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1 Introduction

This is a story of the making of a policy, one that included many different players, located at a variety of sites. By tracing the origins of the millennium biotechnology policy in Karnataka state, south India, examining the content of and participants in the debate that led up to it, and analysing the final result and some of its consequences, the paper attempts to understand what policy-making means in practice. Who are the policymakers? What is a policy? What are the technical, political and bureaucratic inputs to policy-making? These questions are asked in a particular context: for a much hyped, hi-tech sector – biotechnology – seen by some as a key to future economic development, and central to the “new economy” of the post-reform era in India. The paper argues that a new style of politics is emerging in response to the changing contexts of the “new economy” era. This is particularly apparent in the hi-tech, science-driven, so-called knowledge economy sectors, where a particular form of science-industry expertise is deemed essential.¹ This presents particular challenges for assuring a democratic and inclusive approach to policy-making, one that allows the promotion of new technologies, such as biotechnology, in response to wider societal needs.

By analysing the details of a policy-making process, the paper aims to dispel some of the mystique surrounding policy-making. For some policy-making is a simply technical process, separate from political debate. It emerges, in this view, through a process of technical and bureaucratic decision-making guided by the political priorities of an elected government. Thus policy and politics are clearly delineated, and bureaucrats and technical advisors are seen to be simply responding to broader political demands through applying their technical knowledge and administrative skills. This view, then, conjures up a simple, linear view of policy-making.² This contrasts, however, with a more complex and nuanced view which sees policy-making as distinctly non-linear, and where the political and the technical are deeply intertwined in processes of mutual construction. Policies are thus shaped by competing narratives, informed by divergent interests, and articulated by different discourse coalitions. In this view, then, policy can be seen at one time as a technical prescription, a symbolic device and a political instrument. The shaping of policy emerges over time, both in its formulation and in implementation, by the interaction of a range of actors – politicians, bureaucrats, technical experts, civil society players and so on – in a variety of networks. In order to understand policy-making, then, one has to delve into this social and political melee, and to contextualise the process with insights into particular political, bureaucratic and socio-economic settings.³

¹ It remains an open question as to whether the patterns described in this paper are evident in other policy areas such as social policy, agriculture etc.

² See, for example, Hill (1997) and John (1998) for comprehensive reviews of different approaches to understanding policy processes.

³ A huge and varied literature informs this approach, ranging from more discursive approaches to understanding policy knowledge/power to more structural analyses of political interests to approaches looking at actor-networks, agency and practice. This is brought together in Keeley and Scoones (2003, chapter 2). This draws on a range of key concepts, including: policy narratives (e.g. Roe 1991), policy networks (e.g. Jordan 1990), discourse coalitions (Hajer 1995), epistemic communities (Haas 1992), mutual construction (Shackley and Wynne 1995), and policy space (Grindle and Thomas 1991), among others.

Much has been written about policy-making in India, but relatively little has focused on the emergent dynamics in the post-economic reform era.⁴ The period since 1991 has seen some major changes in the way the centre and states interact, the degree of fiscal independence of state governments, and the importance of attracting external (often foreign) investment. With the decrease in state support, and particularly centrally-directed state planning, has meant also that the private sector has taken on a new significance. All these factors suggest the possibility of new styles of politics and policy-making. The term “new economy” connotes a number of elements in the popular, and particularly media, imagination: a neo-liberal turn (although, as many have pointed out, this has been fairly half-hearted in some sectors, notably agriculture) and the encouragement of private sector investment to support economic growth are usually defined as the major factors. The new economy is also driven by new industries – particularly knowledge-based ones – and information technology and biotechnology are seen as very much part of the piece. Thus understanding policy-making processes in the “new economy” era suggests some important questions. Does the new economic and political dispensation mean a different politics of policy-making? Does the “new economy” provoke alternative approaches? And what does this mean for processes of inclusion or exclusion, the types of interest groups who mobilise, the levels of democratic accountability and the role of different forms of expertise?

The biotechnology case provides a useful lens through which to explore these wider issues. Biotechnology is seen as a prime exemplar of the “new economy”, offering products ranging from transgenic crops to new forms of medical intervention. In India biotech entrepreneurs are aiming high, with all sorts of claims being made about the potentials of the sector.⁵ Unlike in previous eras, where state support and plan budgets were allocated by the centre, biotech is driven largely by the private sector, and often through direct or joint venture arrangements with large, foreign multinational companies. As a knowledge-based industry, requiring a highly skilled workforce, and a reliance on good infrastructural support and the import of key materials, biotechnology requires a different type of backing from the state. This paper looks at the biotechnology sector in general within Karnataka, but highlights in particular some of the tensions between different applications, with agricultural products (notably Bt cotton) generating much controversy, whereas health applications or those based on information processing (bioinformatics) being less controversial. As a new industry, with a range of scientific uncertainties associated with potential risks to health or environment, and one which has generated much public controversy globally,

⁴ For some of the classic treatments see Frankel (1978); Bardhan (1984); Rudolph and Rudolph (1987), for example. These offer useful, though now somewhat out-dated assessments of the relationships between policy and politics. However, they do not look extensively at policy processes, and the importance of science-technology expertise in policy-making (although see Varshney (1989) for a rare exception). More recent assessments focus to some extent on the post reform context: for example: Jenkins (1999); Corbridge and Harriss (2000) and certain chapters in Sachs *et al.* (eds) (1999) and Kohli (ed.) (2001). Also see, Rudolph and Rudolph (2001a, b); Joseph (2001) for relevant commentaries on new patterns in politics and governance. Again these works remain surprisingly silent on the key interactions between science, business and politics in the new economy era. However, for a literature review/bibliography on policy process literature on India see Mooij and Vos (2003).

⁵ See various releases from the Confederation of Indian Industries, www.ciionline.com. Also see: www.bangalorebio.com/survey for a recent Karnataka-based assessment (see also Scoones 2002, and below).

the state must also enter as a regulator, as well as facilitator of emergent industrial enterprise. This is a central function of the Department of Biotechnology based in New Delhi. Perceptions of a slow, cumbersome, bureaucratic approach to regulation dominate business concerns in Bangalore, and the tension between state-level flexibility and autonomy and centralised control of regulatory affairs is a key issue (see Newell 2003; Scoones 2003). Thus, in terms of policy-making, biotechnology brings together a number of key ingredients which highlight the role of the “regulatory state” in the post-reform period “federal market economy” in India (cf. Rudolph and Rudolph 2001a,b; see also Evans 1995).

In this paper the setting is the state of Karnataka in southern India, and particularly the state capital, Bangalore⁶. While the focus of analysis is state-level policy-making processes, the connections outwards to the national level, and Delhi in particular, and through global networks and interactions is also part of the story. Karnataka has a population of around 50 million, with around 30 per cent being urban-based. The most significant occupation in the state is agriculture, with around 70 per cent of the workforce being somehow engaged in farming. However, agriculture makes up only around a third of the gross state domestic product and economic growth areas are in the urban, industrial sectors. High industrial growth of around 6 per cent has characterised the state over the past 10–15 years, and the gross state domestic product of US\$20.57 billion is relatively high compared to other Indian states. The information technology sector, based in and around Bangalore the state capital, in particular saw a massive boom in the 1990s. Bangalore has a population of some 6.5 million and is a base for over 10000 industries. It is, according to some, the fastest growing city in Asia. The state government has invested in a number of major infrastructure projects with the aim of creating an “investor-friendly” city: the Bangalore-Mysore corridor expressway, the International IT Park at Whitefields and the Bangalore International Airport are some of the higher profile investments. At 21, the city has the highest number of engineering colleges in a city in the world, along with some of the best educational institutions, including the Indian Institute of Science (IISc), ranked as the 18th best university globally. Alongside this technology-led economic success story, there is, however, a downside. Although not as extreme as some parts of India, there remains a marked inequality in income and opportunity which means there are pockets of extreme wealth, but also large areas of extreme poverty, with over 20 per cent of the population below the poverty line. Despite Karnataka being regarded as a relatively prosperous state, with comparatively high indicators of human development (literacy rates, for example, are 67 per cent), the stark contrasts between rich and poor, economic success and livelihood vulnerability are very evident, and must necessarily be part of any broader political assessment. The careful balancing act between encouraging investor-friendly policies, with appropriate sops to new industries, and the demands of a largely poor rural electorate is therefore one at the front of every policymaker’s mind. Thus, as a site to look at the political and policy-making dynamics of the new economy, as well as the underlying tensions and contradictions, Karnataka as a case study presents a good starting point.

⁶ For details see: *Karnataka Agriculture: A Profile* (2000), Karnataka State Department of Agriculture: Bangalore; *Indian Planning Experience: A statistical profile* (2001) at: www.planningcommission.nic.in; World Bank, *Karnataka at a Glance*: www.worldbank.org

One feature of contemporary policy-making in India is the increasing importance of state-level processes. In contrast to the past when central planning and budget allocation from the centre dominated as part of five-year planning regimes, today states have more autonomy in the context of the federal system, although such autonomy may be substantially limited by lack of resources (cf. Weiner 1999; Harriss 2000; Manor 2001; Jenkins 2002 among others). With the fiscal squeeze hitting hard, raising external investment is seen as key. As a “modern”, “progressive”, “forward-looking” state, the Karnataka state government is keen to present new policies that will reinforce its image, and attract the requisite investors.⁷ The IT boom which so successfully boosted the state’s economy during the 1990s is seen to be faltering, and there is a perceived need to encourage new hi-tech industrial investment to boost employment. Biotechnology therefore seemed to offer the answer. With Bangalore’s impressive array of elite science institutions on hand, a readily available highly educated and skilled workforce, Bangalore, as the “garden city”, was potentially an important investment destination for biotech. In 1999 SM Krishna took over as Chief Minister of Karnataka, having won back the state for the Congress from the Janata Dal.⁸ He was keen to make his mark and, with backing from leading business and science figures in the state, he was quick to establish a policy rhetoric which saw the hi-tech sector as key to economic growth in the state. In 2000, Krishna announced in his budget speech the formation of a Vision Group on biotechnology, to be chaired by local biotech entrepreneur and CEO of the successful Bangalore-based business, BioCon, Kiran Muzumdar-Shaw.⁹ The CM observed:

While Karnataka is the acknowledged leader in Information Technology. I would like the State to lead the next revolution in Biotechnology. Karnataka already has the training and knowledge base necessary to drive the revolution. We have the critical mass of biotech companies and the best research institutions. The immediate challenge is how to nurture that innovation, promote entrepreneurship and facilitate technology transfer to the end users. I am happy to announce a Vision Group on Biotechnology is being set up to advise the government on future strategies.¹⁰

⁷ There are regular newspaper and magazine profiles that add to the Bangalore image. For example, ‘Bangalore: knowledge capital of India’ (*Economic Times*, 15 August 2002); ‘Investor-friendly destination: amalgam of lofty traditions, latest technologies. State government aims at making Karnataka the no 1 destination in India’ (*Fortune India*, 15 July 2002).

⁸ Karnataka politics has been characterised from the 1970s by regular shifts between parties. Electoral patterns are finely balanced with all parties having to put together a complex coalition covering a range of different interest, class and caste groups (see below). The Janata Dal government up to 1999 had performed particularly badly, so a Congress victory was more or less assured. But, to put a distance between the perceived incompetence and lack of vision of his predecessor, Krishna was on the look out for new ideas and perspectives. Advisors, such as Jaraim Ramesh, were also well placed to encourage the new government to back a hi-tech vision, and capitalise on Bangalore’s increasing global profile as a hi-tech hub (for more details, see below).

⁹ Government order no ITD/10/PRM 2000 Bangalore, 27 April 2000. The order identified nine areas which the Vision Group could periodically advise the CM on. The first was to ‘harness biotechnology for the development of Karnataka’. The second to ‘set up centres for advanced learning’, and the others to identify mechanisms for accessing novel technologies, effective technology transfer, effective IP protection, increasing consumer and farmer awareness, understanding regulatory hurdles, evaluating opportunities for new start-ups.

¹⁰ Paragraph 117 of 2000–2001 budget speech by Sri SM Krishna.

The group met for the first of four times in early May 2000 in the CM's office.¹¹ In the early part of 2001, a number of events provided opportunities for the profiling of the forthcoming policy, and it was eventually launched on 24 February 2001,¹² in advance of the major trade show and conference – Bangalore Bio – held in mid April 2001. The policy announced the establishment of a new biotech institute in Bangalore's technology park, the creation of a "genome valley" biotech development corridor in Bangalore, linking a range of public science institutions and providing space for private investment, the granting of tax concession for importing inputs and capital goods along the lines already offered to the IT sector, the creation of a biotech fund to be co-financed by private venture capital, and the granting of Rs 5 crore¹³ for an agricultural biotechnology centre at Dharwad Agricultural University in the north of the state¹⁴. But in addition to the specific commitments (of which there were remarkably few) made in the pages of the glossy policy document, the policy, it will be argued below, carries more implications for understanding policy and politics in Karnataka, and possibly more broadly in India.

In the following sections the paper documents what happened in the three years since April 2000, tracing the emergence of the policy, and through an analysis of its political and bureaucratic origins, assesses its significance more broadly. The first section looks at the political space within which the policy emerged, showing how the policy is symbolic of a new politics in the state, and perhaps in India more generally. The next section moves to the bureaucratic context for the new policy, looking in detail at the internal procedures and processes in the civil service and the blurring of the technical, administrative and political in the actual process of policy-making. The following section examines the role of the Vision Group, and highlights the importance of such an "independent" group for the credibility of a new policy, particularly in new, high-tech, science-based areas like biotechnology. The next section then turns to look at how, combining actors in the political, bureaucratic, commercial and scientific arenas, a new discourse coalition was created in the process of making the policy, one that could advocate a distinct perspective on policy to a range of audiences. While the focus of much of the discussion in this paper is on the local specifics of Karnataka state, the connections to both national and international policy debates around

¹¹ See press reports 'K'taka rolls out new biotech policy initiative' (*Economic Times*, 14 May 2000); 'Karnataka constitutes biotech vision panel' (*Economic Times*, 29 April 2000); 'Karnataka sets up panel on biotechnology' (*Business Line*, 1 May 2000); 'Karnataka sets up fund for biotech sector' (*Chemical Weekly*, 30 May 2000).

¹² 'Karnataka's new biotech policy aims at carving a niche for it in the emerging arena', (*Deccan Herald*, 18 December 2000); 'State biotechnology policy on the anvil', (*Hindu*, 16 January 2001); 'State to unveil policy soon', (*Deccan Herald*, 15 January 2001); 'Rs 20 cr. venture capital fund likely?', (*Hindu*, 31 January 2001); 'Policy a milestone: CM', (*Deccan Herald*, 25 February 2001); 'State unveils biotech policy. Tax breaks, other incentives offered', (*Deccan Herald*, 25 February 2001); 'State wakes up to biotech's new sunrise', (*New Indian Express*, 25 February 2001); 'CM launches millennium bio-tech policy', (*Deccan Herald*, 25 February 2001).

¹³ Rs1 crore is Rs 10 million, approximately £150,000.

¹⁴ *The Millennium Biotech Policy*, Bangalore the Biotech City, Department of IT and Biotechnology, Government of Karnataka, released 24 February 2001.

biotechnology are explored in the following section. These are seen to be important in allowing a framing of the policy in a particular way, and, in so doing, marking out a distinctive technical, commercial and Bangalore-based politics of biotech. The creation of a core discourse coalition, and the positioning of the policy politically, allowed for the dissipation of dissent. How dissent was channeled and sidelined, particularly through bureaucratic maneuvering, is the subject of the following section. This, in turn, leads into a section on the selling of the policy, focusing on the presentation and media relations around the policy development and launch. This constructed a particular vision of what biotechnology is about in the Karnataka context, which, of course, is contested. The partial unraveling of the policy effort is documented in the next section which looks at how the real politics of Karnataka bit back. The conclusion finally reflects on the broader implications of the analysis for our understanding of policy-making processes in the new economy.

2 The political space for biotech policy

While this paper focuses on the period between 2000 and 2003, policies for biotechnology had been discussed many times before both in Karnataka and in India more broadly. The explosion of interest in the biotech debate was fuelled by the “terminator controversy” in late 1998, and the subsequent discussion over Bt cotton trials (cf. Scoones 2003). In Karnataka this included dramatic protests, burning of crop fields and intensive media commentary on the pros and cons of biotech, and the associated discussion of the role of multinationals in agriculture. This was tricky territory for any politician, and most steered firmly away from biotech as a result. Not wanting to get embroiled in the complex politics of rural protests from the Karnataka farmers’ movement (Karnataka Rajya Raitha Sangha, KRRS), nor wanting to get caught out by proclaiming on a still being tested technology, most ministers kept quiet, deferring to the formal regulatory process overseen by the Department of Biotechnology of the Union government.

This began to change with the reinstatement of the Congress party at the state level in 1999, and, particularly, with the installing of SM Krishna as the Chief Minister. Here was a man who wanted to present himself and the state government he was leading as part of the new generation, bravely entering the new economy, and making the most of new technologies to generate wealth. In neighbouring Andhra Pradesh, the CM Chandrababu Naidu had already gained a reputation as a “tech-savvy” CM, one who would create new wealth and a new politics. SMK potentially could follow in his footsteps, although with perhaps a more measured tone. He certainly had the qualifications – qualified lawyer, ex-Fulbright fellow, former Union minister for industry under Indira Gandhi and finance minister under Rajiv Gandhi. The local press named him “Oxford Krishna” on account of his academic credentials. His rural roots in Mandya in southern Karnataka, although regularly mentioned as part of his electoral positioning, were some way away. His curriculum vitae on the Government of Karnataka website¹⁵ mentions his interests as tennis and the design of men’s clothing, rather far from traditional rural pursuits in any assessment. Somewhat frustrated by what he saw as the backward vision of some of his political compatriots soon

¹⁵ www.kar.nic.in/kla (for the Legislative Assembly).

after his election he began to assemble a group of advisors and associates, both within the civil service, in the Congress party, and, importantly, in the business world of Bangalore. As one informant put it: ‘The CM has a vision. He collects good advisors around him. Task forces, commissions and so on. The civil service is then coopted, but the impetus comes from him’. The same informant argued that this drive came from his commitment to technology transformation: ‘The CM’s experience is moulded by Mandya district. In Mandya the first god is Visvesvarya,¹⁶ the engineer who built the dam. It used to be a dryland area, but was transformed by irrigation. He is committed to technological transformation today.’¹⁷ In relation to the biotech debate he berated his “country cousins” for their Luddite views,¹⁸ and made it clear that he supported biotechnology, and would back Bt cotton and other controversial products as long as regulatory approval was granted.

As holder of the treasury portfolio as well as being CM, SMK was keenly aware of the dependence of the Bangalore economy (and to some extent the state more broadly) on the IT sector. The bursting of the dot.com bubble, the downturn in the US economy and the resultant drop in contract research opportunities potentially spelt serious problems for the future. While the now big global players like Infosys and Wipro no doubt could weather the storm, many problems looked to be in store for the smaller players. Although numerically the IT sector’s employees are not large in electoral terms, the professional, urban middle class in Bangalore have become an increasingly important lobby group politically. Perhaps even more importantly, the successful IT entrepreneurs, now able to purchase expensive Bangalore real estate, enjoy foreign holidays and drive smart, imported cars are key aspirational symbols for many. As “icons” of the new economy – and Bangalore an economic success story, the “IT kings” – Narayana Murthy of Infosys and Azim Premji of Wipro in particular – have become key figures in the media and more broadly in the public imagination.¹⁹ The huge investments often relatively poor families make in private education and the massive growth in such institutions in response is witness to the commitment of a wide mass of people, and not just the present beneficiaries – to the hopes of the IT revolution. Presiding over the demise of this dream would of course be electorally disastrous, and SMK and his advisors were well aware of this. Biotech (or BT) needed to be promoted as the natural successor to IT, and with this the dreams of many could be sustained.

¹⁶ See V.S. Narayana Rao (1988) *Mokshangundam Visvesvarya*. National Biography. Book Trust of India, Delhi. In speeches SM Krishna often refers to visionary Dewan Visvesvarya, often making links with his own strategy as CM.

¹⁷ Interview, Bangalore, 8 January 2001.

¹⁸ See: ‘My country cousins are allergic to going high-tech’, *Krishna, Times of India*, 6 September 2001.

¹⁹ As one IAS officer observed: ‘Icons are seen as important. Narayana Murthy for primary schools, for waste disposal, for everything’ (Interview, 22 February 2001). His and others’ role (particularly Infosys’ Nandan Nilekani and BioCon’s Kiran Muzumdar Shaw) in the Bangalore Agenda Task Force is key. This offers an alternative private sector led alternative to what is perceived as a poorly functioning urban authority, although many feel that as an unaccountable body it should not be the basis for providing public services in the city (see, for example, ‘CM snubs politicians for opposing BATF’, *Deccan Herald*, 25 February 2001). See also Pani (2002) for a discussion, particularly on the importance of icons in the new politics of Karnataka.

Some key Bangalore-based individuals were important in selling this idea. Jaraim Ramesh, a senior Congress party official and deputy chair of the Karnataka Planning Board, is an important advisor to the CM. An astute observer of political and economic trends, which he comments on in his column in the national weekly, *India Today*, Ramesh was keen to promote an alternative to a reliance on IT. Biotech seemed to offer an opportunity. Kiran Muzamdar-Shaw, the CEO of a successful biotech firm, and very much part of the elite social circles in Bangalore, where politicians, senior civil servants and industrialists mixed at drinks parties and receptions, was also close to the CM, and lost no opportunity in encouraging him to back biotech. Professor Sharat Chandra, a leading biotech scientist at the Indian Institute of Science, and unusually for the science community not part of the Brahmin elite, but instead from the same caste background as the CM, also encouraged the CM to back biotech. A year after he took over control of the state, the CM launched a major drive to promote biotechnology in the state in the budget speech of 2000. The Vision Group became the key vehicle for this initiative. Chaired by Muzumdar Shaw and with members from industry and academia (see below) it offered both the profile and credibility to carve out a biotech niche for Karnataka. Although very much presented as an independent, advisory group, it was to have direct links with the Department of Information Technology, and the departmental secretary, Vivek Kulkarni, was to be the member secretary.

This all took place against a backdrop of growing concern about the consequences of adopting biotechnology applications in the agricultural sector – transgenic, GM crops. With the regular protests being orchestrated by NGOs, farmers movements and others in Karnataka, politicians were naturally worried though about the public backlash against GM crops and the ramifications this might have for the attraction of external investment and the establishment of a successful biotech sector in the state. Dr C.S. Prakash, a former University of Agricultural Sciences (Bangalore) student, now a US based scientist, advisor to the US Department of Agriculture and international advocate of GM crops via his web site *AgBioWorld* and frequent comment pieces in the Indian press,²⁰ was encouraged to establish an advisory and advocacy group. K-GANGA (Karnataka Global Advisory Network Group on Agriculture) was a network of overseas-based Indian scientists working on biotechnology with Bangalore connections. It was aimed as a route to encouraging wider public acceptance of biotechnology, and GM crops in particular. K-GANGA was launched with much fanfare in August 2000, and represented the first government initiated attempt to put across a positive PR spin on biotech. Yet, as will be seen below, attempts at shifting public and media opinion on agricultural biotechnology and GM crops in particular proved difficult. Instead, the tactic adopted in Karnataka was to create a political space for biotech which put it as the natural successor to IT, and part of the economic miracle of Bangalore, the global technopolis (to

²⁰ See for example, 'Expert endorses Bt cotton decision' (*Business Standard*, 12 April 2002), among many others. See agbioworld.com for more from Prakash.

quote a rather overblown feature in one of the Indian weeklies),²¹ rather than as part of a new Green Revolution, and a solution to the “farming problem” of rural India.²² By focusing on particular – non-transgenic, non-agricultural – biotech applications the state government avoided some of the regulatory dilemmas posed, and meant that the regulatory control by the Union government’s Department of Biotechnology was less of an issue. Also, by compartmentalising the biotech policy in this way, dissent and controversy could be managed and a certain type of biotech could be incorporated into the mainstream rhetoric of economic growth through the stimulation of the “new economy”.

The political space thus created was very much urban and industrial, linked to middle class, professional and entrepreneurial interests, and hitching on to a future which envisaged the “new economy” creating wealth and employment (at least for a few), with positive “trickle down” effects for the rest of the state.²³ While not as baldly stated as this, this vision of development has been very much part of the approach adopted by the Chief Minister at the core of the state government’s economic policies. State resources have been invested in encouraging external investment: major infrastructure projects have been commissioned, most notably the new airport and the growing maze of fly-overs that criss-cross the city; trade fairs, high profile conferences and international visitors have been lavishly hosted; and concessions to business have been offered through tax deals, industry parks, and government support for starting up. This is not a classic “free” market economy, the state government is there as a significant backer. There have certainly been new investments in the state in recent years, although how the balance sheet comes out in terms of jobs created, investment secured as against state incentives offered remains

²¹ In 1999 Bangalore was rated as one of top ten “hottest tech cities” in a Newsweek cover story. It was also considered to be one of the top ten ‘21st century global hot spots’ in a *Business Week* cover story in the same year. The hype about Bangalore as a biotech city grew to a frenzy in 2001 around the time of the release of the biotech policy and the first Bio.com event. See, for example: ‘Bangalore Bio.com will redefine Indian biotech’ (*Hindu*, 13 February 2001); ‘Bio.com 2001 will herald the next sunrise industry’ (*New Indian Express*, 13 February 2001); ‘Government launches road shows to promote Bio.com’, 22 February 2001; ‘India has the instinct to be a global player in biotechnology’, (*Hindu*, 14 March 2001); Special feature in *Economic Times*: ‘Homing in on Bio Power @ bio.com 2001’, had the following headlines: ‘Krishna sees immense scope for biotechnology’, ‘India set to emerge as global bio power’, and ‘Karnataka blooming into a biotech state’ (16 April 2001).

²² This narrative is much more often heard, for example, in Tamil Nadu, where the influence of Professor M.S. Swaminathan is particularly important. It is also more the focus of the national and global biotech debate, with this line being pushed by the likes of Monsanto, Norman Borlaug and many in the Department of Biotechnology and ICAR in Delhi.

²³ Given the large preponderance of the rural poor in the electorate this of course is a risky electoral strategy if pursued alone. While considerable amounts of state resources have been spent in encouraging external investment, this does not mean that the rural electorate have been totally ignored. According to the Finance Department of the Government of Karnataka in the 2003–04 budget of plan and non-plan expenditure of around 20000 crore, 5 per cent of the budget is to be spent on agriculture, 8 per cent on irrigation, 2 per cent on rural development and 22 per cent on education, health and social welfare (www.kar.nic.in/statebudget/bud2003). Around election time this regular expenditure may be further focused with special schemes and projects announced, particularly in more marginal constituencies. Playing to particular interest groups (castes, sub-castes and so on) is all part of the complex electoral calculation in which budget allocations play no small part.

unclear.²⁴ With fiscal constraints hitting hard, putting public money into backing new, often highly speculative business ventures, alongside high profile but not exactly “basic needs” infrastructure investments, is of course controversial. It inevitably results in trade-offs. It remains an open question as to the net impact of this diversion of funds on those areas more conventionally associated with state support such as health, education and social sector services, small-scale enterprises and rural development.²⁵ It also remains a question as to whether this strategy is one that is saleable to the electorate, or one best kept parceled off, conveniently compartmentalised for consumption by urban-based policy elites only. In order to make the “Bangalore as high-tech business destination” rhetoric palatable, particularly to sceptical Congress party members and a largely rural electorate, especially those groups central to Congress electoral support in the state,²⁶ such a hi-tech focused prescription has to be mixed in with liberal doses of populist rhetoric about the importance of rural development and farming communities, along with some tangible commitments of support. Thus speeches on biotech by the CM and other leading ministers are typically an interesting, often disconnected, mix of futuristic visions of the new economy, based on science and technology, and traditional political rhetoric of poverty reduction and support for agriculture.

Much as other “third way” politicians throughout the world, the heady mix of different positions hides many contradictions and ultimately choices. In the end one vision must be backed, although political concessions can be offered to the others. Biotech presents politicians with a dilemma: what to choose? For the time being at least, the Chief Minister clearly has chosen the new economy route, centering his hopes on an economic revival based on new investment in the biotech industry. This may be politically sustainable with the support of a tight, reliable grouping of people with political and economic weight, alongside scientific credibility, combined with effective support from the bureaucracy. The Vision Group and the Department of IT, and the IT secretary in particular, provided this support, as explored in the next two sections. Electorally though it is more questionable, and, as we shall see below, it is only more

²⁴ According to the joint Karnataka Vision Group and CII survey (see ‘Karnataka BioBusiness profile: a 2002–03 update’ presented by Kiran Muzumdar at Bangalore Bio 2003 and available as a PowerPoint file at www.bangalorebio.com/survey). In 2001–02 Karnataka attracted Rs 300m in investment in the biotech sector, nearly half of which was from AstraZeneca (*Financial Express*, 18 April 2002). The survey claimed that the biotech sector generated Rs 700 crore of revenue per annum, of which Rs 250 crore was for export. The biotech sector, it was claimed, employed 5000 people, of which 3500 were scientists (*Business Standard*, 16 April 2002; *Business Line*, 16 April 2002; *Economic Times*, 15 April 2002). There has been much commentary in the financial press about the lack of venture capital investment in the biotech sector, despite all the government backing (see for example, *Business Today*, 12 May 2002), although the Hindu reports that Karnataka had received Rs 70 crore of venture capital funding to 72 biotech ventures in the state over the last two years, with only Rs 200 million from the central Department of Biotechnology (*Hindu*, 16 April 2002).

²⁵ Of course these remain the major sources of state expenditure. As Vivek Kulkarni argued: ‘My department [IT and BT] gets a small fraction of the total budget. Does that sound like a hi-tech focus? Nothing has changed. This government has always spent most on rural development. The hi-tech thing is more image than budget’ (Interview, Bangalore, 22 March 2002).

²⁶ Electoral politics in Karnataka is a complex affair, with any winning party needing to appeal to a range of different interest group and caste/classes (including many different sub-groups). Two “middle caste”, essentially rural, groupings – the lingayats and vokkaligas – are important who make up 30 per cent of the electorate, while Scheduled Castes and Scheduled Tribes make up 21 per cent. Muslims make up 16.5 per cent of the electorate and are key swing voters in upwards of 100 constituencies (cf. Manor 1989, 1992; Shastri 1999; Assadi 1998, 1999, 2002; Pushpendra 1999; Gould 1997; Srinivas and Pannini 1984 among others).

recently, particularly in the context of the build up to forthcoming state elections and during some recent by-elections, that some more circumspection about the overall strategy has entered political rhetoric.²⁷

3 Bureaucratic contexts

With the announcement of the Vision Group, the CM made a clear signal that biotech was to be associated with the department of IT. At the time this raised some eyebrows. Why IT? Why not agriculture? Why not health? Why not Science and Technology? There were of course both strategic and practical reasons. The department of IT is seen by industry as pro-business. It is set up to “facilitate and encourage industry”, as the departmental director explained.²⁸ And, in contrast to the lumbering old style sectoral ministries with large staff bases, complex patronage networks, and massive budgets, IT is seen to be nimble, flexible and responsive. As a new department it was not associated with the corruption of the “license and permit raj”²⁹ which so incapacitates many other departments. It had successfully produced the IT Millennium policy in 2000, and overseen the creation of the influential Bangalore Declaration which preceded it.³⁰ With close connections to the IT elite in the state,³¹ the department already had good industry connections, with strong political clout, and was well positioned to take on a new high tech industry, with some obvious links to the information technology sector in the fields of bioinformatics and genomics.

The good reputation of the department had been reinforced by the Secretary (the most senior civil servant), Vivek Kulkarni. He had moved from Finance, where he worked under the CM, and had gained a reputation for effectiveness and efficiency. Seen by many as a young, “new breed” Indian Administrative Service (IAS) officer, someone who was committed to the visions of the new economy and a new role for government and the civil service, he had the right credentials for the job, with an appropriate track record in his previous civil service appointments and an MBA qualification from the Wharton Business School in the US. His previous close connections to the CM also proved useful, particularly providing some independence from his immediate ministerial boss. The biotech policy was clearly a personal project of the

²⁷ The degree to which the Congress – and SMK in particular – continue to push the “new economy” stance will depend a lot on what happens in opposition politics. If other parties fail to put together an effective opposition, then the Congress will feel secure in its current position. If electoral competition is felt however party members and Members of the Legislative Assembly in danger of losing their seats may put pressure to shift approach, and adopt a more directly pro-poor, pro-farmer stance. In the meantime, however, a continued compartmentalisation of political messages and approaches remains possible [I am grateful to James Manor for this qualification].

²⁸ Interview, Dr Reddy, Dept of IT and BT, February 2002.

²⁹ This term connotes the opportunities for “rent” accumulation as a result of deals made in the granting of licenses or permits controlled by civil servants.

³⁰ *IT for the Common Man*, The Millennium IT Policy, Government of Karnataka, 2000.

³¹ N.R. Narayana Murthy, Chairman of Infosys and one of the world’s leading IT entrepreneurs chairs an informal departmental advisory panel. Azim Premji, Chairman of Wipro also backed the IT policy.

CM, and he needed a trusted person inside the civil service to see it through, and Kulkarni fitted the bill perfectly.³²

The relationship between politicians and the civil service in the process of policy-making is not always easy. As one officer put it: ‘Civil servants are by and large conservative. They must be. The system is designed to maintain the status quo. Those who break out of the mould are quickly transferred. No-one wants to rock the boat too much’.³³ The Indian Administrative Service, very much in the image of the colonial Indian Civil Service, is regarded as an elite part of the public system. While not having the reputation of former years, the IAS still attracts some top quality individuals, particularly into state cadres like Karnataka which retains a good reputation. However, at everyone’s admission, a career as a civil servant is losing its shine. Gone are the days when an IAS officer was seen as a top career choice. Today middle class aspirations are directed towards successful business rather than working in government, where pay and conditions cannot match that in the private sector. A reputation for corruption, incompetence and laziness plagues the general perception of the civil service. While this may not be directed to the elite IAS grouping, the service may be distorted by the spoils offered by the “licence raj”. One IAS officer put it this way: ‘There have always been two types of officers – those who are effective and committed and those who are corrupt, often extremely so. The IAS simply reflects society. If corruption is deemed acceptable, then there will be more of it’.³⁴ Another IAS commentator observed another distinction:

Some view the IAS and government as all. They believe in maintaining the status quo – either because of a genuine leftist commitment to the state, or because of they know this is the only way of getting their private gain. Others believe we have to change, and that the job of a civil servant is to make things work better. This may mean dismantling things. This is a very hard job.³⁵

Within the ranks of the IAS there are, in addition to these distinctions, complex hierarchies and relationships critical to its functioning. Seniority is important, or at least acknowledgement of it. As one informant observed: ‘We (less senior, new breed officers) must get on with it. There is a generation gap in the civil service. The older officers may speak all the new language, but they don’t understand it’.³⁶ Thus pleasing one’s seniors, allowing them to take the credit, or showing appropriate deference is a key tactic. Relationships between “batch mates” (those who graduated from civil service college in Mussourie in the same year). As one informant explained: ‘Feedback from your peer group – your batch mate and the ones above and below – is crucial. But senior officers can block you. You may be seen as an upstart just

³² According to a Business Today profile, Kulkarni is credited in successfully lobbying one IT MNC to set up shop in Karnataka every week in 2001. Since he took over in 1999, IT exports have more than trebled to Rs 10000 crore per annum (8 December 2002).

³³ Interview Bangalore, 8 January 2001.

³⁴ Interview Bangalore, 29 January 2001. See also press commentary such as the cover feature of *India Today*, 5 February 2001 ‘Bloated Babudom’. See also more academic treatments, such as Potter (1986) and Das (2001).

³⁵ Interview, IAS officer, Bangalore, 28 January 2001.

³⁶ Interview Bangalore, 22 February 2001.

because you have been to the US'.³⁷ Relationships among “state cadres” are also vital. One senior civil servant commented: ‘It used to be easy dealing with policy at the centre: we had a Karnataka batch mate in Delhi and it went through on the nod’.³⁸ At state level, the Chief Secretary is key. He or she is often the gatekeeper between the civil service and the cabinet and Chief Minister. As the most senior civil servant in the state, relationships with other more junior officers is key. No matter how eager and enthusiastic others may be, a Chief Secretary can always block initiatives. Thus relationships between civil servants in the negotiation of policy within government are key. Everyone has an acute knowledge of who is who, and how individuals are connected to each other. Successful negotiation of a policy requires connections across departments, between the state and the centre, and across hierarchies within the civil service. Commenting on this process, one senior IAS officer commented: ‘Policy-making is about connections. It is always political, no matter how technical the content. That’s why we are non-specialist administrators, who must learn politics fast’.³⁹ Another observed: ‘The IAS is very hierarchy conscious. But as long as you nod to seniority and play along – yes sir, no sir, three bags full sir – you can always get your way’.⁴⁰

Tact, diplomacy, connivance, and scheming are all part of the day to day manoeuvres of civil servants. In the case of the biotech policy, negotiations with the non-IT line departments (notably of agriculture and health) were key in getting it through, particularly at the final hour. Trade-offs, concessions and deals were all part of the process of getting agreement. For example, in order to meet the deadline for the launch of the policy, a version was circulated by the PR agency contracted to produce the glossy document which was not completely agreed. A number of controversial elements slipped through into the printed version that was handed out to delegates at the launch event. This version, however, had to be pulled the following day, as other colleagues in the civil service objected, and a final compromise, was produced within the week.

In order to see a policy through, the professional civil servants, who may not have specific expertise in the subject area, must negotiate with technical experts and advisors. Such individuals may exist as members of vision groups, missions, task forces or commissions. These may be set up by the department in question under the direction of the civil service or imposed from outside, or, as in the case of the Vision Group for biotech, some compromise between the two. A key factor in any such initiative is backing from the most senior political level – the CM’s office. For civil servants, managing experts in such groupings can be a tricky task, especially if they do not tow the line. As senior, busy people, with their own professional, commercial and sometimes political interests, members of such groups are not a push-over. As one member of the Vision Group put it: ‘external advice is key. It keeps the IAS on their toes’.⁴¹ They may have been hand-picked by senior politicians, and although such positions are not paid posts, they carry with them a combination of political cachet, media exposure and direct access to government which can serve individuals’ interests well. Caste tensions between the scientific and technocratic elite – almost

³⁷ Interview KP Krishnan, IIM-B, 27 February 2001.

³⁸ Interview Bangalore, 26 February 2001.

³⁹ Interview IIM Bangalore, 27 February 2001.

⁴⁰ Interview, IIM Bangalore, 27 February 2001.

⁴¹ Interview, Professor Sharat Chandra, IISc, 12 January 2001.

exclusively Brahmin – and the civil service – in the Karnataka setting due to reservation policies⁴² more mixed – may be also influence dynamics, if only implicitly. Some acknowledge that suspicions of Brahmin dominance of expertise, and through the committee/commission approach access to policy-making influence – may be resented both by civil servants and politicians from other backgrounds. But such expert groupings can be prevented from getting the upper hand. Committee meetings tend to be short, and policy is always complex and messy, so in the end it is the final drafting which is key. This is always the role of the member secretary and so in the hands of the civil service. As one civil servant pointed out: ‘Advisors are just that. They do not make policy. That has to be done by the government, and that means us’⁴³. Another observed: ‘These reports [of groups/commissions] are always drafts. They are only for consultation. There is a whole other process of political approval which we [the IAS] oversee’⁴⁴. Another officer explained the key role of member secretary: ‘you must translate the discussions into bureaucratese and transfer it into our [the IAS] system. This is where the work starts, as bureaucrats can be more mulish than politicians’⁴⁵. One observer noted ‘technocrats are much easier to deal with than the IAS bureaucracy’⁴⁶. As one commentator reflected: ‘Policy-making is about controlling knowledge. And bureaucrats know how to do this very well indeed’⁴⁷.

Civil servants have to negotiate political minefields also. Dealing with politicians is, as one civil servant put it, “a well honed art”. Politicians in his view generally have little interest in the subject matter; they are interested though in maintaining the patronage base that projected them into power. Making some concessions towards these needs is seen as essential. Thus, allowing a minister to make choices over civil service transfers, or allowing them the go-ahead for a departmental scheme or initiative in a particular constituency, is seen very much as par for the course, and a necessary consequence of seeing things through. As the same IAS officer put it: ‘You just have to make a few arrangements – posting someone’s relative here or there – but things can get done’⁴⁸. Another officer observed: ‘It is easy to deal with politicians. You just offer concessions on small issues and they will be satisfied. Some transfers, some cuts in deals. That usually is enough’⁴⁹. Another officer advised: ‘there are easy ways of flattering ministers. Give him credit for something he has not done’⁵⁰. Another officer explained his tactics:

⁴² “Reservation” allows for quotas on recruitment of so-called “backward classes” and “scheduled castes”. This has had a long history in Karnataka (and before that in Mysore), with the result that the civil service is relatively more diverse and so reflective of society at large.

⁴³ Interview, Bangalore, February 2001.

⁴⁴ Interview Bangalore, January 2001.

⁴⁵ Interview, K.P. Krishnan, IIM-B, 27 February 2001.

⁴⁶ Interview, V.R. Patil, 2 March 2001.

⁴⁷ Interview, Narendar Pani, *Economic Times*, 29 January 2001.

⁴⁸ Interview Bangalore, 17 January 2001.

⁴⁹ Interview Bangalore, 22 February 2001.

⁵⁰ Interview Kaushik Mukherjee, KAWAD, 8 March 2001.

Most politicians don't understand the details. So the first task is to make things complicated. Lots of acronyms, that sort of thing. Politicians cannot be bothered with this sort of detail. Policies must be constructed by stealth. Secrecy is important. The only thing that can disturb this is the press or NGOs.⁵¹

Another reflected:

As long as MLAs (members of the legislative assembly) are offered patronage opportunities, they can deal with the constituency base. Then policy can operate independently. They will never challenge the top brass and the CM in particular. They will sit quietly and complain amongst themselves only. The only time they will speak out is if it looks as if the CM is on the way out. Political opportunism and expediency dictate events.⁵²

Another informant spoke about tactics:

Political will is the mood of the CM that morning. Tactics are simple. You have to choose your moment. Ask the Secretary if he is in a good mood. Then go to the meeting, introduce your idea slowly and get him to sign.⁵³

A key part of separating off politics, of course, is the creation of other loops of authority. An informant commented:

All our politics is patronage politics. You have to try hard to get away from it. Distancing from politicians involves setting up independent boards, commissions, task forces and so on, and giving them autonomy and decision making powers. They then can more easily be steered by us [IAS officers].⁵⁴

In the case of the biotech policy, placating the politicians was not a major task for Vivek Kulkarni and colleagues, however. The policy had been given approval from the very top, and, being a new area without the baggage of other policy areas, it did not jeopardise any well-established forms of political patronage. The use of a Vision Group, described as one civil servant as a "master stroke", and having the ear of the CM were of course key. The bureaucratic location of the effort was also important. In the case of the IT department, unlike say agriculture, there were limited opportunities for using the mechanisms of post transfer or scheme allocation as a way of dealing with political interests. The Vision Group by and large was kept out of any negotiation. As one member recalled: "Tricky political issues were not really discussed. These were behind the scenes negotiations by the secretary".⁵⁵

⁵¹ Interview Bangalore, 29 January 2001.

⁵² Interview Bangalore, 29 January 2001.

⁵³ Interview Bangalore, 22 February 2001.

⁵⁴ Interview Bangalore, 22 March 2002.

⁵⁵ Interview Gaiti Hasan, NCBS, Bangalore, 9 March 2001.

In order to accommodate such an array of interests, policy-making is thus very much a process of careful social negotiation amongst different players. It is important, many civil service commentators point out, not to commit too early to formal documents and paper. Informal discussions, especially those outside the office, are better than letters or even e-mails. Building a consensus requires drawing on established relationships and creating new ones. Only right at the end is it worth putting things down in concrete black and white, and this is the point to get the political approval, and force closure. The idea of open, and widespread consultation and deliberation, in many civil servants' views, is anathema. In their view, this would result in chaos, with all voices competing, and no conclusions ever reached. Much better to rely on the professional civil service to oversee the process and reach a negotiated conclusion. This is as someone put it: "policy-making by stealth".⁵⁶ With the Indian political system characterised very much by the "politics of accommodation" (cf. Jenkins 1999), where complex trade-offs between different interest groups are put together in electoral bargains and strategic deals, it is important not to rock the boat. Therefore, for the civil service to work effectively, a quiet, behind the scenes approach is required, where, often, the bigger vision and the broader project is hidden behind schemes, initiatives and plans. As one IAS officer put it: 'the bureaucracy is obsessed with plans, procedures, projects and schemes. Biotech can be one of these'.⁵⁷

Politicians as well as the media, and to some degree the public, respond to the idea of policy as symbolic spectacle – one constructed in terms of opportunities for opening a scheme, or launching an initiative or plan, particularly under the glare of the media. That such schemes or plans sometimes run counter to the broader policy trends is easily ignored in the welter of new initiatives. In creating policy by stealth, then, core coalitions are critical, as are effective smokescreens, and ways of dealing with opposition. A later section will look at how, in the context of the biotech policy, dissent was handled. The next two sections, however, first look at the creation of a core coalition for a particular approach to biotech policy in the state, centred on the Vision Group.

4 Creating credibility

Technical advisory groups of various sorts have long been part of making policy. Under Rajiv Gandhi, for example, the now famed "technology missions" were launched, aimed at creating innovation and new perspectives on policy, and were supported by a network of expert groupings. Karnataka's Vision Group on biotechnology perhaps took this trend further than before. Here was a group chaired by a leading female local industrialist, and included two representatives of multinationals, two from local biotech firms, four biotech scientists from elite public institutions, a venture capitalist and a representative of the Confederation of Indian Industry.⁵⁸

⁵⁶ Interview, IAS officer, Bangalore, 29 January 2001.

⁵⁷ Interview Bangalore, 28 January 2001.

⁵⁸ The full list of Vision Group members is: Kiran Muzumdar-Shaw (Founder and CMD, Biocon Ltd, Bangalore); H. Sharat Chandra (Professor Emeritus, IISc); G. Padmanaban (Former Director, IISc); V. Prakash (Director, CFTRI, Mysore); Gaiti Hasan (NCBS, Bangalore); Kumud Sampath (President AstraZeneca India Ltd, Bangalore); John Squires (MD SmithKline Beecham Pharmaceuticals (India) Ltd., Bangalore); P. Babu

This was the great and the good of the new economy, not the normal public sector policy committee of retired Vice Chancellors and other greying men.⁵⁹ The group was nominated in private discussions between the prospective chair and the member secretary, in consultation with the CM. As one group member subsequently observed: ‘the Vision Group was driven by strong personalities. They were interested in a particular agenda, and definitely not agriculture. There was pressure from government to deliver fast. There had to be symbols of achievement, and the new institute fitted that bill’.⁶⁰ In a speech by the minister for medium and large industries, R.V. Deshpande, at the Asia Society meeting in Bangalore, made on behalf of the CM, the Vision Group was presented as a model of joint public and private initiatives in policy-making, part of the government’s commitment to get the business community involved in policy-making.⁶¹ Kiran Muzumdar-Shaw tirelessly presented the work of the group at numerous events and to the press, doing an impressive PR job for the government for free. Of course, at her own admission, being chair of the Vision Group has both helped her and the profile of her BioCon group ‘It is good for the country, good for Karnataka and good for my business’.⁶² Other members have commented on the benefits of government being ‘just one phone call away’.⁶³ For those seeking exposure and public profile to advance their own careers and business interests, being a member of such a group, and better still the chair, makes a lot of sense. In the last few years, Kiran Muzumdar-Shaw, for instance, has risen from being a well-known local entrepreneur to a national figurehead, particularly through her work with the CII, a regular contributor at international conferences and meetings – from the US BIO industry meetings to the Asia Society conference on “Asia’s Technology Future” to the World Economic Forum, as a representative of India’s biotech emergent biotech industry. Thus with a firm basis in the state setting, Muzumdar-Shaw has increasingly had an influence on national level policy processes. Press exposure has been enormous, even attracting commentary from the Economist who dubbed her “India’s biotech queen”.⁶⁴ For Muzumdar-Shaw this sort of profile is good for business, and with a pending public flotation of the company it may also be very good for prospective share values.⁶⁵ Other business members on the committee have less profile, but just mentioning “good works” for government in an annual report may be a useful gambit. For those in need of support – perhaps a rapid clearance of an import license or a

(Founder and CEO, Bangalore Genei); Viloo Morawala-Patel (Founder and CEO, Avesthagen Technologies, Bangalore); Omkar Goswami (Chief Economist, CII, Delhi); A.J.V. Jayachander (President, ICICI Venture Funds Management Company Ltd, Bangalore); Secretary-IT, Government of Karnataka (Vivek Kulkarni).

⁵⁹ This was not the first such private sector dominated grouping charged with making policy that the Krishna administration had formed. The biotech Vision Group’s predecessor was the IT task force, chaired by Narayana Murthy of Infosys. This helped to produce the Millennium IT Policy launched in 2000. The IT task force continues to provide advisory support to the Department of IT and BT.

⁶⁰ Interview, Dr P. Babu, Bangalore, 19 March 2001.

⁶¹ Speech and PowerPoint slides at ‘Asia’s Technology Future: Transforming Business’, Asia Society’s 12th Annual Corporate Conference in Asia, Taj hotel, Bangalore.

⁶² Interview, BioCon, February 2002.

⁶³ Interview, Avesthagen, February 2003.

⁶⁴ See the BioCon website for a full listing of recent press coverage at www.biocon.com. Also see, for example coverage of her Asia Society speech: ‘India has the instinct to be a global player in biotechnology’ (*Hindu*, 14 March 2001); or profiles such as that in the feature in *India Today*, 22 January 2001, among many others.

⁶⁵ Biocon is reported to be planning to make an initial public offer of Rs 150 crore in the second half of 2003 to finance a new biological plant and R and D work (*Business Standard*, 28 November 2002).

loan from the state industry board, for example – knowing who to phone can often help when the complex red tape of government regulations and procedures intercedes.

By and large the Vision Group was widely acclaimed, at least at the beginning. It had managed to enlist a grouping of people who commanded respect in the business community, and had sufficient high standing public sector scientists that, on the technical side, its messages were seen as credible and authoritative. In the inside cover of the new policy document, four images are presented, in some respects summing up the coalition formed by the Vision Group. In the top left of the page is a picture of the Krishna ('the Honorable Chief Minister of Karnataka, a Fulbright scholar'). To his right is a picture of the AstraZeneca research centre (representing multinational business and RandD investment), below him is Professor Sharat Chandra, nominated chair of the new flagship Institute of Bioinformatics and Applied Biotechnology (IBAB), and emeritus professor at the Indian Institute of Science (IISc), representing the acceptable (and local) face of biotech science, and, of course, in the bottom right corner is Kiran Muzumdar-Shaw herself, the successful home-grown biotech entrepreneur. The only negative commentary on the announcement of the group was the presence of a foreigner, John Squires, the MD of SmithKline Beecham Pharmaceuticals (India) Ltd, although his membership was staunchly defended by the chair. Later others commented on the lack of specific sectoral specialists, particularly the surprising absence of public sector agricultural scientists. Someone from the University of Agricultural Sciences (Bangalore) observed: 'The group was biotechnologists talking to biotechnologists. Of course they came up with what they did'.⁶⁶

Much of the content of the policy was on the table before the process ever started. At the announcement of the establishment of the Vision Group, Kiran Muzumdar-Shaw outlined at the press conference some of the issues that the group would look at, including measures focused on supporting emergent businesses in the state. The group met four times over the period between May 2000 and the launch on 24 February 2001, with only the first meeting widely attended according to group members. As one member recalled: 'Kiran had done her own study of business prospects. She knows the business scene, so we all went along with it. Bioinformatics was a focus from the very first meeting'.⁶⁷ In addition to the formal meetings there were other processes of consultation. For example, there were various attempts particularly by Kiran Muzumdar-Shaw to consult more widely in the business community. Similarly, a key role for the member secretary Kulkarni was to liaise with others within government. Indeed this behind-the-scenes discussion was an essential element of gaining a wider constituency for the emerging policy position. But it also left some gaps which were to cause problems in the months to come.

By the time the policy was launched, the IT department had collected together a long listing of people who had, they claimed, been significant in building the policy. Their names were published in the newspapers under the title 'Thanks to the Karnataka biotechs' as part of an advertisement of the policy

⁶⁶ Interview, University of Agricultural Sciences, 9 March 2001.

⁶⁷ Interview, NCBS, 9 March 2001.

launch.⁶⁸ The names also appeared on the inside cover of the policy document. While some on this list were surprised to see their names there, wondering how and why they had become associated with the policy, others had clear connections to the Vision Group, as colleagues, business associates and so on. By presenting a list of 200 odd names from outside the government that cut across private industry and public research institutes, the department enrolled a larger network in the policy at a stroke. Was anyone going to object to having their names published in the newspaper and in the policy document, and associated with an initiative with strong backing from the CM? The Karnataka “biotechts” therefore became a core part of the network, often without even their knowledge or complicity.

A closer analysis of this list (essentially the Department of IT’s local biotech mailing list) reveals something of the character of this network. At its core are two groupings: first, scientists from the elite science institutions of IISc and NCBS (essentially colleagues of Professors Sharat Chandra, Padmanaban and Hassan), and, second, industry representatives, both multinational (from Monsanto, ProAgro, AstraZeneca) and local companies (BioCon, Avesthagen, Rallis etc.). These not surprisingly, as discussed already, are the two groupings dominating the Vision Group. In addition, there are a few others, particularly from the Universities of Agricultural Sciences at Bangalore and Dharwad, who, while largely ignored in the policy-making process, were critical to its success, as will be discussed below. Notable by their absence were any NGO representatives on the list. This grouping, presumably, were seen to be too difficult to coopt and so no attempt was made.

5 Forming a new discourse coalition

Through the process of creating the policy, a new and distinct Karnataka policy discourse on biotechnology began to emerge. This took as its starting point, as we have seen, what might be called the IT model of development – hi-tech based employment generation, with trickle down benefits, centred on the global “technology hub” of Bangalore. Thus the model involves linking science and technology R and D (in the public and private sectors) to innovation, the encouragement of external investment (by multinationals among others), the support of start-ups (through tax concessions and relaxation of planning regulations) and the encouragement of global linkages for contract research outsourcing to Bangalore. It was recognised early on that the major growth area for this sort of model would be in bioinformatics applications and some lab based contract work for the pharmaceutical industry. AstraZeneca, the multi-billion dollar global business, had long been part of the Bangalore private sector R and D scene, and the local head a member of the Vision Group, so it was perhaps not surprising that the pharma applications of biotech were emphasised over agricultural ones.

The Karnataka pitch is most certainly different to those offered by other states. For instance Tamil Nadu was the first Indian state to produce its own policy, very much under the guidance of M.S. Swaminathan, the famous Green Revolution scientist, now based in Chennai at his own foundation,

⁶⁸ See any of the Bangalore English language dailies on 24 February 2002. The list appears on the trade fair website at www.bangalorebio.com/biotects

the MSSRF.⁶⁹ Not surprisingly (as with other emerging policies in other states where Swaminathan has been involved), his imprint is very much evident. In contrast to the Bangalore policy focus, based principally on the business judgement of Kiran Muzumdar-Shaw and close colleagues, the Tamil Nadu policy is much broader in scope. It argues for both industrial development, and the promotion of biotech parks, but also has a bigger vision of appropriate biotech applications transforming agriculture, and particularly tackling issues of poverty and deprivation. This is of course very much part of Swaminathan's vision, and is firmly embedded, in part through his efforts and excellent connections, in both national level and international rhetoric on biotechnology. Thus the Tamil Nadu policy foresees a Swaminathan style gene revolution succeeding and improving upon the earlier Green Revolution, as a core part of the policy narrative. In many respects, because of the Swaminathan connection, the Tamil Nadu policy is part of a more familiar policy discourse, where state governments, in partnership with the centre, were committed to a public enterprise (in alliance with the private sector, through vague notions of partnership) aimed at broad developmental goals of tackling poverty and encouraging economic upliftment.

No-one in the core network in Karnataka would disagree with this vision. Indeed nods of recognition towards Swaminathan are very much part of the ritual of any biotech speech maker (including the CM in his launch of the Karnataka policy). But apart from a few concessionary words in this direction, the Karnataka policy, by contrast, is virtually silent on issues of agriculture, food security and poverty. Its only mention, is essentially in passing and part of a compromise deal (see below), where an allocation of funds to the Agricultural University in Dharwad is committed.⁷⁰ Instead, a very different approach to both policy formulation and implementation is suggested – one where the private sector are seen as at the centre, and the state's role merely facilitatory, and, as a result, where private sector players are central to all facets of policy-making. This suggests a very different notion of “partnership” between the state and private sector, with some significant implications for how notions of development and policy are being reconceived in the emergent politics of the “new economy”.⁷¹ In the case of the Karnataka biotech policy private sector entrepreneurs, largely outside the loop of accountable electoral politics, although with the agreement of Chief Minister and under the guidance of a senior civil servant, dominate the process of policy-making, crafting a vision and a set of policy measures very much in tune with their own interests.

By creating a discourse coalition around a vision of development that is compatible with elite business interests in Bangalore, a distinct policy network could emerge, committed to its ideals and prepared to support the process of policy-making in government. By being given credibility and authority by leading scientists from elite establishments based in Bangalore, this was a winning combination. In the new politics of Karnataka, and particularly for the electorally fragile ruling Congress party, being firmly part of this grouping is increasingly a sine qua non of political survival. This is particularly so given the “elite revolts” (Corbridge and Harriss 2000; Varshney 1999) that have occurred elsewhere in the country

⁶⁹ ‘Biotechnology Policy of Government of Tamil Nadu: Boundless Potential. Bountiful Profits’, 12 September 2000, Chennai.

⁷⁰ According to the IT and BT Secretary, the government has been trying to get Monsanto to support a crop biotech facility at Dharwad along the lines of the co-funded IBAB in Bangalore, see *Hindu*, 18 April 2002.

⁷¹ See Evans (1995) on “embedded autonomy”.

resulting in a growing BJP dominance. The BJP (or indeed a regional party) spectre is always on the minds of the Congress party in Karnataka (e.g. Manor 1992; Assadi 2002). Courting the new urban middle classes, while balancing this against the traditional support base in rural middle farming groups, is increasingly part of the strategic power play of state politics in Karnataka therefore. Today, with the addition of the hi-tech growth sectors and a growing middle class, state politics is more complex than that described by Manor (1989: 331) as comparatively cohesive and ‘rooted in small peasant proprietorship’.

With such a context in mind, the promotion of biotech as the successor of IT, and with this the rejection (or at least sidelining) of the alternative, more traditional discourse of biotech being the successor the Green Revolution, is understandable, and, perhaps, politically essential. Thus, in contrast to other states, the slogan was IT to BT, not Green Revolution to gene revolution, and the iconic figures were not plant breeders – Borlaug, Pal, Swaminathan – but the more contemporary, and significantly, Bangalore-based IT heroes – Narayana Murthy, Premji and the rest.

6 Contexts for policy-making

In the past it was perhaps possible to talk of policy-making processes as state or national affairs. Not so today. As we have seen, what happens in the US hi tech sector has major ramifications for the Bangalore political economy, and so the configuration of economic and political interests around different policy positions. So, dot.com shares on the Nasdaq exchange may be as significant as the rural politics of the state’s farming districts in shaping what policy concerns become political imperatives. Thus the slump in the US economy has increased the necessity to back a form of biotech that potentially boosts or replaces a flagging IT sector. Similarly, the reaction to GM foods in Europe has had reverberations in Karnataka through media commentary and public protests by farmers’ groups and environmental activists.⁷² This firmly reinforced a sense among strong supporters of GM crop alternatives in the core policy network that going down the agricultural gene revolution line is politically risky, one that could cause public backlash and negative media commentary.

Global connections of this sort are facilitated by the media, interactions of civil society groups in global coalitions, the role of international organisations, aid and donor intervention and so on. Policy actors are hooked into a variety of these local, national and global connections, often simultaneously. Thus for example Dr V Prakash, while being director of the Central Food Technology Research Institute (CFTRI) in Mysore is also on the Karnataka biotech Vision Group and chair of the Biotechnology Council of the KBDC. He is also at the same time a member of the FAO’s committee on food safety, and a participant in an array of national level committees. All members of the Vision Group, for instance, travel abroad regularly on conferences or business trips; all are members of various business associations; and all have access to media commentary of various sorts from various sources.

⁷² See discussion in Scoones (2003).

The importance of these global connections should not be underestimated. While many are cynical about the motives and competencies of the NRI (non-resident Indian) diaspora,⁷³ they do have unusual influence and access. Thus, as already mentioned, CS Prakash from Tuskegee University in the US was invited to form the support group, K-GANGA (Karnataka Global Advisory Networking Group on Agriculture),⁷⁴ and is a regular visitor to Bangalore and a regular commentator at meetings and in the press. Similarly, the blessing of Bangalore biotech initiatives from the likes of US-based Anand Chakarabatty (University of Illinois), Ganesh Kishore (ex-Monsanto chief scientist and former IISc student), Gurdev Khush (International Rice Research Institute scientist) and Shantu Shantaram (University of Bangalore graduate and former USDA and Syngenta employee) among others carries with it a certain cachet.⁷⁵ With the construction of Bangalore in the image of the Biotech Bay Area or IT Silicon Valley of California, making the links, however tentative, is important to the building of an image and a brand.

The Karnataka biotechnology policy network also, of course, interacts with national level processes. A number of Vision Group members are key players in the national biotech arena. On the scientific side, for example, the IISc members are both senior members of the Department of Biotechnology advisory groups, while Omkar Goswami is chief economist of the national level Confederation of Indian Industry, while Kiran Muzumdar-Shaw is the chair of the CII's task force on biotechnology and regular participant in CII overseas delegations and high profile meetings.

In the contemporary policy setting – particularly around an issue like biotechnology – connections between local, national and international policy arenas is standard. One reading of the significance of global connections in the making of policy is that the local becomes subsumed in an increasingly homogenised, uniform global narrative of policy. While this is most certainly a tendency in the biotech debate, with international agencies pushing a fairly standard regulatory line, and the US government with US business interests following along behind, this can only go so far. Such national or global concerns cannot escape local political and economic realities of particular contexts where policies must be enacted. Karnataka is no exception. No matter how much the global hype of biotech opportunity is promoted, there remains a deep-rooted scepticism about the rhetoric of fast-track development, single-window investment opportunities, liberalised regulations, and the benefits of free trade which will flow from signing up to the biotech revolution (and with it the whole package of the globalised economic order). In a meeting held by the Karnataka Chambers of Congress and the Congress Party for Members of the Legislative Assembly to coincide with the new assembly session to explain the implications of new WTO

⁷³ As one contributor to a discussion put it 'Why should the state government run to Alabama for advice. Those who come here from abroad think that India is at a stand still. They think that India is what it was when they left'. Another observed: 'They are Bangalore people, fine. They come and see their relatives. Good for them if they get their trips paid for by Monsanto!' (Discussion, University of Agricultural Sciences, Bangalore, 12 March 2001).

⁷⁴ See *Fortune India*, 15 July 2002.

⁷⁵ For example the launch of the Bangalore-based Foundation for Biotechnology Awareness and Education was attended by Shanataram, reported as a visiting scientists from IFPRI at the time (see 'Govt urged to encourage research on biotechnology', *Deccan Herald*, 20 January 2001; 'Foundation on Biotech to be launched', *Deccan Herald*, 17 January 2001).

rules, Members of the Karnataka Legislative Assembly were in uproar. Give us proof, they said, that the removal of quantitative restrictions will not damage farming livelihoods. Demonstrate how free trade has helped the poor. Show us the benefits of the trickle down of the IT revolution in my constituency. In the end, no matter how convinced a global, national or state policy elite is about a particular policy direction, the idea must be sold at the local level. And in India this means to a largely poor, rural electorate. While it may be the case that elected officials are easily bought off, and that many are too busy elaborating their own patronage networks to be much concerned with complex policy issues for much of the time, this can change around elections if the opposition is on its toes. At this time, when the spoils of office are contested once again, they may be prepared to change their policy allegiances, and abandon support for someone who looks to be in trouble. Thus a carefully elaborated coalition may unravel very quickly if political expediency requires it to do so. A seemingly politically untouchable Chief Minister may similarly quickly fall from grace, unless a nimble move to accommodate electoral moods is managed.

The political elite are well aware of this dynamic, and must invest considerable effort in complex balancing acts that trade-off policy objectives with political realities in tune with the electoral cycle. In the Indian setting, the outcomes are always compromises. Compartmentalising policy debates – hi-tech new economy vision on the one side, promoted intensively in the English-language press, and rural development and agriculture on the other side, the focus of local language press briefings.⁷⁶ It is no surprise, for instance, that despite over a decade of much touted economic liberalisation measures, the agricultural sector remains largely untouched. This is part of the political compact with an influential part of the rural electorate. As dynamics of electoral politics shifts, and the importance of the new elites, business and others becomes more significant – either for votes, or for cash which can buy them – the pattern may change and a more consistent position may arise. But certainly in Karnataka this has yet to emerge, and the gung-ho globalisation and liberalisation rhetoric remains tempered and qualified. This equally applies to biotechnology which, while riding on the bandwagon of “new economy” sloganeering, must be seen to deliver something before being more widely accepted.⁷⁷ For the time being, then, the judicious compartmentalisation of debates and issues makes a lot of sense.

⁷⁶ I am grateful to James Manor for highlighting the importance of “compartmentalisation”. I have not had the opportunity (nor have the skill) to do a systematic analysis of the Kannada press to fully substantiate this, however.

⁷⁷ To date of course the biotech sector has not delivered much at all for the vast mass of the Karnataka population, beyond the hype and associated aspirations. State government estimates suggest only 5000 odd jobs exist in the sector as a whole, and the new investment, while significant, is not large enough to generate tangible spin-off benefits (see www.bangalorebio.com/survey). Indeed cross-state econometric analysis questions any neat relationship between overall economic growth in the non-agricultural sectors and poverty reduction. Datt and Ravallion (2002) suggest that initial conditions are key for such trickle down and multiplier effects. In comparison to other states Karnataka is perhaps mid way in their index of elasticity, but way below such states as Kerala and West Bengal.

7 Channeling dissent

Any policy creates some form of dissent. Necessarily policies create choices – there are winners and losers. Some gain the benefits of tax breaks, new infrastructure or grants, while others don't. In the biotech field, the trade-offs are somehow bigger. While not focused on the narrow, more immediately material interests and privileges around which much interest group politics is centred (cf. Bardhan 1984; Corbridge and Harriss 2000), the regulatory debate associated with agricultural biotechnology and transgenics in particular, for example, is constructed, certainly by opponents, as one about the future of society and, with this, broader development priorities and fundamental values. Yet around such “big picture” issues groups may not readily mobilise. Much biotech protest has been driven by a loose coalition of NGOs and activist groups, often linked to international movements, rather than emerging from particular, located political interests. This does not make such protest any less valid, but it means that it carries with it different political implications, particularly for state politicians and civil servants worrying about the electoral consequences. Karnataka has certainly seen its share of biotech protest, particularly focused on the testing of GM cotton. A number of groups have mobilised to claim that the decisions to allow field testing is illegal, and that the introduction of such cotton will undermine farming livelihoods, destroy biodiversity, cause human health risks and allow for multinational monopoly. On this basis protests have been held, courts petitioned and numerous “direct actions” carried out (see Scoones 2003 for a discussion).

The KRRS, one faction of which is led by Professor M D Nanjundaswamy, has been a key player in such protests, organising boycotts, burning of crop trials and protests in various parts of the states. While notionally a state-based farmers' movement, with a membership base among the relatively well-off middle farming groups, through Nanjundawamy's leadership the KRRS has sought other allies in a wider struggle. Alliances with both national and international protest groups have raised the temperature, and Bangalore has been the host of a number of big meetings and demonstrations on this issue. The media coverage has been regular and extensive, with few weeks going by when one of the dailies is not covering some form of protest or other. Whether these protests have broader legitimacy or support among the Karnataka rural electorate is questionable. Farmers most likely to be KRRS members have been, for example, the most eager to plant Bt cotton and acquire Monsanto hybrid seeds.⁷⁸ But, even without this sort of interest group support, the carefully crafted media campaigns and perhaps particularly the international press exposure certainly provides pressure on any formal policy process. Opinions and perceptions matter, and the government must be seen to be responding. Maintaining the “investor friendly” status of the state is always difficult in the face of such extensive competition elsewhere in India and the region. The managing of dissent, whatever its source, is thus a key part of the making of a policy, and, in the case of the Karnataka biotech policy, it could be argued to have shaped it fundamentally.

The most voluble and dramatic protests preceded the origins of the Vision Group and the state led policy process described here, but such protests continued after 1998 when the first field trials assessing the efficacy of Bt cotton were initiated in the state and saw an resurgence in 2000 when the large scale-

⁷⁸ See Assadi (1995a, b 1997) and McHattie (2000) for a further discussion for a discussion of KRRS.

field trials were ongoing. Almost at the same time as the initiation of the Vision Group, the CM created an Agricultural Commission to look at biotechnology in agriculture and Bt cotton in particular. This again pushed complex and tricky decision making (or at least deliberation) outside government to an “expert” commission, and allowed the controversial area of agricultural biotechnology (and especially Bt cotton) to be parceled off into a separate area, where there were opportunities (although limited) for consultation and public input.⁷⁹ For the Vision Group this was a great relief. This meant that they were not saddled with dealing with that issue (which in any case was out of the remit of any state decision making process as the regulations and approvals are carried out at national level by the Department of Biotechnology and the Ministry of Environment and Forests), and could focus on and create their own agenda, outside the maelstrom of Bt cotton politics.

Over the period from mid-2000 there was a distinct shift in emphasis in the press commentaries made by members of the Vision Group, and in particular the chair Kiran Muzumdar-Shaw. At the start of the process there was much talk of the importance of biotech applications in agriculture and health for the benefit of the people of Karnataka (more in line, say, with the Tamil Nadu model discussed above). Biotech was for the benefit of all, and very much delivering public goods for mass publics. But this gradually gave way to a greater emphasis on contract research, bioinformatics⁸⁰ and so on, in line with the policy narrative discussed earlier in the paper. This left agricultural and health applications, and certainly anything with a “pro-poor” slant, very much “for the future”. By framing the policy in this way, the Vision Group effectively sidelined the area of protest, leaving the contentious issue of Bt cotton and GM crops in agriculture to the Agricultural Commission, chaired by former UAS Bangalore Vice Chancellor, Professor Dwarakinath and the commissioning minister in the agriculture department to deal with the problem.

An image of biotech was therefore invented which linked it more firmly to the acceptable and now well-known IT model, where the benefits would flow to the middle classes and the ranks of the unemployed software engineers and computer programmers. And, as already discussed, creating a future image to which others could aspire. Unlike the muddied waters of agricultural biotech, the IT model is only associated (so far at least) with success. No protest politics are associated with it, no risks are immediately evident and the sources of distrust in expertise so redolent in the agricultural biotech debate have been avoided. It is seen as benign, bringing wealth and prosperity, creating a politics of hope, rather than a politics of anxiety and uncertainty.⁸¹ As one member of the Vision Group put it: ‘we must invest in

⁷⁹ The commission was chaired by Prof Dwarakinath, former Vice Chancellor of UAS-B. It produced three reports, including ‘Agricultural biotechnology: an indispensable research system’. See also: ‘K’taka agri panel see biotech growth via research’ (*Economic Times*, 27 December 2000); ‘Biotechnology best bet for Karnataka’ (*Hindu*, 22 January 2001); ‘Panel moots promotion of biotech in farm sector’ (*Deccan Herald*, 27 January 2001).

⁸⁰ The hosting of some major international conferences in Bangalore on bioinformatics which discussed extensively successful US biotech business models helped in encouraging this shift. See, for example: ‘Bioinformatics meet in B’lore’ (*Deccan Herald*, 11 January 2001); ‘Bioinformatics will benefit drug industry’ (*Hindu*, 16 January 2001); ‘Boom time for bioinformatics’ (*Deccan Herald*, 17 April 2001).

⁸¹ Academic critiques (e.g. Heitzman 1999) have questioned some of the positive stories around the Bangalore IT success story, pointing to the fact that the “IT coolies” on contract to US companies earn relatively little in the total value chain.

this strategy. If in five years time we have generated employment, and brought investment to the city, then there can be no protests. We will have created a new constituency'. Thus backing the politics of hope and success and sidelining the politics of distrust and anxiety has been an important subtext of the policy-making process, and key to the strategies and tactics of the Vision Group.

The policy though does talk about agriculture a bit. The CM's speech at the well-attended and lavish launch event at the Taj hotel in Bangalore dwelt on it substantially. Great play was made of the allocation of Rs 5 crore to Dharwad Agricultural University for a new biotech facility. As one Vision Group member observed:

SMK doesn't want to be accused of only being interested in the elite. All the IT/BT stuff: that's just jobs for the rich kids. So he must talk of biotech in terms of traditional medicines, farmers' priorities. He's an astute politician.⁸²

While the largesse towards Dharwad was undoubtedly appreciated by University's Vice Chancellor, it is widely recognised as more of a political concession, and a nod towards agricultural issues, than a real commitment to develop a local state capacity in agricultural biotechnology. Equipping a biotech lab, even if the building infrastructure, is available, costs a good deal more than the amount offered, and the availability of the highly qualified scientific staff needed to make a real impact in Dharwad is frankly unlikely. But, by locating any state involvement in the controversial area of agricultural in the northern part of the state, far from Bangalore and the core activities of the new biotech vision, any potential dissent was further dealt with, essentially by physically displacing it. Vivek Kulkarni summed it up: 'committing to ag biotech in northern Karnataka is good for the image and good for votes'.⁸³ As a Vision Group member put it; 'Nanjundaswamy can go to Dharwad for his protests. We will not stop him protesting; that is his life. He does not know what else to do and he will not talk with us. We can then get on with things here [in Bangalore]'. The strategy was explained thus: 'if we focus on creating jobs here [in Bangalore], the anti lobbies won't have a look in. In a few years time a whole new lobby group will have emerged who will want to protect their jobs'.⁸⁴ By displacing protest and at the same time visibly providing state support to the northern areas was of course, as the Secretary well knew, a very astute and sensible political strategy.

However, the sidelining of agriculture – as an expedient political move to divert protest and as a way of consolidating the core interests of the emergent discourse coalition around pharma/medical applications and contract research – was to have a rebound effect later. One of the headline commitments of the other policy was to establish a biotech park in the University of Agricultural Sciences. But with the

⁸² Interview, IISc, 21 March 2001. See press reports on Krishna's speeches in 2001 around the release of the policy, for example: 'Biotechnology will better farmers' lives: CM' (*Hindu*, 21 January 2001); 'Government will promote research in biotechnology: Minister', 8 March 2001; 'State budget: biotech for farmers' (*New Indian Express*, 19 March 2001); 'New center heralds city's biotech age' (*New Indian Express*, 21 January 2001).

⁸³ Interview, Vivek Kulkarni, Secretary IT and BT, Bangalore, 6 March 2001.

⁸⁴ Interview, Bangalore, 6 March 2001. Thus the compartmentalisation continued. Not only was the policy refocused away from agriculture, but in the same move this created different locations for the emergence of interest group politics. Protests from the KRRS could, it was calculated, be more easily contained away from Bangalore.

UAS and allies disenchanted with the apparent ignoring of agriculture in the policy, and the only concession being made to their northern Karnataka colleagues, many at UAS in Bangalore were not particularly amenable to the Vision Group and their policy (to put it mildly). As one local industry observer pointed out: ‘Agriculture was completely sidelined. But it came back to haunt them. If they had a GKVK [University of Agricultural Sciences campus] person there, all the trouble over the biotech park wouldn’t have happened’.⁸⁵ This discontent became particularly apparent later, as we shall see.

8 Selling the vision

With the policy narrative firmly in place, the core coalition reasonably secure, and dissent apparently sidelined or largely dissipated, an important task still remained: how to enlist others outside the core network in the vision of biotech for the state. For the Karnataka biotech policy this was a carefully orchestrated affair. A good image is essential. With many competing claims on media attention, and many alternative perspectives on biotech out there, it was important for the Vision Group – or more particularly the Department of IT, or rather IT and BT as it had become – to put its mark on the policy initiative. While the content is of course important, the style, the image and the presentation is also significant. The policy document and associated website were put together with a team of professional consultants. The full-colour printing, and accessible design gave the document a look of corporate professionalism. The launch was at a suitably flash location, with a range of charismatic speakers, led by Kiran Muzumdar-Shaw herself. Her now polished spiel on the benefits of biotechnology for the state was supported by Professor Sharat Chandra who offered the appropriate scientific gravitas for the event. The political seal of approval was provided by the minister and more particularly the CM, who, in turn ensured good media coverage, at least for the Karnataka or South Indian editions of the dailies. Good policy, according to one civil servant informant, always involves largesse: schemes, initiatives, new buildings to be opened. This is important for the image, the only thing that will get a policy noticed by the media. As Vivek Kulkarni explained:

Yes policies are important. They create enthusiasm and momentum. They must also be linked to events like Bio.com. It is important to get the press coverage right. Choosing the right time for the launch was key. It was important to get the bioinformatics and job creation message across. You must show you are doing something, then things will follow.⁸⁶

While many noted the rather limited content of the policy, it did have some of these elements. The new facility at the International Technology Park at Whitefields (the Institute for Bioinformatics and Applied Biotechnology) offered a tangible site for photo opportunities among the gleaming glass and marble of the Innovator building.⁸⁷ The ceremonial handing over of the cheque to the Dharwad VC at the Bangalore

⁸⁵ Interview, Rallis India, 1 February 2002.

⁸⁶ Interview, Vivek Kulkarni, Secretary IT and BT, 6 March 2001.

⁸⁷ See ‘Bangalore now has frontline biotech institute’ (*Deccan Herald*, 22 January 2002); ‘Bioinformatics institute in Bangalore (to be set up jointly by GoK and ICICI)’ (*Financial Express*, 4 November 2002).

Bio.com opening also gave the right signals. With the launch of the policy in early 2001, the first in a now highly successful trade fair and conference – Bangalore Bio – followed soon afterwards, creating a continuity in media interest and another opportunity to grandstand Karnataka’s new policy initiative. The slogans adorning the trade fair were suitably upbeat: ‘Bangalore the biotech city’; ‘Decode the success gene @ bangalore bio.com’; ‘Biotech happens here’. In his welcoming speech the IT and BT secretary, Kulkarni said the aim was to ‘showcase Karnataka as the knowledge state of India, with the Bangalore the knowledge economy capital’. He went on, making the now well rehearsed link with IT: ‘the slower tortoise of biotech is catching up the hare of IT. We want the hare and tortoise to join hands and cross the finish line together’.⁸⁸

Over the following two years an impressive momentum has been maintained, not least due to the dual efforts of Kiran Muzumdar-Shaw and Vivek Kulkarni. As Muzumdar-Shaw put it, putting a particular spin on the role of a senior civil servant: ‘Vivek is a very good business partner to have in Karnataka’.⁸⁹ She later commented how ‘They are almost leaving it [the policy] to me. Vivek is very business-like, and the Minister doesn’t much. It is a good way of doing things’.⁹⁰ As others have commented, the business community, unlike in other cities in southern India is not riven with caste based and other divisions. As a reasonably coherent group, it is possible to develop a coalition of interests with relative ease. As Kulkarni put it: ‘They [the business community] is prepared to offer a coherent voice. If key figures like Naryana Murthy, Kiran and others show the way, others will follow’.⁹¹ There are of course detractors. One UAS lecturer argued: ‘She [Muzumdar-Shaw] is just for business interests, not for science, or for the common man’.⁹² But, despite the grumbles, these positions remained on the sidelines.

Instead, the profile of the Karnataka biotech success story seemed to grow and grow. The Bangalore Bio events have expanded year on year, becoming, or so it is claimed, the biggest and best in such event in India⁹³. With the CII gearing up their emphasis on biotech over this period, Kiran Muzumdar-Shaw has again been in the limelight as chair of their committee. A number of Karnataka biotech heavy-weights have participated in the CII’s trade missions,⁹⁴ and Karnataka and its biotech sector has featured prominently in a number of high profile events and visits.⁹⁵ For example, in early 2002, Bangalore hosted

⁸⁸ Opening speech at Bangalore Bio.com, 15 April 2001.

⁸⁹ Speech at Confederation of Indian Industries meeting ‘Demystifying Biotechnology’, Palace hotel, Bangalore, January 2002.

⁹⁰ Interview, BioCon, 22 February 2002.

⁹¹ Interview, Vivek Kulkarni, IT and BT Secretary, 22 March 2002. In this comment he contrasted the Bangalore setting with Hyderabad which he observed was ‘riven with caste politics’.

⁹² Interview, UAS GKVK campus, 14 March 2002.

⁹³ See ‘Bangalore all set to become biotech hub: GoK hosting three-day event’ (*Financial Express*, 15 April 2002); ‘Karnataka leads India’s biotech surge’ (*Financial Express*, 16 April 2002); ‘Blazing a new trail. Karnatak is the leander in the biotechnology space in India’ (*India Today*, 8 April 2002). Bangalore Bio 2002 attracted 72 trade fair exhibitors from 13 countries, along with 300 conference delegates, 15,000 business and 25,000 general visitors according to press reports (see *Hindu*, 18 April 2002). In 2003 this grew to 121 companies from 20 countries with 25,000 trade visitors and 30,000 members of the public (see website at www.Bangalore.bio.com).

⁹⁴ For example, both Kiran Muzumdar and Vivek Kulkarni were part of an 18 strong CII mission to the US and Canada during 2002. See ‘CII team sees big scope in US, Canadian biotech (with partnering and outsourcing opportunities in different areas of biotechnology)’, *Business Standard*, 28 June 2002.

⁹⁵ In 2000–2001 official visits to the city cost the state Rs56 lakh (lakh Rupees Rs 100,000, approximately £1,500), of which Rs 30 lakh were debited to the IT and BT department (*Deccan Herald*, 4 April 2002).

the 'Partnership Summit' and UK Prime Minister Tony Blair, who later commented favourably on the dynamism and enthusiasm of Bangalore's biotech entrepreneurs.⁹⁶ While not continuing to be overshadowed by the Bangalore IT kings, the biotech players were increasingly centre-stage. With high profile IT companies announcing their interest in biotech applications and links through bioinformatics, commercial alliances began to confirm the policy line it seemed.⁹⁷ In advance of recent Bangalore Bio events, the newly established Karnataka Biotechnology Development Council,⁹⁸ together with the CII, commissioned some research which provided some headline figures suitable for media comment. Thus newspaper headlines claimed that Karnataka will receive Rs 3 billion of investments in biotech in 2002 and 2003, with 70 existing companies producing Rs 7 billion of revenue.⁹⁹ Such claims again helped to push the Bangalore profile ever upwards. Given the ever growing competition from other Indian states, and most particularly Andhra Pradesh, the profile-raising policy effort had to continue. Selling the vision, maintaining the hype and managing the image is a key part of the policy process, and one, it must be admitted, that Karnataka has managed very well indeed.¹⁰⁰

It is therefore perhaps less the specific content of the policy (of which everyone admits there is not much) which is important, but more, as one Vision Group member put it, "the mood". To create such a mood, symbols and figureheads are important, these must have good images, and be part of what one commentator termed, "fashion politics".¹⁰¹ Thus, in creating a particular policy narrative, associated with a firm and well-networked coalition, the policy is more about establishing a particular direction for biotech than any particular measures (those that exist are either nominal and marginal in most people's assessment). In creating such a direction, it implicitly (some would say explicitly) excludes – or at least downplays – other visions, and casts the policy debate in a particular way, one that, although fragile at first, may find a more solid political grounding over time, and so take hold. By separating off agriculture and presenting a broader biotech vision, there were clearly some who were sidelined in the process. The UAS staff, as we have seen, grumbled. CS Prakash and the K-GANGA initiative, both firmly linked to an agricultural vision, were given less exposure. But such manoeuvres were easy when opposition was limited and disparate. However, in the contested and volatile politics of India, such conditions can never be taken for granted.

⁹⁶ Blair's Royal Society speech on science (May 2002) was, he claimed, in part influenced by conversations he had during his visit to Bangalore in January 2002. In the speech he noted the threats well organised science-business linkages in India had to UK industrial competitiveness in fields like biotechnology.

⁹⁷ In the last few years the major Bangalore based IT companies have been exploring tie-ups with biotech firms, particularly around bioinformatics applications. Some of the major beneficiaries of the IT boom have also begun investing in biotech firms. For example N.S. Raghavan, a founder and 5 per cent equity holder in Infosys, was a start-up angel investor in the new Bangalore biotech company Metahelix.

⁹⁸ See KBDC internet newsletters at http://members.rediff.com/d_rao248/kb.html

⁹⁹ See *Hindu*, 16 April 2002.

¹⁰⁰ See 'State governments competing with each other to set up genome valleys with global standard research facilities' (*Outlook*, 14 January 2002); 'After IT, now state, Andhra Pradesh being race over BT' (*New Indian Express*, 23 January 2001).

¹⁰¹ A term used by Narendar Pani during discussion. That this politics is characterised by mood and spin does not mean that it is not also "real" in the sense of particular interests being served as part of political machinations. The contrast between "fashion" and "real" politics (see below) is thus one of styles of politics and policy-making.

9 From “fashion politics” to “real politics”

The “fashion politics” of the Vision Group hit difficult ground in mid-2001. The plan to create a biotech park as part of a bigger biotech corridor (or genome valley) seemed uncontroversial enough to the Vision Group members. Here was an opportunity for the UAS in Bangalore, with its huge, underutilised campus, to benefit from the presence of start-up companies and new research facilities (and so stop grumbling). A reconnaissance mission led by the IT and BT Secretary Vivek Kulkarni, identified four possible sites, and finally one was chosen. The UAS Council and staff however were not so keen. Spearheaded by the UAS Joint Action Committee, a coalition was formed that included the UAS Teachers’ Association, the Student body on campus and the Employees’ Association, that lobbied hard against the plan. The objections were varied, but the immediate campaigning focus was the protection of tree biodiversity. ‘Biodiversity not Biotechnology’ became the slogan. However, behind the ostensibly conservationist/environmentalist tack were a range of other objections: the presence of private businesses on campus, the benefits to the University being unclear, and – perhaps above all – the general suspicion of the Vision Group, its members (and particularly its chair) and the process by which they apparently hi-jacked the biotech policy-making process in the state.

The dispute between UAS and the government came to a head in September 2001, when a series of letters were sent to the UAS Vice Chancellor, each demanding the handing over of the land. At a certain point the CM himself lost his patience and demanded that the land be handed over by a specified date. This duly happened, but that was not the end of the story. With the arrival of the bulldozers to clear the sites, students and staff assembled, and “hugged the trees”, reenacting the now classic Chipko movement form of non-violent protest. But the protest did not remain peaceful. Police acting under section 144 then tried to break up the protest and lathi charged the assembled group, beating many including women students and senior faculty. Subsequently the police entered the campus and hauled people from their labs and offices, creating an atmosphere of fear and intimidation. As one protest organiser commented: ‘Now the scientists here realise the full force of the political economy of biotechnology’.¹⁰²

The press coverage was dramatic, with pictures and personal commentary of police violence.¹⁰³ This was not the image that the Chief Minister and his Vision Group wanted to portray. As one rather disconsolate Vision Group member noted: ‘the political opportunity was handed to the opposition on a platter . . . it was a disaster’¹⁰⁴. Others quickly jumped on the bandwagon too. Property developers disappointed that the site chosen at UAS was not near their own development sites encouraged the agitation, in the hope that the UAS project would be abandoned and the park placed elsewhere where they were more likely to profit. In the days following the protests, opposition politicians, KRRS leader

¹⁰² Interview, Dr T.N. Prakash, University of Agricultural Sciences, Bangalore, February 2002.

¹⁰³ See ‘100 hurt in police lathi charge’ (*Deccan Herald*, 28 September 2001); ‘Black day for UAS students, faculty members’ (*Deccan Herald*, 28 September 2001); ‘Police beat up students, professors’ (*Hindu*, 28 September 2001); ‘Police go on caning spree; students, staff injured’ (*Times of India*, 28 September 2001); ‘Police excess in GKVK campus dent Krishna’s image’ (*Economic Times*, 29 September 2001).

¹⁰⁴ Interview, IISc, 5 March 2002.

Nanjundaswamy and others came and visited the UAS campus and addressed students and others, gaining as much political capital out of the debacle as they could.

The UAS episode highlighted how in the context of the “real politics” (especially if fanned by hard nosed business interests around urban real estate) of Karnataka, even the most slick, well-coordinated technocratic game plan can come unstuck, even if only temporarily. A discourse coalition such as that that formed around the Vision Group is always fragile if all bases are not covered effectively.

The UAS site was subsequently abandoned in favour of another one nearby. This too was later given up due to uncertainties about land ownership. In the end a site was identified, already owned by the government, in the Electronic City industrial area on the other side of the city.¹⁰⁵ In 2003 the site was finally opened, and the Chief Minister could finally give his speeches about how his governments considerable investment would bring dividends to the state. That the whole saga had resulted in considerable expense to the state government, along with bad publicity and a loss of investors who in the meantime had found other locations,¹⁰⁶ was of course downplayed. The show must go on.

But in the 2002 and 2003 there has been a certain muting of the fanfares that accompanied the launch of the policy. The biotech park saga took some of the wind out of the sails of the advocates, but there have been other factors too. In 2001 a new minister took over the IT and BT portfolio, Professor B.K. Chandrashekar. A highly articulate lawyer, he was sceptical about the way the biotech vision was being sold and the emergent, non-accountable policy process that surrounded it. He made it clear to his senior civil servants, and the Vision Group members too, that he wanted a different approach. In an interview, he observed how:

The administrative mode is deeply problematic. If politicians are not informed, then they rely on the bureaucrats. The role of the people was zero in this policy. It was not a democratic policy. It is looked at from above and implemented from above. The big names are for what purpose?¹⁰⁷

¹⁰⁵ See various press reports on the changing fortunes and locations of the park, for example: ‘Biotech park (Bangalore) expected to attract Rs 500m crore investment by 2004’ (*Business Line*, 12 March 2002); ‘International biotech park at Whitefields to be ready by 2003’ (*Hindu*, 27 February 2002); ‘Land acquisition for Hebbal biotech park under way’ (*Business Line*, 10 April 2002); ‘Bangalore biotech park taking shape’ (*Business Standard*, 19 March 2002); ‘Karnataka tries to salvage biotech park project’ (*Financial Express*, 14 December 2001); ‘Karnataka government may set up biotech R and D centre’ (*Deccan Herald*, 14 November 2001); ‘New location for biotech park’ (*Hindu*, 2 October 2001); ‘State govt selects plot for biotech park’ (*Deccan Herald*, 1 March 2002). The park was finally inaugurated with the laying of a foundation stone and the naming of the site ‘Bangalore Helix’ during the Bangalore Bio 2003 event (see ‘BT park to come up at Electronic City, *Deccan Herald*, 16 April 2003). Also see press reports on other biotech parks being planned. For example: TIDCO, Cornell University sign MoU for biotech park, *Hindu*, 16 January 2001; ‘International biotech park to be ready by 2003’ (*Hindu*, 29 February 2002).

¹⁰⁶ Originally AstraZeneca were to take a large chunk of the land and provide a good proportion of the finance, but this deal fell through due to the protracted negotiations and fear that they would become embroiled in the associated politics. Other potential users of the park, such as the new Bangalore company Metahelix, have since found alternative sites. According to KBDC officials it is hoped that Biocon and a few other leading Bangalore companies will show willing and take up at least small plots. The fear of a major white elephant, with a Rs 50 crore government funded facility sitting in the middle of highly valuable industrial land is certainly tangible in informal discussion.

¹⁰⁷ Interview, B.K. Chandrashekar, March 2002.

In a speech to the Bangalore Bio event in 2002, he indicated that he wanted encourage a lower-tech, small-scale biotech in the state that would benefit struggling small and medium scale enterprises.¹⁰⁸ This was not a strategy of investment at all costs, but a more focused approach. Whether this was a political calculation or a genuine difference in policy strategy (or most likely a combination), but the politics of such a choice has become more and more evident of late. With Congress worried about their electoral prospects they must make clear appeals to a sceptical electorate. That the opposition Janata Dal parties have not managed to come together on anything like a solid platform, and the BJP remains only a potential threat, of course favours the Congress, but nothing can ever be taken for granted. The Kanakapura Lok Sabha by-election in February 2002 was for some commentators an important turning point.¹⁰⁹ This was contested by former Union Prime Minister and Janata Dal (Secular) leader in the state, Deve Gowda. Although a relatively urban constituency, Deve Gowda appealed to a rural vote and advocated a more traditional politics of conventional poverty orientated development (of course rather unspecified in terms of a range of schemes and so on, in traditional electoral style). By contrast the Congress fought with the high-tech image high on the agenda. Narayana Murthy of Infosys offered his support publicly to the Chief Minister in large full-page adverts taken out by Congress on the day of the vote. The Chief Minister himself campaigned intensively during the election period, again on a platform of economic growth through a high tech vision. Here, then, in microcosm was the new and the old politics, and with them visions of the future of the state, its economy and development, being played out in a very public electoral arena. Of course because of the contenders it was stylised and in many ways not reflective of a wider electoral mood, and the fact that Gowda won and the Congress candidate lost was less important than the way the discourse had been characterised.

Three years on from initiation of the Vision Group and biotech policy process in the state, things hang in the balance. There is a new minister of IT and BT who is, it seems, less critical of the Vision Group and its approach.¹¹⁰ Chandrashekar, who attempted to create an alternative, somewhat more modest, low-tech, small/medium business-oriented narrative on biotech was shifted side-ways, apparently following running disputes with the IT and BT secretary, Kulkarni, and the chair of the Vision Group, Muzumdar-Shaw.¹¹¹ In terms of the biotech policy, the core grouping, with the IT and BT secretary still in his post, is now back on course. The UAS biotech park saga is now largely forgotten, and UAS agricultural scientists are now much less complaining about their role, with plenty of effort having been made to ensure that they have been involved in the past few years. But there are other factors at play that may upset the balance of power and influence. In agriculture, for example, a new minister replaced a previously highly pro-GM cotton incumbent during 2002, and more populist responses to protest demands to ban

¹⁰⁸ See *Hindu*, 18 April 2002.

¹⁰⁹ See Pani (2002), for example.

¹¹⁰ See comments in KBDC newsletter from Sri D.B. Inamdar, July-September 2002 at http://members.rdiff.com/d_rao248/kb.html

¹¹¹ Chandrashekar does not have strong constituency base in the state is someone, although clearly a competent and highly motivated minister, easy to reshuffle. To avoid further wrangles in the core biotech grouping in the state, the CM clearly saw a move elsewhere as the most sensible to protect the image and direction of the biotech policy push.

GM cotton in the state have been apparent.¹¹² And, with state elections due in 2004, political strategists and opinion pollsters will be hard at work deciding on whether a biotech vision, with its as yet unfulfilled promises and aspirations, is worth raising as an electoral issue.

10 Conclusion

There appears, then, to be a new politics of policy-making emerging in the new economy, one that has received remarkable little critical commentary. In recent years there has been plenty of commentary in both academic and popular writing about the impact of an increasingly federal arrangement in India both politically and economically. The demise of the Nehru-inspired model of a centrally planned, top down policy process has been extensively documented. But what has replaced this in the new “federal market economy” (Rudolph and Rudolph 2001b) has been less talked about. This paper has attempted – for one state, for one time period, around one issue – to elaborate on how a new politics of policy-making has emerged.¹¹³

This is characterised by a new business-science elite, able to push their demands through groups, task forces and commissions. Being associated with success in a global, competitive economy, key individuals provide iconic symbols of great value to politicians, and become important policy entrepreneurs in the new space opened up by the post-reform, federal politics of India. But such individuals, while projecting the assured image of global success, are also local, and great play is made of their Bangalore roots. Biotechnology in Karnataka, this paper has argued, has got intimately wrapped up in such a new politics of policy-making. This has some major consequences for how biotechnology is seen in the context of the economic development of the state, and the policy prescriptions that flow from this.

The paper shows how the politics of policy-making is a long way from previous understandings of the policy process in India, based on the assumptions of a centralised planned economy where states danced to the centre’s tune and the Indian private sector, let alone global multinationals – with a few notable exceptions – were barely to be seen. Biotechnology with its global R and D chains, its internationalised market for products or contract research, its multi-million dollar venture capital requirements and its need for top-level scientific expertise is worlds away from the state-supported industries that fuelled the Bangalore economy from the 1950s.¹¹⁴ Instead, the hype about biotechnology in Bangalore is about selling the state – and Bangalore in particular – in the global market place, and so competing with other “tech-savvy” Chief Ministers, while keeping Delhi’s interfering regulatory embrace at bay.

¹¹² Minister Koujalgi responded to a demonstration outside the Monsanto R and D headquarters by temporarily banning the sale of Bt cotton seed in the state (see *Deccan Herald*, 8 August 2002). By contrast his predecessor, T.B. Jayachandra called to ‘boost biotech in agri sector’ (*Business Line*, 21 July 2001).

¹¹³ Of course there is nothing new in the world. The patterns described here have many resonances in past practices, particularly in Mysore state in the early part of the twentieth century. The hi-tech, industrialisation focus, involving public-private partnerships and independent commissions of experts for policy advice was very much part and parcel of the “Mysore model” of development initiated by Visvesvaraya as Dewan (1912–18), and pursued by Mizra Ismael later (1926–1941) (see Hettne 1977).

¹¹⁴ See Heitzman (1999); Pani (1998) and others.

Yet in the Karnataka setting at least we do not see a completely free market doctrine being applied, despite the neoliberal rhetoric. The state is intimately involved in supporting the biotech enterprise. The Bangalore biotech entrepreneurs have convinced the government – and the CM in particular – that biotech is a winning ticket, and state backing is needed. So tax concessions, support for export/import clearance, intellectual property advice, a proposed biotech fund, and a biotech park with core facilities have all been supported with state funds.¹¹⁵ And this is on top of the considerable investment in the upgrading of Bangalore to be an international, hi-tech city – in the mind of the CM, just like Singapore.¹¹⁶ This also requires state backing for the requisite infrastructure, ranging from a new airport, to fibre optic cabling to interlocking flyovers.

Constructing, and in turn selling, the Karnataka biotech policy narrative has involved intensive effort over the past few years. High profile events, policy launches, glossy brochures, trade fairs, laying of foundations stones, eye-catching surveys and so on have occupied the Vision Group and the Department of IT and BT. This has required the engagement of key individuals who together combine entrepreneurial flair with bureaucratic skill, scientific credibility and an ability to market and brand a policy idea. Despite drawing on global and national connections, the network that was constructed and the storyline that was developed was very much one located in Karnataka. It was in particular responsive to the political needs of a CM eager to demonstrate his ability to pitch the state out of the economic doldrums and to make an impact politically on a growing middle class professional elite in Bangalore and the vast mass of aspirants to this (often imagined) lifestyle and success outside. The core network, as the paper shows, has been dominated by an elite business and science group, operating outside the realm of democratic politics, who gain their position by virtue of their economic success, their social profile in the state and their personal connections with the political elite, notably the CM. Their project has been ably supported by some of the “new breed” of IAS officers, committed to the new economy and to changing the way government works, with the explicit backing of the CM.

This “partnership” between the private sector and the state, with the backing of experts from elite science, has, as we have seen, been hailed as a new model for policy-making, casting aside the corrupt patronage politics of the “license permit raj”, and opening a new vista of scientifically supported, economically sound policies developed by those who know best. But can such an elite, technocratic vision of policy-making stand the test? Surely the interests of the new policy elite are played out within the new politics? As we have seen, there are of course opportunities for gain in the new economy, whether from raising share value expectations, various forms of trading on insider information, real estate dealing, or direct support and access to government. None of these are necessarily illegal practices, but, by serving the interests of a particular elite, with a particular vision of what future economic development should be, the

¹¹⁵ Figures for total state support to the biotech sector are difficult to come by, and some projects – like the biotech fund – remain only notional, and may not mean new cash being given to agencies such as the Karnataka Industrial Development Corporation in any case (see *Financial Express*, 18 April 2002; *Economic Times*, 21 January 2002).

¹¹⁶ See: ‘Singapore’s biotech ambitions’ (*Hindu*, 18 January 2001), although see Nair (2000) for a more sceptical commentary on the likelihood of Bangalore becoming like Singapore.

new politics of biotechnology in Karnataka creates a defined trajectory for change, one isolated from a broader and more inclusive, democratic debate.

Yet, as the last few years have demonstrated, the possibilities of capture by an elite policy network remain inevitably constrained. In part the volatile electoral politics of the state set limits. While business interests may of course help in buying votes in elections, this appears to have relatively little impact on electoral outcomes it seems. A full balance-sheet assessment of the fiscal implications of the hi-tech, new economy strategy and its political knock-on effects (assuming that if state budgets are diverted there are less resources to support more popular, rural, election-winning concerns) has yet to be attempted. If the hi-tech policy is relatively inexpensive in relation to the overall state budget, then it can continue to be compartmentalised in terms of policy-making, and there is no particular need to seek mass support in electoral terms for the strategy. If such a strategy requires substantial diversion of resources and acquires the status of a contentious electoral issue, however, it will have to enter the realm of mass politics. Politicians, and the CM in particular, must then sell the vision to a largely poor, rural electorate. The dream of a life in town with a good IT or BT job seems very far off to many, and no matter what aspirational hype is offered it will not always wash, especially if opposition parties persuasively develop the anti-farmer, anti-rural line in their campaign stance.

In addition, the biotech policy network itself remains fragile. It is dependent for its maintenance on continued commitment from a small group, plus ongoing interest and support from the state government. If this wanes, others will enter the fray with different policy narratives on biotechnology. So far this has not happened, but all policy networks of this sort are inevitably fragile and, as the UAS biotech park debacle showed, may be weak at key points.

In the end, though, both the core biotech network and their political allies must demonstrate practically the success of their policy prescriptions. The biotech hype and policy gloss will only last for so long. Can the requisite amount of foreign investment be secured to avoid the damaging consequences of the IT downturn and sustain the growth of a new knowledge industry which will really produce economic growth and jobs which will benefit the wider population? The jury is still out.

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