

Lessons from marine paradigms

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THE dust has yet to settle on the recent conservation stories that commandeered the nation's attention. After-images of empty forests and vanishing tigers compete with those of strident campaigns of the tribal rights lobbies, typical of the media-manoeuvred discourses on wildlife conservation. Much to ones' despair, these complex debates on wildlife and livelihood matters have deteriorated into emotional polls on who – humans or animals – enjoys priority in India's forests and whether environment wins over development.

Worse, the television channel approach to problem solving is even employed by several national and international environmental organisations concerned with conservation, and eventually the results of these polls justify the formulation of laws and policies that are often as myopic as the television debates. The deadlock over conservation and development perseveres at varying scales, ranging from tribal communities to entire sectors such as agriculture, forestry and mining.

Our post-independence attempts at legislating on matters of the environment have significantly contributed to positioning 'conservation' against 'development'. A range of specialised environmental laws developed from the '70s onward. Although there are other laws governing natural resource use – such as agriculture, fisheries and revenue laws – all of which have significant environmental implications, the attention of conservationists has remained focused on

the line up of specialised legislations, namely the Wildlife Protection Act (WLPA), the Environment Protection Act 1986, and the Forest Conservation Act 1980, to name a few. Many of these laws were a result of active lobbying efforts of environmentalists themselves.¹

The economic reforms process undertaken by the government since 1991 has crystallised certain development priorities as India works its way towards 'developed country' status. The forays of the welfare state into a capitalist era intensified the angst against environmental laws, seen as antithetical to the development of the country. In response to industry ire and under the World Bank's insistence, the Government of India embarked on a drive to re-engineer environmental clearance procedures and redraft certain environmental laws.²

The result is that these laws read more like development laws, obfuscat-

1. See M. Rangarajan, 'Indira Gandhi: Ideology, the Environment and Policy', *IIC Quarterly*, Summer 2006; Also see S. Chainani, In Defence of Heritage – a Bombay Diary (Unpublished draft).

2. See K. Kohli and M. Menon, Eleven Years of the Environment Impact Assessment Notification, 1994. Kalpavriksh, Just Environment Trust, Environment Justice Initiative (HRLN), 2005; A. Sridhar, R. Arthur, D. Goenka, B. Jairaj, T. Mohan, S. Rodriguez and K. Shanker, Review of the Swaminathan Committee Report on the CRZ Notification. Draft submitted to UNDP, New Delhi. URL: <http://www.undp.org.in/dmweb/tsunami>; accessed 20 May 2006; A. Sridhar, Environmental Governance Reforms, Rephrasing the Reform Process. Draft Submitted to International Institute for Environment and Development, New Delhi, 2006.

ing the difference between the two. Ironically, even as powerful industrial lobbies seem to be winning the battle, marginalised communities continue to struggle with conservationists over laws that impact their livelihoods. And as these laws get increasingly applied in ecosystems like marine areas where other flexible management systems operate, the numbers embroiled in the impasse is on the increase.

The most popular terrestrial wildlife conservation approach has been the declaration of Protected Areas (PA) and the listing of wild species on protected lists, both facilitated by the Wildlife (Protection) Act (WLPA), 1972. These national parks and wildlife sanctuaries often prohibit human presence and use of resources within their boundaries. The health of India's biodiversity is often projected through the extent of area under official PA cover. Many conservation research programmes and advocacy efforts aim at the inclusion of additional species on the 'scheduled lists' of the WLPA. This simple listing does not distinguish between geographical variations in the status of populations, thereby foreclosing the option of applying varying conservation methods in different areas. One rule applies to species in all areas. For example, olive ridley turtles which arrive in thousands to Orissa's mass nesting beaches are accorded the same protection as solitary individuals that visit other parts of India's coast.

The WLPA is itself drafted on the singular idea that physically separating humans from wildlife is the appropriate approach to all conservation challenges. It, therefore, does not provide much of a conservation plan beyond penalties and punishments for human intrusion into PAs and human use of protected species. Human-wildlife interactions, socio-ecological

institutions, organisations and phenomena and even simple dependence regimes are given short shrift in this law. No wonder, the real challenges to conservation persist and in many instances are not even acknowledged in the race to expand PA networks and scheduled lists of the WLPA.

Although the academic approach to understanding biodiversity conservation has evolved considerably, with concepts like socio-ecological resilience and community-based approaches gaining popularity, the overall conservation effort in the country is still one that separates humans from wildlife habitats. If only government reports and presentations on India's PAs were accompanied by descriptions of the nature and extent of conflict in these areas, the 'success' of this 'one size fits all' model would be evident.

The rigidity of this exclusionist approach in terrestrial area management, specifically through the narrow options offered by the WLPA, is in stark contrast to the flexible, socially appropriate and case-specific methods applied for the management of fishery resources by fisher communities. It bears repetition that even the formal marine fisheries regulation laws of the state governments are not based on the physical exclusion of people.

Marine ecosystems require management measures that are distinct from those currently practiced in terrestrial areas. In practice, however, the terrestrial approach is being increasingly applied to marine wildlife protection, as more conservationists look towards the WLPA and its design to provide solutions to marine challenges. This trend needs to be examined and revised as reports of conflict over these styles of marine conservation pour in. There are impor-

tant lessons for the conservation of terrestrial areas from existing marine management strategies. Likewise, the conflicts over terrestrial conservation and environment protection laws provide several insights for designing coastal and marine conservation measures.

Marine ecosystems and coastal communities are poorly represented in the public debates on India's environmental problems. The 2001 Census shows that there are nearly 10 million fisherfolk. Our understanding of these communities through sociological research is, however, comparatively limited. There are several differences between terrestrial and marine socio-ecological systems. Obviously, water is not a natural human environment, though humans have evolved a relationship with this medium and those depending on it recognise both its power and the limitations of their knowledge about it. Fishing is, therefore, often compared to gambling.

The dependence on the sea is a daily one, first for safety and second for livelihood. Various fishery practices have evolved from assiduously studying and understanding the sea, its creatures, their behaviour and the power equation between man and sea. Fishermen face definite and distinct challenges that limit their control over the sea and its bounty. These natural challenges posed by the sea are completely different from those of terrestrial areas. Fisheries development programmes aim at increasing the fisher's control over the capricious sea, intensifying production and reducing risks while doing so.

Another central difference is that there are no watertight boundaries that can be drawn within the marine space. Although ecosystems like coral reefs that surround small islands do

have a discernable physical boundary in the form of lagoons, this does not impede the dynamic exchange of water, nutrients, pollutants and marine species within these areas. The social configurations of fishing communities are closely modelled along the patterns of marine areas. Reef fishing and fishing arrangements are, therefore, different from those seen in the open seas. Fishing patterns, the distribution of fish catch and income from fish catch all depend on the nature of the fishery itself. This in turn depends on the behaviour of the fish and its environment.

For example, the traditional fishing practice using shore seines (still seen in parts of Karnataka, Goa, Orissa, Andhra Pradesh and Tamil Nadu) that target near shore pelagic fish requires between 30-50 men, if not more, to work the boat and net. The rules of shore seining and the share system that has evolved in each region are minutely shaped by the characteristics of marine environment and its resources. In fact, the choice and design of fishing craft and gear are directly dependent on the targeted resource, coastal geomorphology and sea conditions. Fishing communities in India by and large have been marked by community cohesion, a high level of autonomy and have been largely self-governing communities with minimal interactions with the mainstream until recently. This has given rise to a 'culture of fisheries' which also shapes various aspects of fishing communities, their social organisation, institutions and identity. It is, therefore, only natural that the perspective and approach to the marine space be distinct from the terrestrial one.

Why is emphasising this point important? At the heart of the conservation-environment argument is the issue of who will enjoy priority access

and user rights over natural resources. In the backdrop of the debate on the Recognition of Forest Rights Act, 2006,³ fisher leaders have stated that they should be accorded similar rights as tribals, as they too are hunters, similar to their terrestrial counterparts in forests. Nested in this articulation are several important issues. Clearly, while the nature of fishing described earlier provides legitimacy to the identity of the 'hunter-tribal', this categorisation serves more than a descriptive purpose.

The power struggle between the state and its various constituents hinges on identity politics. Fisherfolk too have been active in this struggle for over half a century, although they are somewhat invisible in the present debates on conservation and tribal rights. As a political constituency, fisherfolk have struggled for greater control over the seas and resource management, struggles which have been directed both inward as well as against the state. Control over the territorial waters of the country is vested with the central government⁴ while fisheries in the coastal waters upto 12 nautical miles is managed by the state governments. Although there are traditional arrangements to manage resources in these waters, individual or community rights over the waters still do not exist as in the case of land titles or *pattas*. In aligning with a tribal identity, fishers have expressed the desire to be treated with the same attention as received by forest dwelling communities.

Another important reason why fisher leaders are advocating a 'sea-

3. The full title of the law is 'Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006'.

4. See, The Territorial Waters, Continental Shelf, Exclusive Economic Zone and Other Maritime Zones Act, 1976.

tribal' political identity is that they do not enjoy rights over land either. The nature of fisheries requires that many fishing communities, particularly the traditional fisherfolk, be mobile and move residence across the coastline in different seasons. Consequently in many states, fishing communities do not even possess land titles in coastal areas despite their growing numbers across the coast.⁵ This has implications not just for their entitlement to housing and related infrastructure but more importantly in their say over development in areas occupied by them.

It is important to recognise this aspect of fisher settlements while designing building regulations and coastal development laws and prevent the further marginalisation and alienation of this constituency. This is one reason why fisherfolk echo the slogans of the tribal campaigns for forest rights to further their own demands for land and water rights and ensure greater access to the state's development programmes. This articulation unfortunately has not found space in the momentous political exercise of restoring rights to marginalised peoples of India, as in the case of the Recognition of Forest Rights Act, 2006.

Fisher communities, particularly those of the traditional communities, find themselves most impacted by this alienation, as the development drive has left them marginalised. Prior to independence, marine fishing was carried out at a subsistence level

5. See J. Kurien and A. Paul, Nets For Social Safety: An Analysis of the Growth and Changing Composition of Social Security Programmes in the Fisheries Sector of Kerala State, India. International Collective in Support of Fishworkers, Chennai, 2000; Also see J. Kurien and A. Paul, Social Security Nets for Marine Fisheries. Working Paper 318, October 2001. Centre for Development Studies, Thiruvananthapuram, 2001.

exclusively by traditional fishers. Over time there has been a cultural transformation in the fisheries – a process consciously facilitated by the state.

The current state of fisheries finds its genesis in the modernisation programme introduced by the government of India to ‘develop’ the sector. For example, the Government of Kerala welcomed the Indo-Norwegian Project for Fisheries Community Development to increase returns from ‘fishermen’s activities’, improve distribution of fresh fish and ensure a higher standard of living in project areas.

The basic idea was to remove the ‘drudgery’ of fishing and improve the economic condition of fishing communities. Several programmes for motorisation of fishing crafts were simultaneously taken up across the country, such as the Bay of Bengal programme on the east coast. The South Indian Federation of Fishermen’s Societies (SIFFS) in Kerala and the government of Kerala’s cooperative initiative, the Matsyafed, actively promoted motorisation programmes, ensuring loans to acquire motors and fishing nets, better access to improved fishing technologies and equipment.⁶

Unfortunately these projects were carried out without much assessment of the impacts of modernisation and mechanisation on the culture of fisheries and social arrangements within communities themselves. For instance, fisherfolk were proud that they were people who earned independently and did not dependent on wages. In fact wage labour was perceived as shameful and communities faced severe conflict because of the changing labour definitions because of mechanisation and modernisation⁷.

As a result development has been encouraged without sufficient emphasis on resource conservation as also increased disparity in the social and economic status of various fishing groups, with traditional fisherfolk falling at the bottom of the spectrum. Thus although fisheries laws were introduced for better management of the fishery resource to ensure its availability for all categories of fisherfolk, the law has not been able to respond as effectively with the national obsession for development through the maximisation of production.

Far more densely inhabited than most forests, the coasts are necessarily used by numerous fishing communities concurrently. Traditional community-based systems of fisheries management include fishing gear restrictions, closed seasons in specific areas, or ban on particular forms of fishing such as night fishing or dynamite fishing. In the late 1970s, modern fishing methods threatened the livelihoods of these communities and coastal ecosystems, as mechanised craft and gear, principally trawlers with bottom trawling methods, severely impacted fishing stocks.

By the early 1980s, many coastal states in India had responded by introducing legislation and formalising some of the existing management measures in the form of Marine Fisheries (Regulation) Acts. For example, the Orissa Marine Fisheries (Regulation) Act (OMFRA), 1982, prohibits all trawlers from fishing within five

kilometres off the shore. In recent years the state has also regulated the use of certain fishing gears and fishing zones that permits only low impact fishing practices in areas of sea turtle congregation.

These laws are not designed to exclude people from their marine environments. The fisheries departments and government institutes, such as the Central Marine Fisheries Research Institute, have systems in place for monitoring stocks of marine species (even if only partially reliable). It appears that these conservation measures also recognise that humans have historically ‘used’ or consumed marine species, including those now classified as ‘endangered’. Thus, fisheries management while prescribing conservation options that allow for the presence of humans and human activity, also call for modifications in the range, intensity and nature of fishing activity. For example, in Gujarat, the fisheries regulations prescribe prohibitions on the catch of gravid lobsters. The Tamil Nadu fisheries laws prescribe rules on species of shanks that can be harvested and their size.

Unfortunately, the official style of managing terrestrial systems is being extended to the management of marine species and their habitats as well. Furthermore, the little data that exists on marine species and their habitats has not been able to inform appropriate management decisions. In reality, the wildlife department’s response to demands for marine management has been to create a conservation mechanism identical to the terrestrial style as seen in the five marine protected areas in the country: Gahirmatha in Orissa, Gulf of Kutch in Gujarat, Gulf of Mannar in Tamil Nadu and two protected areas in the Andaman and Nicobar Islands.

6. V. Salagrama, *The Story of Globalisation, Modernisation and the Artisanal Fisheries of India*. Asian Fisherfolk Conference, Hat Yai, 2002.

7. N.B. Gomathy, *The Role of Traditional Panchayats in Coastal Fishing Communities in Tamil Nadu, With Special Reference to Their Role in Mediating Tsunami Relief and Rehabilitation*. Proceedings of Regional Workshop on Post-tsunami Rehabilitation of Fishing Communities and Fisheries Based Livelihoods, 18 and 19 January 2006, International Collective in Support of Fishworkers (ICSF), March 2006.

In response, fishing communities have objected to the complete ban on human presence in these formerly open access areas, the specific contours of the conflicts depending on the intensity with which these bans have been enforced. The example of Orissa is apt here. For the last few years, conservationists have been trying in vain to prevent olive ridley turtles from being trapped in trawl fishing nets. National and international efforts to introduce turtle excluder devices and keep trawlers out of the Gahirmatha Marine Sanctuary have failed, in part due to the strong resistance from the trawling community. The 1997 declaration of the Gahirmatha Marine Sanctuary generated considerable discontent among various fishing communities, as it denied them all fishing rights within a delineated core zone. Conservationists now recognise that it would be more effective to focus efforts on the protection of mobile offshore turtle congregation 'reproductive patches' containing mating turtle pairs. They also recognise that within these congregation areas, certain forms of fishing might be benign.

Unmindful of these facts, the Orissa Forest Department now plans to declare the other two known offshore congregation areas – off the Devi turtle rookery and the Rushikulya rookery – as marine wildlife sanctuaries. This would impinge on the rights of even the non-mechanised sector rather than simply restrict harmful activities. Ironically, since most major turtle congregations occur within a few kilometres off the shore, merely enforcing the fishing regulations of the OMFRA, which bans all mechanised fishing within five kilometres off the coast, would help in effectively conserving these turtle populations. In contrast to laws governing protected areas, the OMFRA also has the flexi-

bility to formulate creative rules that are area, activity and time specific.

Though conservation is widely believed to have lagged behind terrestrial conservation, it is possible that marine management rules, such as the fisheries laws, are more appropriate since they view the protection of the environment as the conservation of 'resources' that have human uses, a more realistic approach within this particular context. Many believe that wildlife conservation can succeed if it is done through means that protect people's livelihood rights rather than those of a single endangered species.

For example, protecting the interests of the traditional fisherfolk through the implementation of the OMFRA would simultaneously protect the turtle congregations.⁸ Today, conservationists and fisherfolk have rallied under the banner of the Orissa Marine Resources Conservation Consortium to work towards common marine conservation objectives. This alliance is possible because the fisheries laws only exclude certain activities rather than people. Not only can this practical, context-specific model form the basis for marine conservation in future, it could also serve as a powerful tool in refining terrestrial conservation methods which in most cases mandate the complete exclusion of people.

Other than not being able to adequately protect marine species themselves, Marine Protected Areas (MPAs) as envisaged and operated through the WLPA, fail on another count. Since the focus remains on protecting the habitats within bounda-

8. K. Shanker, 'Deconstructing Sea Turtle Conservation in India', in Ghazala Shahabuddin and Mahesh Rangarajan (eds.), *Making Conservation Work*. Permanent Black, 2007.

ries, the law is simply unresponsive to threats outside MPAs. All the MPAs of the country have some experience of this.

Take the example of the Gulf of Mannar Marine National Park (GoMNP). This MPA (measuring about 560 sq km, including 21 islands and their surrounding waters) lies in the core area of the ecologically sensitive Gulf of Mannar Biosphere Reserve measuring 10,500 sq km. Yet all efforts at protection are concentrated only in the islands off the GoMNP. The Palk Bay and Gulf of Mannar are considered as distinct water bodies with varied conditions, seasonal cycles and ocean-met parameters, although they are inextricably linked to each other via Adams bridge and the Pamban Pass. The seagrass beds and coral reefs in the Palk Bay and other areas off the Gulf of Mannar Biosphere Reserve make this region as fragile and important as the GoMNP. However, since these remaining regions of the biosphere reserve or the Palk Bay (which is home to a number of protected scheduled species such as sea fans, sponges, sea cucumbers and corals) have no legal protection for the habitats, this loophole has been well-utilised by the proponents of the controversial Sethusamudram Ship Canal Project (SSCP).

The SSCP is a 167 km long shipping canal which is to pass through the Gulf of Mannar, the Palk Strait and the Palk Bay. It involves dredging in an 89 kilometre stretch for a width of 300 metres and a depth of 12 metres for ships less than 30,000 DWT with draft restricted to 10m. A large percentage of this cargo is projected to be petroleum oil and lubricants. Despite the detailed and informed criticisms levelled against it, this project has overcome the challenges, ridden roughshod over the environment

impact assessment notification and obtained environmental clearance. Dredging activity has been ongoing since 2006 and without any requirement that the Chief Wildlife Warden be consulted for environmental clearance.⁹ Park managers remain mute spectators not just to the destruction of seagrass beds and coral reefs within the MPA from increased sedimentation caused by the SSCP, but to the loss of flora and fauna all along the canal and outside the MPA as well.

Similarly, the authorities in charge of the Gahirmatha Marine Wildlife Sanctuary in Orissa have been unable to halt the construction of the Dhamra port, just ten kilometres north of the MPA. Similarly, the Gulf of Kutch Marine National Park in Gujarat is located in the middle of an active shipping route and its fragile islands have been subjected to several oil spills from barges in the past. The green and brown laws have only worsened existing marine conservation blues.

It is clear that the state has no single integrated position on wildlife conservation (both terrestrial and marine) in the country as epitomised by the range of contradictory legislations and policies. Critics of environmental laws have shown that much of the legal text on the subject is contradictory and deliberately vague, creating an ideal environment for corrupt state machinery.¹⁰ The concurrent operation of the Wildlife (Protection) Act along with pro-industry and controversial environment laws and policies such as the National Environment Policy, 2006, the EIA Notification, 2006 and the newly proposed Coastal Zone Management Notification, 2007 aside

from numerous other environment related laws points to the national confusion on environmental governance. This confusion impacts marine ecosystems as the WLPA is increasingly applied in this region.

Although fishery laws approach conservation from a resource use and management standpoint, thereby possessing the potential to integrate both conservation and development, a continued reliance on the WLPA for marine management cannot but result in a state of heightened mayhem. Would things have been different if environmental considerations were factored into existing resource use laws? Would there be a role for environmentalists and conservationists if we were to focus more on defining and implementing development goals? Clearly, there is need to revisit the drawing board.

Fisheries laws are far from perfect. The record of non-implementation is almost as old as the time of promulgation of these laws. The fault however, does not lie in the approach of these laws as much as it does in design. While the approach of inclusion is commendable in fisheries laws as far as resource extraction is concerned, the laws are not as democratic in their implementation plan, where communities are far removed from this aspect.

The challenges to marine management systems are not uncomplicated. Marine management systems based on restricting activities work

well only where fishing communities are an integral part of the monitoring and enforcing mechanisms. Rapid technological advancements in fisheries and a noticeable systemic breakdown within the fishing communities make conformity to rules difficult. It is seen that only where fishing communities are still socially organised (such as the Mogaveera fisher caste members in Karnataka and the Pattinavars of Tamil Nadu) and where the level of awareness and political representation is greater, have the communities been able to enforce some form of indigenous or official fishing regulations. People are undoubtedly central to successful marine conservation efforts.

While it is clear that the terrestrial model does not fit the marine regime, there are experiences from terrestrial models that tell us what not to emulate for marine conservation. A combination of models is therefore required from both terrestrial as well as the marine paradigms, particularly where the mistakes of the former are avoided in the latter.

The revision of conservation methods must start with the constituency which is most vocal on these matters. It is time for conservationists to look within. As new entrants to an old arena, lovers of turtles, dolphins, sharks and other marine creatures must accord the fishing space the respect this age-old industry and its people deserve. The satirist H.L. Mencken said that every complex problem has a simple solution, and it is usually wrong! Experience shows that as conservationists we could do well to avoid a general reductionist approach and simplistic responses to the challenges of conservation. It is time to embrace complexities by forgetting old ideas and learning from past mistakes.

9. S. Rodriguez, 'Review of the Environmental Impacts of the Sethusamudram Ship Canal Project (SSCP)', *Indian Ocean Turtle Newsletter* 6, 2007, 16-20.

10. See M. Menon and A. Sridhar, 'An Appraisal of Coastal Regulation Law in Tsunami-Affected Mainland India', in Report on Ecological and Social Impact Assessments Post-Tsunami in Mainland India; Submitted to UNDP, Post-Tsunami Environment Initiative, 2007, pp. 105-149; Also see M. Menon, S. Rodriguez, A. Sridhar, Coastal Zone Management Notification '07 – Better or Bitter Fare? ATREE, Bangalore, 2007, p. 21.