

## From Regulation to Management and Back Again: Exploring Governance Shifts in India's Coastal Zone

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### Abstract

Recent struggles over coastal zone policy in India make it a fertile site within which to map the actors, institutions, and knowledges involved in contemporary ecological governance. In 2007, the government drafted a coastal zone policy that marked a shift from the previous regulation approach based on hard boundaries and prohibitions, to a management framework using Environmental Impact Assessment (EIA) studies and new scientific technologies to draw up flexible localised plans. The new policy suffered a reversal, however, when a concerted civil society campaign of opposition forced its withdrawal and a return to the earlier regulatory approach, albeit with numerous modifications. This paper argues that the power of the campaign was not just political, but also informational. It traces the multiple and intersecting trajectories through which knowledges are developed, transmitted, and employed. In particular, what emerges is the role of an important 'straddling' or 'interface' layer of non-governmental organisations (NGOs) and technical 'experts,' and the role of new information technologies and technologies of governance in enabling a cross-cutting circulation of knowledges. Interests, actors, and knowledges/technologies do not always map neatly on to each other, challenging binaries such as 'traditional' and 'modern,' or 'local' and 'global,' and rendering unpredictable the outcome of contestations over policy and governance.

**Keywords:** coastal zones, environmental governance, new environmental actors, environmental knowledges, variants of neoliberalism, policy contestation, India

### INTRODUCTION

The recent shifts and reversals in India's coastal zone policy suggest that environmental policy making in this area is in flux as it attempts to respond to often conflicting pressures and imperatives, and to integrate a range of actors, perspectives, knowledges, and techniques. As such, it also provides an opportunity to map these multiple forces and actors, and the different knowledge claims and value bases they represent or deploy. More specifically, I am interested in the processes

through which civil society actors, especially those working with fishing communities, have become significant players in the policy process. To what extent do these actors claim to contribute or draw upon distinct and alternative knowledges? What role does the politics of knowledge play within emerging forms of environmental governance?

In 2004, the Indian Ministry of Environment and Forests (MoEF) commissioned a review of the Coastal Regulation Zone (CRZ) Notification of 1991, as part of a larger review of national environmental legislation. Based on the report of an Expert Committee, a Coastal Zone Management (CZM) Notification was drafted in 2007 to replace the 1991 CRZ Notification. The shift from the CRZ to the CZM was proposed as a shift from a 'regulation' framework to a 'management' framework (Menon and Kohli 2008: 16-17; Sharma 2011). While the CRZ contained a list of activities considered ecologically damaging to the coastal zone and therefore prohibited outright, the CZM proposed instead to create a plan for each part of the zone, within which management would

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be carried out on a 'scientific' basis, using Environmental Impact Assessment (EIA) studies and related technologies to determine permissible activities. The move from hard law to more flexible localised plans created the space for 'partnership' with, and 'participation' by new, market-based and civil society 'stakeholders,' and for new knowledges and technologies. What were deemed the 'vague generalities' of the earlier notification were replaced with invocations of 'scientific knowledge' and a role for explicitly defined 'experts' and 'professionals.' New technologies were to be employed in the identification of the territory to be governed—the coastal zone—and in the determination, on a case-by-case basis, of the kinds of activities permissible within different parts of the zone (MoEF 2005, 2007).

However, what appeared to be a secular shift toward new modes of governance suffered a dramatic reversal. The draft CZM was posted online for feedback. Fishworkers' organisations, coastal communities, and environmental research non-governmental organisations (NGOs) opposed the CZM on the grounds that:

- a management framework with its more flexible arrangements opened up greater space for violation and exploitation than the clearer prohibitions contained under the earlier regulation framework;
- the Notification was drafted without adequate public consultation;
- its prioritisation of 'scientific knowledge' and new environmental technologies devalued the 'traditional' ecological knowledge of coastal communities; and
- the state's partnership with corporate actors weakened its ability to regulate the very actors who were responsible for the violations of the previous notification (Menon et al. 2007; Mathew 2008).

Following a series of public consultations, the MoEF decided to not go ahead with the CZM. Instead, in 2011, it issued a revised CRZ notification that retains key elements of the 1991 notification, along with some features from the new proposal. While fishworkers' representatives remain critical of the new CRZ notification, arguing, among other things, that it is a compromise document that does not go far enough to institutionalise and protect their rights, the Notification's acknowledgement of the close relationship between the survival of fishing communities and the protection of the coastal zone suggests that their campaign had a degree of success (Vivekanandan n.d.).

The attempt to introduce a new strategy for coastal zone governance was closely tied to the need to open up coastal land for economic development. But the particular tensions of doing this while maintaining a commitment to conservation called for a finely honed set of approaches and techniques, underpinned by a set of knowledge claims about their necessity. The struggle over coastal zone governance thus serves as a fertile site within which to map the actors, institutions, and knowledges involved in contemporary ecological governance within the context of intensifying strategies of accumulation.

In this paper, I attempt such a mapping, based largely on the primary documents generated in the policy process. I argue that attention to the politics of knowledge as distinct from, if not entirely autonomous of, larger political-economic structures, is crucial to understanding the current moment of ecological governance in India. I examine the genealogies and networks of actors who produce particular kinds of knowledges, and their role in shaping both governmentalities and resistance. A sociological-historical exercise of this nature helps both to establish the contexts within which certain kinds of knowledge become possible and become the basis of decisions, and to indicate what is novel about the present conjuncture. It also reveals the multiple and intersecting trajectories through which knowledges are developed, transmitted, and employed, and the difficulties of seeing as binary and discrete, forms such as 'traditional' and 'new,' or 'local' and 'global.' Notably, what emerges is the role of an important 'straddling' or 'interface' layer of NGOs and technical 'experts,' and the role of new information technologies and technologies of governance in enabling a cross-cutting circulation of knowledges. Even as fishing communities criticised the CZM Notification as neglecting to take into account their 'traditional knowledges,' they drew substantially on more modern forms of knowledge, information, and technology, made available to a great extent by this straddling layer.

In the following section, I lay out the concerns and theoretical context of the paper, before proceeding to provide a chronological overview of the twists and turns of coastal zone policy in India, followed by the genealogies and networks of actors involved, in order to develop the arguments made earlier.

### **INTENSIFIED ACCUMULATION, GOVERNANCE SHIFTS, AND THE POLITICS OF KNOWLEDGE**

The coastal zone along India's 7500 km long coastline is a spatial representation of the contradictions of neoliberalising India, containing as it does the diverse ecologies of mangroves, estuaries, sand dunes, lagoons, and turtle breeding grounds; the relatively low-impact salt pans, fishing and related activities of long-settled fishing communities (although many of these are no longer low impact in terms of fish resources because of newer harvesting technologies); and the resource intensive aquaculture, industries, thermal and nuclear plants, highways, ports, special economic zones (SEZs), tourism, and urban redevelopment projects of the present. The year the CRZ Notification was issued—1991—was also the year when India's new economic policy of liberalisation was launched, opening up markets, liberalising investment regimes, and seeking to provide incentives for both domestic and foreign capital; their histories are thus necessarily intertwined. At issue within the attempt to revisit the definition and governance of a 'coastal zone' are competing interpretations of the relationship of such a zone to economic development. The expressed grounds for the review were the CRZ notification's inadequacy in protecting the coastal environment, but the understanding of what constituted inadequacy or failure

varied—for fishing communities, inadequacy referred to the lack of enforcement and the frequent amendments to the legislation allowing tourism, polluting industry, urban development and aquaculture; for industry groups, it derived from the notification's 'precautionary' approach that banned certain activities entirely from a defined coastal zone, thus constituting a constraint on development. The new CZM Notification was seen by its opponents as a victory for industrial groups, making coastal protection subservient to commercial interests. Critical commentators placed it, along with other environmental legislation of the last decade, such as the National Environmental Policy (NEP), within a trajectory of environmental governance and policy making that they described as 'neoliberal' (Menon and Kohli 2008; Sridhar n.d.). They saw it as an instance of "regulatory capture" defined as "a conscious process where environmental governance is influenced by commercial lobbies and environmental laws are dictated by investment priorities" (Menon et al. 2007: 13), and as an evacuation of the social in the interests of capital (Menon 2006).

Indeed, key elements of the CZM Notification may be read as consistent with the generally accepted characteristics of neoliberal governance (Castree 2008a, b; Igoe et al. 2010). On the one hand, there is a stated acknowledgement of the livelihood and equity concerns of traditional natural-resource based communities, the adoption of a more or less extensive process of 'stakeholder' consultation at the drafting stage, and a 'management' approach that promises local variation rather than a centralised prohibitory blueprint. This is coupled, on the other hand, with a commitment to a highly resource-intensive mode of development, to public-private partnerships for managing the environment, and to market-based modes of regulation which provide little space for public participation. The attempt to decentralise management and make it flexible, and, recently, the creation of an independent agency, under the MoEF but funded by the World Bank, to deal with coastal regulation, may be seen as instances of strategies that displace or supplement more traditional, government-centred forms of regulation previously considered as best ensuring the 'public interest,' thus leading to the potential privatisation and diffusion of environmental governance.

However, the defeat, even if incomplete and unstable, of the CZM, suggests that such governance is as yet not total, and depends upon the balance of forces on the ground. As Heynen et al. (2007) note, although these ideas of neoliberalism travel through organisations such as the World Bank and the IMF, and through networks and gatherings of professionals and agenda setters, in each place, neoliberal reforms arise out of, and in response to, highly particular crises in governance. Thus what we call neoliberalism looks different in each place (Brenner and Theodore 2007; Heynen et al. 2007; Castree 2008 a, b). Wendy Larner likewise argues that, if we are to make sense of the current shifts in governance, we must take seriously the inconsistencies and contradictions in the particular stories we tell, something many scholars fail to do because they "remain tied to the task of recognizing neoliberalism rather than taking

the complexity of contemporary forms of environmental governance as their starting point" (2007: 218). What, then, can we learn from the inconsistencies and reversals in coastal zone governance about the nature of environmental governance in India?

It is possible to read the campaign against the CZM Notification within the context of the multiple uprisings that beset neo-liberalising India, from the fights against displacement by SEZs in Singur and Nandigram, to those against displacement by mining in Odisha and Chattisgarh, to the massive ongoing resistance to the nuclear power plant in Koodankulam, Tamil Nadu. As such, it would contribute to the debates over what the occasional victories in such battles, as well as wider legislative gains such as the Forest Rights Act, the National Rural Employment Guarantee Act, or the Right to Information Act, tell us about the state, civil society, the exigencies of electoral politics, and the particular class/caste/regional coalitions of Indian democracy (see for instance, Chatterjee 2008; Baviskar and Sundar 2008; Gudavarthy 2012). But the CZM campaign further belongs to a specific subset of such issues, along with others like biotechnology and nuclear energy, which are not only against displacement, appropriation or harm by a particular project, but also about broader policy and the knowledges that constitute it. Much of the critique of the CZM Notification was based on challenging its claims of greater 'scientific' validity and taking apart many of its categories, such as ecologically sensitive areas, hazard line, vulnerability mapping, and 'expert.' In such cases, an explanation of the particularities of environmental governance in India requires that we go beyond the analytics of state, class, and civil society, to examine the genealogies and networks of actors which produce particular kinds of knowledges, and their role in shaping both governmentalities and resistance. Here I am concerned, not only with specific kinds of knowledge about the environment, but with the ways in which the environment is problematised in relation to development, economic growth, or livelihood and survival.

Two concepts are helpful in analysing this politics of knowledge in coastal zone governance. The first is that of 'knowledge controversies' (Whatmore 2009) understood as generative political events where expert knowledges are challenged. Such controversies serve as "force fields in which such expertise becomes enmeshed with, and redistributed through," an expanding and varied groups of actors (Whatmore 2009: 588). Appreciating the political role of such controversies requires that we be "more attentive to the multiple and emergent constitution of publics and their political capabilities" (Whatmore 2009: 592). The construction of knowledge as a public practice is also addressed by the concept of 'civic epistemology' which refers to "the social and institutional practices by which political communities construct, review, validate, and deliberate politically relevant knowledge" (Miller 2008: 1896). The term seeks to capture the diverse sets of actors and the multiple social and institutional spaces involved in the production and contestation of knowledge. It also seeks to ground epistemologies within given socio-political contexts,

recognising that the way issues become problematised and solutions are derived may be the consequence of distinct civic epistemologies, understood as constellations of knowledge and order that have evolved in distinct societal contexts. The contestation over coastal governance can thus be seen as a specific kind of knowledge controversy that generates its own publics, not all of which would be mobilised over some other issue. Several actors within them would have a longer history, however, and draw on a larger social-cultural repertoire specific, at least in part, to the nation-space. Drawing on these conceptual insights, I attempt to trace the genealogies of networks of actors involved in the controversy over coastal zone governance. But before that, in the next section, I set the context for such an exercise by providing an account of the actors, institutions, and events involved.

### **REGULATION, REFORM, AND REVERSAL: A CHRONOLOGY**

There is no internationally agreed upon definition of what constitutes the coastal zone as an area to be protected, or on what basis this area is to be identified and demarcated. This itself goes some way in explaining the controversy, which was about definition, measurement, and demarcation as much as it was about determining what the nature of protection should be. For instance, of a range of developed and developing countries surveyed for best practices in the Swaminathan Committee Report, only the USA has a Coastal Zone Management Act (dating to 1972), whereas others deal with issues of fisheries, land conservation and development, fauna and flora, etc. under a range of different laws and authorities. What exactly constitutes the coastal zone varies. In the USA, for instance, the coastal zone is defined quite broadly to include “the coastal waters... and the adjacent shorelands..., influenced by each other and in proximity to the shorelines of the several coastal states” (USA Coastal Zone Management Act 1972). The scientific methods used to demarcate the area to be protected also vary, with countries using, exclusively or in combination with each other, methods such as zoning (setting aside different zones as appropriate to different activities, such as flood control, fishing, habitat protection, recreation, sand mining, and industrial use); vulnerability maps (based on the rate of erosion and flooding, or vulnerability to natural disasters); and setback zones (which identify a distance from the shore, based on the extent of risk faced by an area, beyond which activities of different kinds, such as housing, tourism, and polluting industries, must be located). International agencies (the World Bank, the United Nations Environment Programme (UNEP), the Organisation for Economic Co-operation and Development (OECD) all increasingly emphasise Integrated Coastal Zone Management (ICZM) (Post and Lundin 1996)—the integration of development, livelihood, habitation, and conservation policies—which was first elaborated in Chapter 17 of the 1992 Agenda 21, and several countries have adopted this in principle. The Indian approach to the coastal zone combines several of these aspects.

In 1981, Prime Minister Indira Gandhi wrote to the Chief Ministers of the nine coastal states asking them to keep free from development a 500 m zone from the shoreline in the interests of coastal protection. Following this, in 1983, the MoEF of the Government of India issued ‘Environmental guidelines for development of beaches’ asking each coastal state to prepare master plans for the development of its coastal stretches. Finally, in 1991, in the context of growing fisher militancy around the protection of coastal resources, the MoEF issued a CRZ Notification (under the Environment (Protection) Act 1986 and the Environment Protection Rules 1986) declaring coastal stretches as CRZs, regulating all activities within this area and empowering coastal states to enact the provisions of the CRZ Notification. The main objective of the Notification was stated as being the conservation and better management of the country’s rich and diverse coastal resources (MoEF 2005).

Under the Notification, the coastal zone was defined as encompassing all that land with which the sea has direct contact and also those portions of the land on which the sea has an influence indirectly through tidal action. The CRZ consisted of the landward part of the coastal stretches of open sea, bays, estuaries, and any tidal water bodies up to 500 m from the high tide line (HTL), as well as the land between the HTL and low tide line (LTL). The Notification created four coastal regulation zones. CRZ I consisted of ecologically sensitive areas. These were by and large to be no development zones (NDZs) (as an aside, it is worth noting that projects of the Department of Nuclear Energy were permitted in this zone). CRZ II consisted of areas that were substantially built up (greater than 50% as of 1991) or that had municipalities or town corporations. Here, development was permitted on the landward side of the road closest to the shore. The seaward side of the road was largely a NDZ. CRZ III consisted of areas other than CRZ I and II. Here, a NDZ was declared up to 200 m from the HTL, and even then only tourism development was permitted beyond 200 m. CRZ IV covered coastal stretches in the Andaman and Nicobar, Lakshadweep, and other small islands. The regulation prohibited outright a range of activities in the NDZs, and permitted only certain activities deemed essential within these zones (MoEF 2005).

Right from the start, industry groups began filing for amendments to the regulation in order to enable construction within demarcated zones, including the NDZ. There were also violations of the regulation without formal seeking of amendments. In 1994, the Indian Society for Enviro-legal Action filed a public interest litigation in the Supreme Court, seeking the Court’s intervention in directing the coastal states to comply with its provisions. The writ petition also challenged the validity of the amendments to the main notification of 1991, especially those which sought to provide the Central Government with discretionary powers to permit any construction within the 200 m of the NDZ along any part of the coastline. These amendments were sought partly to accommodate the interests of the hotel and tourism industry. The Supreme Court responded in 1996 by giving coastal state

governments six months in which to prepare management plans for their coastal areas based on the CRZ Notification and take necessary steps to implement this. Consequently, all nine coastal states prepared plans, but with several variations, which were approved by the MoEF (Nandakumar and Muralikrishna 1998: 5). While the Notification was seen as too restrictive of development by corporate interests (MoEF 2005), the long list of amendments (some 25 by the start of the new century) and violations led to a growing sense of its failure on the part of the fishing communities and environmentalists. In 1997-1998, the National Fishworkers' Forum (NFF) initiated an extensive training programme led by two geographers from University College, Trivandrum University, Kerala, to provide local volunteers with the tools to identify and document violations, on the basis of which they brought out a report (Nandakumar and Muralikrishna 1998).

In the early 2000s, coastal zone governance was reviewed as part of a larger review of national environmental policy which resulted in the NEP of 2006 (Kothari 2004). The review's 'sustainable development' framework drew on the 1992 United Nations Conference on Environment and Development (UNCED) (Upadhyay 2004), and on the foundations of a World Bank-funded National Environment Action Plan (NEAP) of 1993, as well as another World Bank-funded Environment Management Capacity Building (EMCB) Project which was completed in 2004 (Menon and Kohli 2008). Both of these were aimed at strengthening environmental policy planning and administration, making decentralisation of environmental planning more effective, firming up implementation of environmental law, and toughening monitoring and compliance in specific high-priority and environmental problem areas such as mining and coastal zone management. In 2001, the objectives of the ECBM project were expanded to include: 'improving the screening, scoping, analysis of options, and clearance process for environmental assessments; improving the quality of EIAs; and improving project compliance through environment management plans' (Menon and Kohli 2008: 15). The EIA process was streamlined to reduce delays and levels of decision-making, in line with the recommendations of the 2002 Govindarajan Committee on Reforming Investment Approval and Implementation Procedure, which had identified delays in environmental clearances as the greatest cause of delays to projects (The Hindu 2002; MoEF 2006: 18). Under the new process, EIAs were to be carried out only at the last stage of project clearance, or even after a project had gained clearance, in order to outline mitigation measures while minimising the need for a full and multi-dimensional public consultation. In the year and half following the issuance of the final revised EIA notification of 2006, 1736 projects were cleared, whereas in the 20 years preceding this, only 4016 projects had been given clearance by the MoEF (Menon and Kohli 2008: 15).

In July 2004, as part of the review process leading to the NEP, and based on the recommendations of the ECBM on the need for integrated coastal zone management, an 'Expert Committee' chaired by Dr. M.S. Swaminathan was appointed with the mandate to review the 1991 CRZ notification. The

Swaminathan Committee Report was released in early 2005, just months after the devastation caused by the Indian Ocean tsunami highlighted the need for effective coastal zone management. The Report draws on the recommendations of past committees on coastal zone regulation, international best practices, recommendations from a range of international agencies including UNCED, UNEP, OECD, the World Bank, and the International Union for Conservation of Nature, 'scientific principles in coastal management,' a listing of coastal resources and hazards, as well as a review of the CRZ Notification and its implementation, to make its recommendations. 'Scientific principles of management' are described as being necessary because previous approaches were based on "environment protection and conservation of resources rather than sustainable development and this is not adequate." The Report is critical of the vagueness of a measure like the HTL, arguing that this is hard for the "common man" to access (MoEF 2005: 85). A range of scientific approaches is then discussed and evaluated, including zoning, vulnerability mapping, setback zones, special area management plans, and ICZM. The Report seems concerned to give recognition to conflicting demands, without necessarily addressing the tensions between them. In its review of the problems with the CRZ Notification, it lists the lack of clarity around why certain industrial activities are banned, and concerns from industries that require particular access to the coast, such as tourism, ports and harbours, noting that in a developing country like India, the coast had many important economic uses, such as for SEZs (MoEF 2005: 77-78). Given this, it talks of the need for a more clearly outlined approval procedure for projects, and for monitoring. Simultaneously, in the section on 'Livelihood and Social Dimension,' it states strongly the need to keep in mind that:

Development is about people and not merely about economic growth captured in macro statistics. In this context, the concerns of the poor and marginalized sections of the coastal communities must be reflected in the state policy. The fact that development is conflict ridden must be recognized and the role of the state in resolving such conflicts has not been unproblematic (MoEF 2005: 59).

It notes the dependence of coastal communities for their livelihoods on the coastal zone, and talks of how water resources, for instance, have been "plundered" by commercial interests in the name of "permissible human activities." (MoEF 2005: 59). Likewise, the Report's recommendations are based on 12, potentially contradictory, principles, without defining them. These include techno-economic efficiency, the precautionary approach, polluter-pays principle(s), and public trust doctrine. The Report invokes gender, social, and inter-generational equity, and states that "ecological and cultural security, livelihood security and national security should be the cornerstones of an integrated coastal zone management policy." It argues that such a policy would bring together various users, involve participatory mechanisms, and involve local communities to use, manage, and care for resources on the basis

of common property resources rather than private ownership. It states: "Stakeholder participation and decentralization of decision-making processes are desirable principles in their own right" (MoEF 2005: 94). The final chapter of the Report consists of an Action Plan which recommends the re-classification of the coastal zone, with different activities permitted and prohibited in each zone, the determination of these activities through state level ICZM plans, and the establishment of a new National Board for Sustainable Coastal Zone Management that would coordinate research and enforcement activities of the state-level CZM authorities.

In May 2007, a draft of a new CZM Notification prepared by the MoEF became public by virtue of a 'leak' (the draft Notification was eventually put up on the MoEF website only in May 2008, inviting comments within 60 days.) The Notification stated that it was based on the recommendations of the Swaminathan Committee Report, although there is some debate about this (Sridhar n.d.<sup>1</sup>). While the recommendations of the Report had called for a tightening of the CRZ Notification, along with a streamlining and integration of regulatory activities, its concluding chapter had indeed laid out an action plan upon which the CZM Notification was based. Unlike the Report, however, the proposed Notification intended to replace entirely the CRZ Notification in favour of a new management approach. The coastal zone was expanded to include the territorial waters (12 nautical miles from the shore) (Government of India 2009) instead of just the land. The zone was to be demarcated based on a setback line, established by mapping the vulnerability to hazards of each part of the coast using parameters such as elevation, geomorphology, sea level trends, horizontal shoreline displacement, tidal ranges, and wave heights. The earlier CRZ categories were now re-classified into coastal management zones (CMZs), with CMZ II now including areas that were less built up than under the previous CRZ II. This being the zone with the fewest restrictions on development, it meant that areas that had previously been classified as CRZ III and protected from development were now open for development. The NDZ category was removed altogether, and few activities were prohibited outright. Instead, the activities permitted in each zone were to be determined by a state-level ICZM Plan, to be drawn up by the state administration and approved by the MoEF. Such a plan was to keep in mind "technical feasibility and costs," and be "otherwise consistent with the provision of the National Environment Policy, 2006." All regulation under these plans was to be carried out by State/Union Territory (UT) Environmental Appraisal Authorities set up under the provisions of the 2006 EIA, which were now also to serve as the State/UT Coastal Zone Management Authorities. These Authorities were to "invariably obtain the scientific advice" of the State/UT Environmental Expert Committees, also set up under the provisions of the 2006 EIA Notification. An 'expert' was defined by the CZM Notification as:

A person with specialized knowledge in a specified field, with at least a Master's degree from a recognized University in case of science (including social sciences,

economics and management) disciplines; or a professional Bachelor's degree from a recognized University in case of engineering, technology, medicine, or legal disciplines; or a Post-Graduate Diploma in Forestry from the Indira Gandhi National Forest Academy in case of Forestry; with at least fifteen (15) years of full-time professional experience in the specified field after award of the qualifying degree, in the event of the person concerned possessing, in addition, a higher degree from a recognized University, i.e. Ph.D or D.Sc. in case of science...disciplines; or a M.Tech/MD/LLM degree...the period of full-time professional experience after gaining the higher degree may be ten (10) years (Menon et al. 2007: 24).

A 'professional' was similarly defined as "a person who possesses the academic qualification specified for an expert but does not yet have the experience" (Menon et al. 2007: 24).

The leaked draft of the CZM Notification drew a strong public response which resulted, in July 2007, in the formation of a National Coastal Protection Campaign (NCPC) consisting of a range of community organisations including: National Fishworkers Forum (Kolkata), Tamil Nadu-Pondicherry Fisher Peoples Federation (Chennai), Coastal Action Network (Chennai), Conservation Action Trust (Mumbai), South Indian Federation of Fishermen Societies (Trivandrum), World Wide Fund for Nature (Delhi), Greenpeace India (Bangalore), International Collective in Support of Fishworkers (Chennai), Kalpavriksh Environment Action Group (Delhi), Dakshin Foundation (Bangalore), Pondy Citizen's Action Network (Pondicherry), Centre for Education and Communication (Delhi), and The Research and Information Network for the Coast (TRINet) (Chennai). This alliance of environmental research and advocacy groups, and fisher and community organisations made for a formidable combination of informational and mobilisational capacity; in terms of the former, a critical role was played by critiques of the Swaminathan Committee Report and the CMZ Notification put out by researchers working with the Ashoka Trust for Research in Ecology and the Environment (ATREE) (Sridhar et al. 2006; Menon et al. 2007).

Opponents of the CZM Notification charged that it had been developed with no public consultation, and made coastal protection subservient to commercial interests. They argued that a 'management' framework with its more flexible arrangements opened up greater space for violation and exploitation than the clearer prohibitions contained under the earlier 'regulation' framework. The re-zoning of more areas as CMZ II from the more restricted CRZ III, and the removal of the NDZs in CMZ I and III, making development in these zones subject to an ICZM Plan, meant that large tracts of the coastline were now freed up for investment. The ICZM Plans were to be developed through partnerships with all stakeholders, including the very corporate actors responsible for violations of the previous CRZ Notification. Projects were to be approved based on EIAs, the process for which, as noted earlier, had been 'streamlined' considerably; implementation was to be

carried out by Environmental Appraisal Authorities assisted by Environmental Expert Committees, both also constituted under the terms of this streamlined EIA Notification of 2006. These replaced the three-tier Coastal Zone Management Authorities at the national, state, and district levels, leaving no credible monitoring mechanism (Menon et al. 2007).

The Notification was also seen as removing the protections for residence and livelihood rights for the coastal fishing communities provided in the CRZ Notification, making them, too, secondary to commercial development. In CMZ II, where re-development of residences had been permitted, there was a concern that real estate developers might use the opportunity to buy out and displace fishing families; on the other hand, in CMZ III, there was a concern that an EIA might deem residential and fishing-related activities detrimental, while giving permission to purportedly low-impact eco-tourism, for instance. Further, the Notification did not take into account questions of boundaries and jurisdiction, whereby the coastal zone competes with other kinds of zones, such as municipal and district limits, and conflicts arise over the jurisdiction of coastal zone management agencies versus town planning authorities, or Panchayats (village governments) (see Ramachandran et al. 2005). The Panchayats and village authorities of the over 3000 fishing villages across the coast are especially important here, with the fishing communities insisting that they should have jurisdiction over the areas in which they live, fish, and carry out post-harvest activities.

A third, and related, set of concerns had to do with the knowledge claims on which the Notification was based. Here, two types of critiques were made. The first was that its prioritisation of ‘scientific knowledge’ and new environmental technologies, and its reliance on ‘experts’ defined strictly in terms of academic qualifications, devalued the ‘traditional’ ecological knowledge of coastal communities (Mathew 2008; NFF 2010). The second had to do with the validity and correctness of the scientific claims on their own terms. The brief definitions of terms like ‘Integrated Coastal Zone Management,’ and ‘ecologically sensitive area’ were deemed vague and inadequate, and other terms with which the Notification is peppered, such as ‘sustainable development,’ ‘sound scientific principles,’ ‘foreshore requiring facility,’ and ‘basic infrastructure’ were seen as so unspecific as to permit all manner of projects (CEE 2008: 15). The criteria (topography, habitats, population density, etc.) by which the different CMZs were demarcated were challenged. The reliance on hard structures such as seawalls to manage risks was seen as likely to destroy beaches and habitats. Most significantly, the ATREE report pointed out that the vulnerability line as the basis on which the setback line was to be identified was erroneous. The line to be mapped was a hazard line, with a vulnerability map requiring more complicated calculations than those described in the Notification. Further, the six parameters listed as the components of this hazard (‘vulnerability’) line were also incomplete. The Report concluded that “[a]ll of the above bring to question the so called ‘scientific basis’ of the new draft” (Menon et al. 2007: 10).

Militant marches, blockades, and hunger fasts across the coastal states brought many state governments and Members of Parliament onside. State governments wrote to the MoEF in support of the campaign. Eventually, Dr. M.S. Swaminathan himself wrote an article in the national daily, *The Hindu*, expressing his support for the rights of fishing communities. A Parliamentary Standing Committee appointed to look into the matter recommended that the CZM Notification be allowed to lapse. In June 2009, Mr. Jairam Ramesh, the Minister of Environment and Forests, re-appointed Dr. M.S. Swaminathan to head a four-person expert committee to re-examine the CZM. Their report, *Final Frontier*, was released in July 2009 (MoEF 2009). It spoke strongly of the centrality of the fishing communities to coastal governance, and recommended that the CZM Notification be allowed to lapse and a new notification based on the 1991 CRZ be issued. The Minister further held a series of public consultations between August 2009 and March 2010 in key coastal states, several of which he chaired personally. Around 35 consultations were held across the coast, in which almost 3700 people participated; individuals and organisations also provided written inputs. The consultations were organised, facilitated, and documented by an NGO, the Centre for Environment Education, which released its report in March 2010. Based on *Final Frontier* and the public consultations, a pre-draft CRZ Notification 2010 was put up on the MoEF website in English and the nine local languages of the coastal states, along with a concept paper for discussion in April 2010, with 30 days for comments. Next, a draft CRZ Notification 2010 was put up in September 2010 with 60 days for comments. Finally, a new CRZ Notification was issued in January 2011 (MoEF 2011).

The 2011 CRZ Notification largely retains the 1991 CRZ with some new additions from the CZM Notification 2007. It keeps NDZs, and the HTL as the baseline. It further calls for the mapping of the hazard line with the provision that if it is further than 500 m of the HTL in CRZ I areas, that further area would be declared a NDZ. It retains the classifications of the 1991 CRZ Notification, except for introducing an additional zone (IV) for the territorial seas (with the islands now reclassified as CRZ V). It contains special provisions for ‘fisherfolk communities.’ It outlines a clearer process for granting clearances and enforcing violations, noting that violations shall be identified by using the latest appropriate maps, satellite imagery, and information technology. It also contains measures to ensure transparency in the working of the state level Coastal Zone Management Authorities which seem to consist chiefly of creating a website containing the agendas, minutes, decisions taken, clearance letters, violations, actions taken, court cases, and Coastal Zone Management Plans of each state.

Despite the welcome reversal to the earlier regulation regime, several of the new features of the 2011 CRZ Notification remain points of concern for fishworkers, coastal communities, and environmentalists, leaving undefined as they do the precise nature and degree of community control and the concessions made to industry. While mention is made of

the need to protect the livelihoods of fisherfolk communities, there is no attempt to institutionalise community rights along the lines demanded by the NCPC and expressed in the public hearings. The amendments and violations to the earlier CRZ have not been reversed, and the monitoring and regulation mechanisms to prevent further violations remain weak (NCPC 2010; Sharma, C. 2011; Sharma K. 2011). Meanwhile, even as these proposals, contestations, and reversals were taking place, a World Bank-funded Integrated Coastal Zone Management Project was being piloted in three of the coastal states with the aim of building capacity for implementation of comprehensive coastal management in the country. This includes the *mapping*, delineation, and demarcation of hazard lines along the entire coast using aerial surveys and satellite images, for which a contract has been awarded to the Survey of India; the identification, mapping, and planning for environmentally sensitive areas for which some contracts have already been given to international environmental consultancy companies; and the establishment of a National Centre for Sustainable Coastal Management (NCSCM) at Anna University, Chennai (formerly Madras), with Dr. M.S. Swaminathan as its advisor, with a mandate “to serve as an interface between coastal communities, experts and Governments” (MoEF 2010). The entire work of the ICZM Project, and coastal zone regulation more broadly, is to be coordinated by the newly established Society for Integrated Coastal Management (SICOM), an arms-length agency carved out of the MoEF and funded by the World Bank. There is no mention within the document establishing SICOM (MoEF 2010) of its relationship, or that of the ICZM Project more generally, to the CRZ Notification, or the range of civil society organisations, and fishing and coastal communities that might be seen as ‘stakeholders’ in this process and there has been little community consultation by the Programme or the new agency to establish such a relationship.

### **GENEALOGIES OF KNOWLEDGE: INTERSECTIONS AND REDISTRIBUTION**

The success of the campaign, insofar as one may characterise it as such, may surely have multiple explanations, with this account begging the question of how a coalition of civil society activists was able to limit the influence of business interests. Corporate actors were largely invisible in the public staging of the drama played out above, but their influence can be seen in the content of the CZM Notification, the expedited EIA clearance process put in place by the 2002 Govindarajan Committee, and more broadly in state policy since 1991. Aspects not discussed here, such as the electoral weight of the communities involved, and the media, mass mobilisation, and other strategies of the campaign, are undoubtedly important to understanding this puzzle. Success may also have to do with the issue area involved, with intense and tenacious campaigns against projects to which the state or private sector are deeply committed, such as mining or nuclear power, still lacking resolution (see, for instance, Bera 2012; Jishnu 2012). Further, it is more than likely that the devil lies in the details, or in

this case in the implementation or non-implementation of the new notification, so that a gain on paper is at best partial. Notwithstanding these multiple caveats, it remains instructive to try and tease out the specific role of knowledge actors, and the gains made possible by their points of intersection and overlap.

One may identify at least four distinct genealogies of actors, institutions, and knowledges involved in coastal zone governance. The first, which I term conservationist-developmental-nationalist (drawing loosely from Rangarajan 2009), dates back to Prime Minister Indira Gandhi. It was her 1981 letter to the Chief Ministers of the nine coastal states asking them to keep free from development a 500 m zone from the shoreline in the interests of coastal protection that led eventually to the 1991 Coastal Regulation Zone Notification (MoEF 2005). Rangarajan (2009) argues that Indira Gandhi’s environmentalism was genuine, and sometimes visionary and ahead of its time (see also The Hindu 2005), but it was always also tied to an excitement with scientific and technological accomplishments, and concerns of economic development, food self-sufficiency, nationalist assertion, and later, centralised and authoritarian political control. Dr. M.S. Swaminathan was among the scientists who worked with Indira Gandhi on the Green Revolution and on environmental issues; her influence (and the *weltanschauung* of her era) is acknowledged explicitly in the first page of his report, and is implicit throughout in its strong statements about social welfare and ecological conservation, within an overarching acknowledgement of the imperatives of economic development. These ‘pro-poor’ sympathies of an earlier era are seen in the recommendation of *Final Frontier*, the report of the second Swaminathan Committee (MoEF 2009), to retain the 1991 CRZ as providing better protection for fishing communities. Jairam Ramesh, the Minister of Environment and Forests (during the whole period described here), likewise claims that Indira Gandhi was his role model in matters of environmental governance (Bindra 2010), and some credit the reversal of the CZM Notification (while still managing to retain several of its elements in the 2011 CRZ Notification) to his willingness, like hers, to take personal decisions on controversial issues (Jebaraj 2011).

A second genealogy leads back to the 1992 UNCED, and the idea of ‘sustainable development’ which was from the outset conceived of as being compatible with market reform and increased trade integration (see, for instance, Doyle 1998). Its influence on coastal zone governance can be traced through the World Bank-funded NEAP and the EMCB, which eventually culminated in the 2004 review of the NEP. Here we see the importance of goals such as ‘efficiency’ of administration in the form of a greater role for ‘experts’ and ‘professionals,’ the streamlining of EIAs and other clearances for projects, toughening of monitoring and compliance, and decentralisation of planning. These goals are reflected in the Swaminathan Committee Report (MoEF 2005), and even more so in the 2007 CZM Notification (MoEF 2007). More precise technologies, such as hazard mapping and seawalls are useful here, as are the more measurable indicators in EIA, in allowing for

more localised and specific plans that are not as restrictive of development as the blanket prohibitions contained in the earlier regulatory approach. Both in the Swaminathan Committee Report and in popular understanding, sustainable development is distinct from ecological protection and conservation of resources. The Report argued that previous approaches needed revision because they were based on ‘environment protection and conservation of resources rather than sustainable development,’ whereas for corporate respondents in the public consultations, even the provisions of the CZM Notification did not go far enough in meeting the needs of sustainable development, defined as “utilization of natural capital for economical benefits” (CEE 2008: 29). The actors within this stream thus include bureaucrats and politicians schooled in environmental policy as framed by UNCED and its diffusion through multilateral frameworks, various academics and other ‘experts’ in relevant fields, and corporate actors required to get EIAs for their projects.

A third stream is that of the fishing communities and fishworker organisations, in particular the NFF, which were leading members of the NCPC. The NFF traces an alternative genealogy for the 1991 CRZ Notification, making no mention of Indira Gandhi’s role in its conception, and crediting instead its own growing militancy around marine resource protection, and in particular its ‘Protect Waters, Protect Life’ environmental march of 1989, with creating the groundswell for it (Nandakumar and Muralikrishna 1998). The NFF emerged in the period of state-led modernisation as one of the leading social movements, drawing on a range of influences that include Mahatma Gandhi, Marx, and liberation theology, to call for a ‘people-centred’ rather than growth-led development, and has continued to call for this in the current era of economic liberalisation and globalisation (Dietrich and Nayak 2006). It has a long history of organising around marine fishing regulations and the rights of fishing communities, with some notable successes, as in the struggle against the licensing of foreign fleets for deep sea fishing. A longstanding part of its political platform has been an insistence on ‘local,’ ‘traditional,’ and ‘community’ knowledge, on appropriate technology, and on an epistemology of conservation that arises from the practices of livelihood and way of life. But, in common with the People’s Science Movements, especially strong in southern India, such as the Kerala Shastra Sahitya Parishad and the Tamil Nadu Science Forum, with which it shares a lineage, there is a dual relationship to science and technology: ‘people’s science’ is both about valourising ‘traditional’ knowledges transmitted through the community, and about harnessing modern science and technology for equitable development (Varma 2001). Thus the NFF early on enlisted geographers to train volunteers from the fishing communities to identify and document CRZ violations (Nandakumar and Muralikrishna 1998), carrying out much of the policing and investigation that helped make the case for a review of the CRZ. It has likewise drawn on geographers and other experts to build its own knowledge base around new technologies, land-use planning, and so on, all of which it has used to comment on, and

modify, the government’s proposals. In its comments on *Final Frontier* (NFF 2010), the NFF expressed agreement on the use of satellite and information technologies to map the coast and monitor violations, and web-enabled systems to publish EIA and CRZ clearances, while disagreeing on the need for hazard line mapping. The other fisher organisations involved in the campaign are even better equipped to engage with technical and legal issues—some like the International Collective in Support of Fishworkers specialise in providing this kind of support to fisher organisations, and have a great deal of experience in international negotiations, and other organisations have acquired such expertise more recently through the process of post-tsunami rehabilitation and reconstruction.

The fourth stream consists of environmental and research organisations like ATREE whose research reports (Menon et al. 2007; Sridhar et al. 2006) provided a key knowledge base for the critique of the new legislation, and TRINet, which emerged following the tsunami to act as a resource and information centre for the coast.<sup>2</sup> These organisations consist of environmental and social scientists, and others with a variety of technical expertise. Non-governmental, autonomous research organisations of this sort are part of the flowering of ‘civil society’ since the early 1990s, although several of the actors within these organisations trace their histories to the beginnings of environmental activism in India, such as in the seminal student environmental group Kalpavriksh, founded in Delhi in the early 1980s. Their members are not fixed within such organisations, however, but circulate between governmental, university, and non-governmental positions, multilateral consultancies, and support for social movements such as the NFF, with equal ease. The institutional recognition of the presence of such actors may be seen in the creation by the MoEF of the NCSCM at Anna University, based on the recommendation of the Swaminathan Committee Report, to provide research and capacity building support and serve as an interface between the state and other stakeholders. While the shared material positioning and technical orientation of these organisations and actors does not necessarily mean the absence of ideological or political differences, it is indeed the case that ideological or political lineages are hardest to identify within this stream. In this sense, they play a straddling role between the other lineages identified earlier, as well as between the state, private sector, and civil society, even if they are more likely to be located in civil society.

It is the intersections and overlaps between the otherwise distinct genealogies traced here that help to explain some of the contestations and reversals described in the previous section. Although the shift to the CZM Notification can largely be located within the genealogy of ‘sustainable development,’ key proponents of this shift also shared a ‘conservationist-developmental-nationalist’ genealogy. For instance, it may be possible to credit the holding of public hearings, the establishment of a second review committee under Dr. M.S. Swaminathan which recommended scrapping the CMZ Notification, and the final CRZ Notification of 2011, to the particular histories and predilections of the Minister, Jairam

Ramesh, and Dr. M.S. Swaminathan (Viswanathan and Parmar 2012). Perhaps more significant than these intersections, which may be seen as largely conjunctural, is the emergence of the fourth 'straddling' layer of actors who derive their lineages from all three other strands—'conservationist-developmental-nationalist,' 'sustainable development,' and popular sector / social movement.

The presence of this 'straddling' or 'interface' layer of NGOs, technical 'experts,' and 'professionals' reveals well-developed knowledge production and mobilisation capacity within civil society. Working with the fishworkers' associations and other community organisations, members of this layer, such as the independent researchers based at ATREE, were instrumental in identifying and articulating the problems with the proposed 'scientific management' approach and pushing it back to the earlier regulation framework. The social movements had a degree of political capacity, with the ability to mobilise rapidly on a national scale, and gain the support of elected politicians as well as state governments, as a result of the networks built up in earlier national campaigns led by the NFF, such as against joint ventures in deep sea fishing. Many of the organisations involved had also become networked over issues of post-tsunami reconstruction. The tsunami itself had created a great deal of public awareness and concern about coastal zone protection, which was reflected in the size of turnouts at the public hearings. Crucially, however, the power of the campaign was not only political, but also informational. It drew on skills to interpret new technical knowledge, available across institutional boundaries, with actors in a range of settings who had participated in international negotiations, research consultancies, and policy processes.

In thinking about the type of knowledge deployed, one can see that social movement and civil society actors deployed not only 'traditional knowledge' but also new forms of digital knowledge. While critiquing the CZM Notification for failing to take into account the 'traditional' knowledge of fishing communities, fisher organisations demonstrated evident comfort with more 'modern' forms of knowledge. As noted earlier, the NFF drew on geographers and other experts to build its own knowledge base around new technologies, land-use planning, and so on, all of which it used to comment on, and modify, the government's proposals. This was evident in its comments on *Final Frontier*, where it made an informed distinction between technologies it considered desirable, such as satellite and information technologies to map the coast and monitor violations, and web-enabled systems to publish EIA and CRZ clearances, and those it considered inappropriate, such as hazard line mapping. By providing the technical expertise to assist the NFF in making this distinction, straddling actors helped to blur the boundaries between 'traditional' and 'modern' knowledges; likewise, their familiarity with international negotiations and academic production served to blur the distinction between knowledges understood as 'local' and those seen as 'global.'

The earlier literature where ecological conservation was a hard-won gain of social movements, and a sign of successful

counter-hegemony against the modernising aspirations of the state (see Guha 1997; Williams and Mawdsley 2006) has been replaced by a focus on the governmentalities produced by the new knowledges and technologies of sustainable development within which states, market actors, and producers are interpellated, and work to legitimise and stabilise accumulation (see, for instance, Igoe et al. 2010). What this case suggests is that the new technologies may equally produce new actors and institutions that straddle state and civil society. In conjunction with legal frameworks and technologies of governance also facilitated by these new technologies, like the Right to Information Act (RTI) which the campaign used to obtain minutes of meetings and other documents, the web-posting of draft legislation for comment, and NGOs skilled in the conduct of public consultations, they may give rise to new possibilities, such as the requirement that all EIA applications and clearances, as well as all violations be listed on state websites.

The struggle around coastal zone governance is illustrative of Whatmore's (2009) 'knowledge controversy' where diverse groups of actors participated in a collective critique of 'official' knowledge and challenged notions of expertise. The compromise CRZ Notification of 2011 was an acknowledgement (albeit not complete) of the existence of knowledge and expertise in actors beyond those officially defined as 'experts.' Does this "redistribution of expertise" (Whatmore 2009) as an outcome of intersecting genealogies, overlapping actors, shared knowledges, and technologies of access and consultation, suggest the germs of a 'civic epistemology'—the term used by Jasanoff, Miller, and others (see Miller 2008) to describe the processes by which public knowledges are debated, clarified, and constituted within a plural public sphere? I would argue that such a term is premature as a description of the state of environmental knowledges that inform 'decisions that matter' in India today, and is likely to lead to a misrecognition of the depth of disagreement and the non-negotiable nature of the interests underlying debates within the public sphere. The idea of a civic epistemology might be helpful, however, in suggesting that interests, actors, knowledges, and technologies do not map neatly onto each other, and that straddling actors, new information technologies, and technologies of governance make possible a cross-cutting circulation of knowledges, requiring us to rethink categories such as 'local' or 'traditional' knowledge.

## CONCLUSION

The paper explored the Indian government's proposed shift to a new mode of coastal zone governance and its reversal as a result of concerted civil society opposition, as an instance of a 'knowledge controversy.' The attempt to replace the regulatory approach contained in the 1991 CRZ Notification with the management approach of the 2007 CZM Notification with its greater reliance on 'scientific knowledge' was aimed at deploying new technologies, values, actors and institutions in the attempt to reconcile intensive, high-impact development of

the coastal zone with publicly affirmed values of conservation and subsistence rights of rural communities. Attention to the role of distinct genealogies of actors and knowledges within this controversy revealed the presence of well-developed knowledge-production and mobilisation capacity within civil society. In particular, a 'straddling' or 'interface' layer of NGOs and technical 'experts,' was shown to be instrumental in being able to harness, to oppositional ends, the new information technologies and technologies of governance to challenge the hierarchies of expertise and scale involved in the politics of knowledge production. By demonstrating the capacity of oppositional actors to slow down the process of decision making by challenging its epistemological basis, the case suggests that new modes of ecological governance may not quite take the forms imagined by their architects. In doing so, it reiterates the need for careful analyses of the hybrid and halting ways in which new modes of ecological governance unfold in particular places.

## NOTES

1. I am grateful to Sunny Jose for these and other insights from his unpublished 2010 paper: Campaign against Coastal Management Zone Notification: Behind and Beyond Its Success.
2. TRINet is an apex body for district-level information centres that are involved in providing information on tsunami rehabilitation in India. It was initiated in Chennai by the South Indian Federation of Fishermen's Societies (SIFFS), Bhoomika Trust and the International Collective in Support of Fishworkers (ICSF). See <http://www.trinet.in/>.

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