Article

Fissures of a Blue Revolution: The Ramponkars' Response to Mechanised Fishing in Goa

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Abstract

This article is a critique of the project modernity from the vantage point of an indigenous occupational community of Goa which for centuries has been pursuing sustainable livelihood practices. It revolves around the traditional occupation of fishing in the context of modernist threat it faces. Informed by the theoretical insights provided by Frank's theory of development of underdevelopment, this article argues that our understanding of environmental change as a social process is inextricably linked with the expansion and contradiction of the world economic system. While delineating Frank's theory of underdevelopment as theoretical support, it captures the indigenous knowledge systems of the fishing community of Goa, highlighting its ecological sensitivity. It then addresses the changes that have affected this community in the wake of enforced modernisation and development. It specifically focuses on the social movements carried out by the traditional fishermen of Goa in an attempt to protect their traditional fishing practices.

Keywords

Traditional fishing practices, mechanised fishing, reconciling tradition with modernity, sustainable fishing

> Replying to a question on whether he was against all machinery, Gandhiji said: 'How can I be when I know that even this body is a most delicate piece of machinery? The spinning wheel is a machine; a little toothpick is a machine. What I object to is the craze for machinery, not machinery as such. The craze is for what they call labour-saving

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> machinery. Men go on "saving labour" till thousands are without work and thrown on the open streets to die of starvation. I want to save time and labour not for a fraction of mankind but for all.'
>
> —Mahadev Desai *(Hind Swaraj,* 1938*)*

> By constructing false tradition–modern dichotomy, that which was useful in traditional knowledge was institutionally suppressed. The time has come to recognise the mistake and bridge the fissure.
>
> —Nirmal Sengupta (1995)

This article is a critique of the project modernity from the perspective of the traditional fishing community in Goa. It draws attention to how the 'blue revolution' has not only led to the quantitative and qualitative decrease in fish yield but has also adversely affected the livelihoods of the traditional fishing community. Fish being the staple item of the Goan diet, the consequences of the blue revolution has implications for the quotidian life in Goa.

Prologue

The traditional beach fisherfolk of Goa, known in Konkani as Ramponkars,[1] have been pursuing their occupation with their time-tested skills and techniques for centuries. But sadly the sustainability of their fish catch and harmony with nature which they were experiencing can no longer be taken for granted. The leaders of the community exclaim:

> Until recently we have never had to face any problem of shortage of fish in the sea. We have been catching fish that was sufficient to feed the people of Goa and earn our livelihood. Now, not only has the amount of catch declined, some varieties of fish have also become extinct.

This concern is due to the fact that like every other coastal region in India, Goa too has been experiencing the blue revolution. The state has witnessed large-scale fishing with mechanical power since its Liberation.[2] The occupation of the traditional fishermen is being threatened by modernity with the introduction of mechanical power-driven fishing. The transition from the human labour-intensive traditional fishing to the technologically advanced mechanical fishing has not only led to overfishing but also led to the capitalistic transformation of this primary occupation. As reflected in Gandhi's reservations concerning the devastating effect of machinery at the dawn of the 20th century, the capital-intensive mechanistic large-scale fishing has benefitted a handful of powerful segments of Goan society rendering the fragile marine environment of Goa unsustainable. The process has been affecting the lives of traditional fisherfolk.

The present situation in the domain of fishing is very complex. One cannot now think of the revivalist strategy of going back to tradition. We have to live in/with modernity. Modernity has to be confronted and the fissures between

tradition and modernity need to be bridged as articulated by Sengupta (1995). While documenting and examining the fishing practices prevalent in Goa, this article highlights the unsustainability of moving away from traditional fishing practice and describes concerns encountered by the traditional fishermen in Goa. We also comment on their responses to new trends in the form of collective political mobilisation. In this exercise, this article attempts to identify some environmentally sustainable traditional practices of Ramponkars in Goa.

To begin with, this article locates the problematique in the theoretical context of the misunderstood tradition–modern dichotomy. It seeks to understand the role of traditional knowledge for development. It then proceeds to the empirical description and analysis of fishing in Goa, traditional fishing practices and the introduction of fissures in the old and new fishing practices. After examining the political responses of the traditional fishing community in the form of political mobilisations to modernist domination, this article concludes by re-examining the proposal by Sengupta (1995) to bridging the fissure between modern and traditional in the context of the ongoing fishing conflict in Goa.

Modernity, Development and Tradition

Modernity is a very recent phenomenon in the four-and-a-half billion years of the earth's history. It emerged roughly two centuries ago and spread to the whole of the globe. With the introduction of science and technology to use natural resources for the comforts and luxuries of humans it heralded the massive unsustainability of environment. A salient feature of modernity has been 'development' which has brought in unprecedented transformations in the natural ecosystems and the human livelihood systems. In the contemporary phase of late modernity, the symbiotic interconnections between the human livelihood systems and natural ecological systems are being broken. The spread of modernity is nothing but the global colonisation of project development. There is a threat to sustainable natural resources used for the present generation and generations yet to come.

This global colonisation of the project development began with the changes taking place in the world order since the end of World War II. The emergence of bipolarity with the USA propagating capitalism and the USSR upholding communism led to a division of the world between these power blocs. Both the superpowers used the tools of aid and containment to build up a membership into their respective bloc. This competitive aid-giving took the form of offers of, on the one hand, socialism and the other, membership of the free world with its capitalist free market. In USA, the latter scheme was presented within the ambit of development studies as the modernisation theory.

The modernisation theory states that underdevelopment is a problem caused by conditions internal to a nation-state. These problems include beliefs, attitudes and value-systems of the people, their culture and governance. The theory propagates that a nation-state's development depends on its changing to a market economy (Preston, 1996). Making use of its resources and ingenuity is critical to this development. The reasons which hold back the industrialisation of the poor nation-states are related to the irrational way in which resources are allocated.

In the 1960s, many writers began to question why poverty persisted and even worsened despite the huge post-World War II international efforts to promote global development. They argued that the development assistance of wealthy nation-states was just an extension of earlier process of colonisation (Joshi, 2005). By bringing a distinction between the traditional (old) hindrances to development and modern (new) facilitators for development such conceptualisations and political actions led to the suppression of the potential of the tradition or the traditional towards achieving the desired social change. This critique of the western-oriented theories of modernisation came to be known as dependency theories. Though not a homogenous theory, the dependency theory, in essence, argued that underdevelopment is an active process of impoverishment that is linked to development. Both development and underdevelopment are two aspects of the same process; and one (underdevelopment) is a fallout of the other (development).

One of the strong critiques of the modernisation theory was proposed by Frank (1966). He opined that if we want to formulate an adequate development theory for the majority of the world's population who suffer from underdevelopment, we must first learn their past economic and social history (1966). He believed that the expansion of the capitalist system over the past centuries effectively penetrated even the most isolated sectors of the underdeveloped world. Underdevelopment is largely the historical product of past and continuing economic and other relations between satellite underdeveloped and now developed metros.

Informed by the insights of Frank (1979) and other dependency theorists, in this article we sought to understand the environmental threat to the once self-sufficient coast of Goa with regard to fish supply and the struggles of the Ramponkars, the traditional fishing community of Goa. We argue that our understanding of environmental change as a social process is inextricably linked with the expansion and contradiction of the world economic system. Western models of development, when transplanted to different social environments, have huge environmental and social costs. The present underdevelopment and at times misery of the once self-sufficient Ramponkars community is a fallout of the institutions and practices of the developed regions.

On Fishing, Goans and Ramponkars

With around 70 per cent of the earth's surface covered with water, the number of communities living along the coast is quite large. Fishing is one of the oldest occupations. It developed gradually when man moved from the unselective and unplanned collection of things found in nature to the first systematic utilisation of food. Though fishing developed along with hunting, the latter lost its importance in most parts of the world at a fairly early stage of development. Fishing, on the other hand, has retained its importance up to the present time, though it is often considered to be the profession of poor people of a socially lower standing, with the exception of fishing for sport (Sahrhage & Lundbeck, 1991, p. 5). Marine fisheries have sustained coastal communities for millennia, and the scale of the ocean has given people the impression that the sea holds an unlimited bounty. The

fact that coastal ecosystems are among the most productive ecosystems in the world has added to the interest in fishing as a means to earn a livelihood. The construction of ships specifically for the purpose of fishing as well mechanisation of the entire fishing process has improved the fish catch considerably, making fishing a viable occupation. This increasing tendency to consider the sea as an inexhaustible resource with a limitless bounty has its repercussions on the sustainability of fish. The fish and fish products have emerged as the largest group in agricultural exports of India and the country has recorded an impressive trade surplus in fish products (Kumar & Jha, 2006, p. 4).

Like any other coastal region, in Goa too, fish and fishing are integral to the way of life. It is inherent to Goan identity. Goa is known the world over not only for its beaches, but also for its seafood gastronomy. Fish curry and rice form the staple diet of a majority of Goans irrespective of caste, class and religious distinctions. With a coastline stretching over 105 km, the coast accounts for 22 per cent of the total area in Goa. The fishing zone extends over 15,000 sq. km. Goa has an offshore fishing area of 2,500 km. This is nearly 200 fathoms deep and is a habitat for pelagic and demersal resources (Dhawan, 1998). Apart from the sea, fishing is also carried out in inland rivers and river estuaries. Though fishing is an important industry, it is not the sole economic activity associated with the sea in Goa. There are a number of subsidiary activities that have grown around fish harvesting like fish fertilisers, fish feed and preservation of fish in the form of fish pickles, locally known as *balchao* and *parra*.

Since time immemorial, fishing was a way of life for Goans living along the coast. Fishing was carried out mainly for the purpose of consumption and not used as a means of profitable business ventures. Goa has always been inhabited by traditional fishing communities such as the Kharvis, Gabits, Ramponkars, Magkars, Kantaikars, Pagelkars and Arrikars. Each of these groups monopolised different zones of the sea and used different types of nets like *koble, kanttai, pagel* and *rampon* that were used to catch different types of fish (D'Cruz & Raikar, 2004, p. 2048). Considered shudras, these fishing communities belong to both the Hindu and Catholic religion. Irrespective of their religious affiliation, the fishing communities in Goa celebrate various feasts and rituals centred on the sea. One reason for this communal compatibility could be the fact that most of the Catholic fisherfolk of Goa were converts from Hinduism.[2] For instance, the Catholic Kharvis still offer coconuts to the sea on the full moon day of *shravan* (holy month of the Hindus) and perform animal sacrifices to appease the evil spirit with the help of the *ghadi* or local shaman (Singh, 2002).

Collective large-scale fishing in the sea has been the traditional occupation of the Ramponkars. Nowadays, even other traditional fisherfolk and also the migrant labourers work with *rampons*. This entrepreneurial fishing community, spread across Goa's coastline, has been facing occupational challenges from mechanised fishing. As the fissures of the blue revolution constitute the axial problem of this article, the Ramponkars have been identified as the units of observation. Being

Goa's traditional fishing community, the Ramponkars reside near beaches. They are a patrilocal community that is largely endogamous. Fishing has been their hereditary occupation for generations.

Traditionally, fishing in Goa has always been a cooperative enterprise. The fishing communities organised themselves into groups that worked on the common property resource of the sea. The bases for division of fishermen into various units were the giant fishing nets called *rampon*s. A group of 35–40 year-old men were co-owners of the *rampon*. A *rampon* is a giant fishing net knit created by sewing together a number of smaller nets. In earlier times, the *rampon* was made of cotton thread. The thread would be purchased from the select few who specialised in weaving these threads. Groups of men would then sit together weaving these threads into nets. All the men who worked on the nets were called Ramponkars. Before knitting the giant net, the smaller cotton nets were boiled in water mixed with some plant saps collected from the forest, sun dried, dipped in cashew oil and dried. The giant nets were stored in a makeshift hut near the seashore. The boats that were used for fishing were made out the wood of the mango tree. The advantages of having wooden boats was that in case of mishaps, a wooden boat would float on the water and not sink, hence enabling easy rescue of the stranded crew. With the advent of modernity, the nylon nets replaced cotton ones and the fibre boats replaced wooden boats.

The net is fixed in the shape of a giant 'U' by the fishermen in their boats, then pulled into shore at an appropriate time by two groups of straining men and boys. The Ramponkars fished in shallow waters within a distance of 2 km of the shore. They cast their twine net at any time of the day after observing the low tide or the colour of the water. Pieces of lead (*chin*) kept the net in place. As the fish moved inshore with the high tide, they were trapped inside the net (D' Cruz & Raikar, 2004, p. 2049). Usually the nets are laid at night and pulled out early the next morning. The catch is shared according to each person's percentage of ownership of the total net (Newman, 2001, p. 44). In earlier times, both the net and the boat were owned by the landlord. In such a situation, the landlord was entitled to a share of the catch. Later groups of 30–40 would be co-owners of the boat and net. The catch was then divided among the Ramponkars and the helpers, each according to the percentage of his ownership. The quantity of the catch was so large that at times the excess fish, especially prawns, was used as manure for coconut trees.

Fishing in Goa Today: Nostalgia and the Need for Reconciling Tradition with Modernity

Today's traditional fishermen are very appreciative of the role played by the Portuguese colonial government with regard to their livelihoods. In 1897, the Portuguese government passed an Act that prohibited trawling or purse seiners within 5 fathoms from the shore. One Ramponkar recalls that during the Portuguese times, a distance measuring '10 bamboo sticks' from the sea was reserved exclusively for fishermen. This area could be used by the fishermen for completing various occupational tasks like mending nets, housing the boats and drying fish.

He complains that today traditional fishermen are not allowed full and exclusive access to the shore, thus hampering their occupational activities. The Portuguese government also strictly regulated the mesh size of the nets. The rule was that the size of the mesh should not be less than a one *aana* coin (the currency unit formerly used in India, equivalent to 1/16th of a rupee). This was done to enable young fish to be able to pass through the net if caught. If the Portuguese administration found any net violating these specifications, the nets were immediately burnt down. The Portuguese also did not encourage the use of nylon nets, immediately burning any such nets.

Thus, until Liberation in 1961, fishing, though an important occupation for coastal Goa, did not pose questions of ecological degradation and sustainability. Fishing was mainly for the purpose of consumption. So with an emphasis on subsistence and not profit, there was no threat of a fish famine. But with Liberation and the introduction of modernisation, the situation took on a different turn.

Immediately after Independence in 1947, development became the *mantra* for the newly formed government. Inspired by western ideas of modernisation and progress, western capital-intensive technology was transplanted to India to aid the country's progress. Naturally, the government looked towards the West and Europe in particular for insights to develop the Indian fishery industry.

The invention of machinery in the industrial era led to revolutionary developments in the field of fisheries. In the field of fishing technology a basic change in tactics took place, from the outwitting of fish, used since earliest times, to the application of mechanical power for collecting the catch (Sahrhage & Lundbeck, 1991, p. 103). Developments were made in all areas of fishing, including the procuring, transportation and storage of fish. But it was the trawl fishery which received the largest impetus from mechanisation. Developed in Europe, trawlers were soon transported to various parts of the world with modifications to suit local conditions.

The late Matahany Saldanha, founder of the Goenchea Ramponkarsancho Ekvott (GRE), an organisation committed to protecting the interests of the traditional fishing community in Goa had informed us that the trawlers that we see in Goa today, were earlier used by the Norwegians in the aftermath of World War II to trace mines. The trawler boats used a bag net with the two ends of the bag open to the sea. The net has a weight at the bottom and floats on the top. The end point of the bag net is narrow. The whole process has a ploughing effect on the seabed. Mr Saldanha explained that while the trawlers were used for the purpose of tracing mines, a lot of fish also began to get caught in the net. The Norwegians then decided to increase the use of trawlers for the purpose of fishing. This technology was then exported to other parts of the world.

When the Government of India decided to mechanise the Indian fishery industry, it decided to incorporate the expertise of the Norwegians. The purpose for mechanisation of fishing was two-fold: one to increase the fish intake of a protein starved nation-state and the other was to improve the standard of life of the fishing community—a community that had always been at the lower rung of the socio-economic order (Alvares, 2002). In addition, an increase in production and productivity of fishing units and also to promote exports was yet another objective of

mechanisation. In 1953, the Government of India began the process of mechanisation with the Indo-Norwegian project in Kerala. The central government made loans available to people who wanted to purchase trawlers. In the 1960s, a small trawler's cost approximately was ₹100,000. The government would loan an individual ₹80,000 and, he had to pay the remaining ₹20,000. Very few traditional fishermen could afford that amount of money. The result was that trawlers were purchased by small capitalists and, as the profitability of fishing increased, by big capitalist-businessmen, industrialists and politicians (Newman, 2001, p. 45). The then Director of Fisheries in Goa, R.M. Dhawan, also admitted that 'most mechanised crafts in the country are owned by "moneyed unwanted elements" and not by traditional fishermen' (Kagal, 1979, p. 28).

Detailed studies conducted by the Centre for Development Studies showed that the Indo-Norwegian project was a failure (Alvares, 2002, p. 174). Protein consumption in the area actually declined, with a large part of the increased fish catch going for export. Mr Saldanha explained that a large portion of the fish caught was exported to Europe, most of it, to serve as cattle feed. The methods used by the trawlers were also ecologically disastrous as will be explained later in this article. As a result, the fish yield reduced drastically. Additionally, the trawlers also often destroyed the equipment of the traditional fishermen.

In fact, environmentalists are of the opinion that the only reason that the mechanisation process has continued is the massive government subsidy, aid and loans to mechanised fishing. The Goa government officially declared the years 1980–1982 a 'fish famine' period in the *Gazette* (even though the fish catch was not alarmingly low), in order that loans due from fisheries (trawlers) cooperatives could be waived for a period of time (Alvares, 2002, p. 174). These various developments infuriated the traditional fishermen in Goa who now increasingly perceived the trawlers as being detrimental not only to the livelihood of the traditional fishermen but harming the environment as well. The Ramponkars mobilised themselves into the GRE.

Goenchea Ramponkarsacho Ekvott

There was an agitation brewing up in south Goa to protest the chemical pollution of a newly set up fertiliser plant, the Zuari Agro Chemicals in the 1970s. The leader of the agitation, Saldhana, met the fishermen working on the coast near the factory to discuss and enlighten them on the woes caused by pollutants emitted by the factory. During the course of interaction, he realised the problems that the community of 80,000 traditional fishermen faced due to mechanised trawlers and purse seiners which were fishing very close to the shore and depriving them of their livelihood. He agreed to join forces with them after they finished addressing the pollution problem caused by Zuari Agro Chemicals. In 1975, the GRE was officially instituted. In 1976, the GRE gave its first written memorandum to the then Chief Minister of Goa, Shashikala Kakodkar. Their plea was rejected and the leaders of the movement were branded anti-nationals who were opposed to development. From here on, the struggle began in earnest. It began with a chain hunger

strike lasting 380 days and built up to a full-fledged movement. Even during the height of the Emergency, the movement continued unabated in Goa. The Ramponkars held a 10-day *dharna* at the chief minister's residence as well as demonstrations in Panaji. The only law to protect the traditional fishermen was the 1897 Act against the use of dynamite. Accordingly, rules were made to ban trawling and purse seining within a depth of 5-fathom, which was about 2 km from the shore. In 1978, the trawler owners, who by now included several politically influential and wealthy people, successfully challenged the 5-fathom rule in the Judicial Commissioner's Court. In 1978, the GRE demanded that the government should make a law to ban trawling or mechanised fishing within a radius of 5 km from the shore. The trawlers were interested in fishing within the 2 km radius primarily because this zone was the breeding ground and habitat of most of the species that were in demand in the export market. The technology that was used in the trawlers was capital intensive and the owners were interested in maximising profits (D'Cruz & Raikar, 2004, p. 2050).

Realising that they were dealing with powerful opponents and aware that their problems were shared by traditional fishermen in other parts of coastal India as well, the GRE organised themselves on an all India level. The aim was to protect the traditional rights of approximately 6.5 million fishermen who lived along the Indian coastline. Accordingly, the National Forum for Catamaran and Country Boat Fishermen Rights and Marine Life (NFF) was formed in 1978. The central government issued a directive to all states and territories to reserve an exclusive 5-km zone for traditional fishermen. After various changes in the government, the Goa legislature enacted the Marine Regulation Bill in 1980 though there was heavy opposition from the powerful lobby of trawler owners. The Bill was passed after a sustained and virulent struggle between state and trawler owners with the state supporting trawler owners. The Ramponkars even burnt down trawlers violating the order. The trawlers, in turn, continued violating the ban with police protection. The traditional fishermen, especially those from Velsao in South Goa, were the target of the government's ire: the male members of the village hid in the hills surrounding Velsao for an entire month. The leader of the GRE, Mr Matahany Saldhana, and other members were taken in police custody for over 20 days.

After a protracted and violent struggle, the Supreme Court passed an order banning mechanised fishing within 5 km from the shore. It also empowered the state to make rules to conserve marine ecology by banning mechanised fishing during monsoon season. Bowing to the powerful trawler lobby, the deadline of monsoon ban was reduced from 31 August to 15 July. Nevertheless, the GRE complains that the law is not always implemented.

Today, the Ramponkars movement has lost steam. There are many reasons for this. Alvares (2002, p. 175) tries to identify some of them. One is that there are class contradictions and tensions within the Ramponkars community itself which is divided into owner fishermen and wage labourers. Attracted by the money generated by trawler fishing, some of the Ramponkars also aspire to become future trawler owners.

Hence, though the issues concerning the traditional fishermen and the ecology have not lessened the movement has tapered. The traditional fishermen, who were

once underdeveloped with the introduction of the development brought in by trawler fishing, today strive to join the ranks of the developed. This, in turn, will lead to not only further underdevelopment of the traditional methods of fishing but underdevelopment of the coastal ecology as a whole.

Despite these shortcomings, as well as the untimely death of Mr Saldhana on 21 March 2012 which has surely has affected the momentum of the movement, the GRE is still one of the foremost organisations representing the interest of the traditional fishing community in Goa. Protesting against mechanised fishing near the coast, and alterations in fishing dates, the GRE now acts as a watchdog against various kinds of violations and threats to the local fishing community and the coastline of Goa. In May 2015, it protested against the proposed policy of the Goa state government to have sea planes flying over the Goa coast. They allege that such a move would be detrimental to the interest of traditional fishermen as the landing and taking off of the planes would affect the fish as well as the fish catch along the coastline.

Dual Underdevelopment: Ecological and Environmental

The modernisation theory proposes that underdevelopment is a consequence of conditions internal to the underdeveloped region. These conditions include the social, economic and ecological. It further states that a country's development depends on its changing to a market economy, and making use of the country's resources and ingenuity is critical to this development. Dependency theorists rejected this line of thinking and argued that the persistence of underdevelopment shows that underdevelopment cannot be wiped away with the aid by the developed. On the contrary, when associated with the undeveloped, the developed regions increase their wealth, usually at the cost of the underdeveloped. This then has a multiplying effect on all sectors of the underdeveloped region. In the beginning, the issues concerning the Ramponkars movement seemed mainly economic. It seemed a clear case of the rich and powerful depriving the poor traditional fishermen of their livelihood. But gradually a number of other issues began to surface. It was noticed that not only was the Ramponkars' catch diminishing but the total landings were fluctuating wildly (Alvares, 2002, p. 174). And there had been no significant overall increase in the catch as should have been the case after the introduction of mechanised trawlers with huge investments.

Mechanised fishing is thus ecologically harmful and is resulting in depletion of fish resources. The reasons for this can be found in the process of mechanised fishing itself. There are two modern methods of fishing—purse seining and trawler fishing. A seine is a large fishing net that hangs in the water due to weights along the bottom edge and floats along the top. In purse seine fishing, all along the bottom are a number of rings. A rope passes through all the rings, and when pulled, draws the rings close to one another, preventing the fish from 'sounding', or swimming down to escape the net. This operation is similar to a traditional style purse which has a drawstring. The purse seine is a preferred technique for

capturing fish species which school, or aggregate, close to the surface—such as sardines, mackarels and certain types of tuna. This method of fishing is ecologically destructive—one reason for which is the mesh size. Because of the relatively small mesh size there is a large by-catch which is then discarded back to the sea. This is ecologically harmful as it destroys vast amount of resources. This disturbs the pattern of interdependence whereby big fish feed on the small fish. If the mesh size is large, the probability for getting a small by-catch is meagre. A large mesh size is recommended for a favourable ecological method. Another ecologically destructive practice pursued by mechanised fishing is the speed with which mechanised fishing takes place. In the process, the young fish have no time to escape the net.

The other mechanised method, which is even more ecologically destructive, is the method pursued in trawler fishing. Trawling is a method of fishing that involves pulling fishing net through the water behind one or more boats. The net that is used for trawling is called a trawl. The vertical opening of a trawl net is created using flotation on the upper edge ('floatline') and weight on the lower edge ('footrope') of the net mouth. The bag net or the trawl net is towed from a boat close to the sea floor. The end of the net where fish is retained is narrow and funnel shaped. Though the most common form of trawling involves only one boat at times two boats are used. In such situations, a very big net is used. And it covers a wider area. This type of trawling also called bull trawling which uses even more speed.

Trawling, which began as a method of fishing since the 15th century, is today a controversial, though popular method, of mechanised fishing that is being used. The process of fishing by trawlers has a ploughing effect on the sea. This has tremendous negative consequences on the environment. As the net and other fishing gear sweep along the seabed, it destroys corals, seaweed and other habitats. If done during the breeding season, it destroys fish eggs, thus depleting the number of fish. As the net moves along the floor of the sea, it may disturb or even displace rocks and other sediments. All the industrial and sewerage waste then gets shifted and suspended in the sea. Because of the size of the net and speed at which the trawler moves, the extent of its by-catch is very large. This by-catch at times even includes valued species like dolphins and sharks.

Given the rate at which modern fishing methods deplete the fish stock, there is the ever-present danger of fish famine. Mr Saldanha gave the example of the situation in Norway to articulate this warning. He informed us that in the early days of the trawler success in Norway, cod fish was caught in plenty. Cod fish, measuring 2–3 m, take approximately 9 years to attain maturity. In the rush to make quick money, cod fish were caught indiscriminately, without any consideration to their age. As a result, not only did the number of cod fish come down, the size of the fish also drastically decreased. The Norwegian government then issued a nine-year ban on cod fish fishing. With this, the situation has now stabilised. So Mr Saldanha reiterated that fishing activities and procedures have to be strongly regulated if ecological degradation and fish depletion are to be avoided. The only fishing practice that is sustainable is the one that is pursued by the traditional fishermen.

The GRE's main contention is that the sea is a resource which the Ramponkars are dependent upon and which they exploit in harmony with the environment. The nets used by the Ramponkars, especially the cotton nets that were used previously, are environment friendly. The Ramponkars would also use boats made out of the trunk of mango trees which were unsinkable. The mesh size was quite large so that juvenile fish could easily escape. The whole process of catching fish takes a lot of time and the by-catch is not that huge as most of the juvenile fish have a time to escape. The Ramponkars also separate the by-catch from the catch while the fish is still in water which prevents loss of fish. The traditional fishermen of Goa strictly follow the fishing ban in the monsoon season so that the fish breeding can take place unhindered.

Thus, it is only the traditional fishing methods in Goa that are ecologically sensitive to the dictates and the limits of the sea. With the marine ecosystem under threat from mechanised fishing, the traditional methods of fishing remain the only way forward.

Way Forward: Towards Bridging a Fissures between the Modern and Traditional

Mr Saldanha put forth that the experiences of the past has necessitated a re-definition of the concept of development. The experience of mechanised fishing, following the western models of development has benefitted a few at the expense of many. More importantly, it has led to the underdevelopment of the coastal ecology in Goa.

The way forward is not a simple revival of the past. Trawlers are designed to be able to exploit deep sea waters that have for centuries remained unavailable because traditional methods could not work there. According a UN survey, 50 per cent of India's marine wealth lives between the shore and the 50 m depth mark; the rest lies beyond that (Newman, 2001, p. 48). For the purpose of ease and value of catch, the trawlers have been fishing in the shallow waters—the domain of the Ramponkars. This has led to the depletion in fish yield as well as conflicts between trawler owners and traditional fishermen. This conflict is made to seem to be a clash between tradition and modernity, as if the two are mutually exclusive of each other.

However, as Kothari (1970) opines, a modernising society is neither traditional nor modern. It simply moves from one threshold of integration and performance to another, in the process transforming both the traditional structures and attitudes and the newly introduced ideas and institutions. Mr Saldanha suggested that instead of calling for a revival of traditional practices, which may not be practical in contemporary times, there should be a blend of both traditional and modern fishing practices. He felt that there should be a division of the fishing waters for different methods of fishing. For 3 km from the shore, only traditional fishermen should be allowed; between 5 and 10 km, traditional boats with outboard motors may be permitted. And trawlers should be allowed only beyond 10 km. This practice suggested by him will see the smooth coexistence of all the stakeholders. The

ecologically harmful impacts of the trawlers can be controlled to some extent, if their nets fish midwater, rather than touch the seabed.

Sengupta (1995) suggests a four-fold path consisting of (i) identification, (ii) investigation, (iii) improvement and (iv) incorporation of select aspects of traditional knowledge in modern society, which according to him, helps in bridging the fissures between tradition and modernity. Mr Saldanha's suggestions point out to the first three dimensions of the four-fold path. Political will and action, societal awareness and support, and the participation of the fisherfolk in incorporating the traditional wisdom in day-to-day fishing contribute to the sustainability of fishing.

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Notes

1. The Ramponkars are traditional fisherfolk of Goa who collectively organise themselves in fishing with their net known as *rampon*. They used locally made boats to spread their *rampon* around 2 km and are now facing challenges by the increasing number of mechanised boats operating in the coast line. Because the mechanised boats go beyond 2 km and over fishing is the result.
2. Goa experienced prolonged Portuguese colonial subjugation. Unlike the rest of the Indian subcontinent that got independence in 1947, Goa was liberated through Indian Military Action on 19 December 1961.

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