PROTECTING BIODIVERSITY AND ARTISANAL FISHERS RIGHTS IN BRASIL

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Introduction

Biodiversity is a multi-faced concept and does not belong exclusively to the natural sciences. Indigenous people and traditional communities have been selecting and transplanting species from one place to another in tropical areas. From this point of view biodiversity has also a strong cultural component particularly for those peoples who depend from the use of natural resources for their survival. Although traditional biodiversity management is more visible in tropical forest, traditional artisanal fishers have been using, for example, techniques to create new small artificial habitats in coastal areas in which fishes hide and reproduce to be later selectively captured. These systems are based on traditional knowledge transmitted from generation to generation.

Until recently Brazil, as most developing countries has left with no other choice in order to protect marine/coastal biodiversity than adopting a model imported from Western Countries : the no-take marine-coastal parks.This model, as a social construction and conservation practice does no come alone ; it contains a phylosophy (usually the deep ecology, ecocentric approach , separation between society and nature), social practices of protected area management (authoritarian/top down), a particular notion of science (based exclusively on natural sciences, such as conservation biology, exclusion of local traditional knwoledge) ; their promoters (big transnational NGOs and their experts, Environmental State Bureaucracies) are able to raise large amount of funds from International banks and transnational corporations and often have strong influence over government environmental institutions.

This fortress model is causing social marginality and political unrest as it is based on the expulsion of local dwellers, particularly of traditional communities or severe restriction on the use of their natural resources.It does not adequately protect biodiversity as they are often invaded as have little support from local populations that are forbidden to use natural resources as they traditionally did. It requires large amount of international funds that often benefit primarily local bucreaucracies and elites as well as tourists. As the socio-cultural aspects of local communities are not taken into account, only natural sciences are used to plan and implement these no-take areas, hindering a inter-disciplinary approach (including social sciences).

Some developing countries are trying to develop their own approaches to biodiversity conservation,combining sustainable use and no-take protected areas.In some cases, these no-take protected areas are defined, and established and conrolled by local communities. Many of these communities value positively the importance of these no-take areas.

This paper aims at describing one of these approaches recently established in Brazil : Marine Extractive Reserves (MER) and Marine Sustainable Development Reserves (MSDR).

I. – The recreation of common property regimes: the Marine Extractive Reserves (MER)

In Brazil the establishment of no-take Marine/Coastal Protected Areas, in particular national parks,in mid-80´s has raised many conflicts between artisanal fishermen and protected areas authorities. Most of these conflicts refer to restriction of artisanal fishing activities in areas traditionally used by these artisanal fishermen. In many cases these conflicts appeared as result of the fact that these protected areas were created without fisheries communities information and participation. In 2000, when a National System of Protected Areas was created, new categories were established, particularly Marine Extractive Reserves (MER) and Reserves for Sustainable development (RSD), where sustainable uses are means to achieve biodiversity conservation and amelioration in the living standards of fishermen. In recent years the demand for the establishment of the sustainable use reserves by fishermen communities has greatly increased. It should be mentioned that no-take zones, indicated by the users association within these reserves are forseen in the legislation and some communities are asking for

their creation. Mrine Extractove Reserves-MER- are defined as '.protected areas aimed at sustainable use and conservation of natural renewable resources, by traditional extractive populations, particularly fishing communities. They can also be defined as areas of ecological and social interest having characteristics which enable their sustainable use without jeopardizing the conservation of the natural resources.

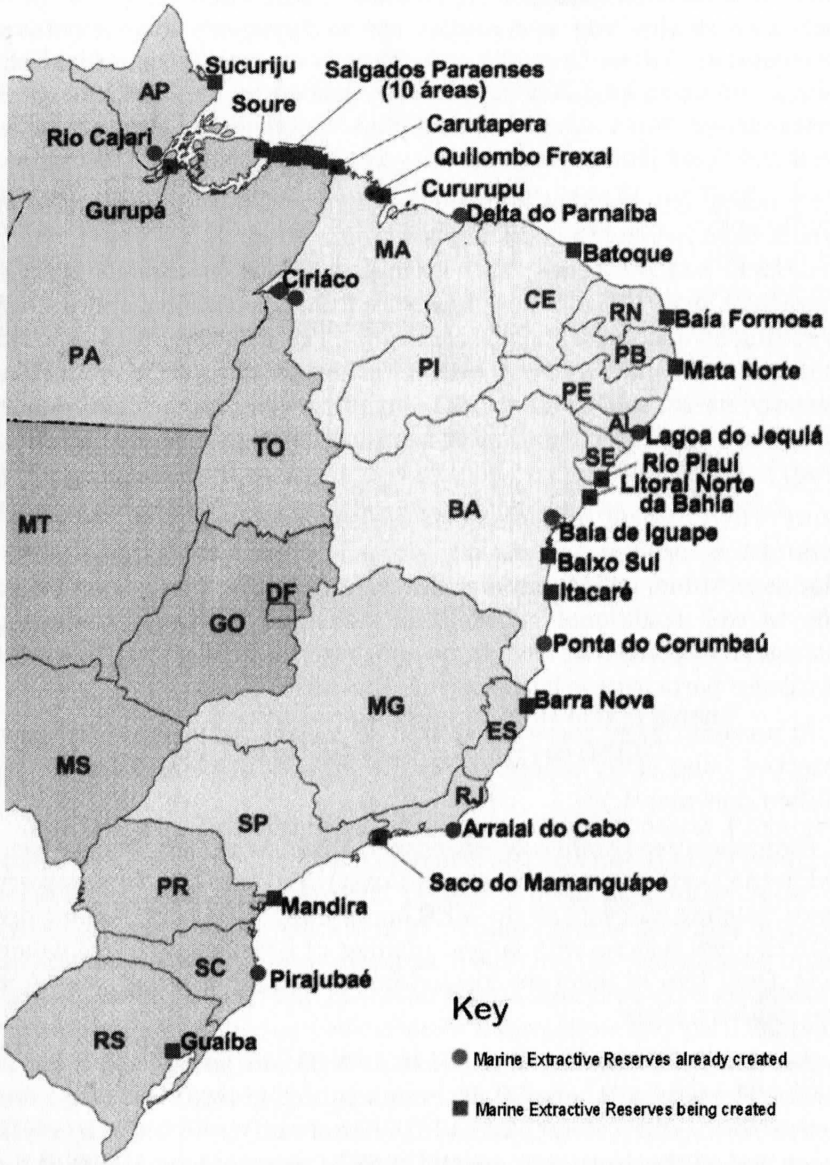
By taking into account how environment and society both stand to benefit from helping the coastal poor secure continuing access to their traditional sea territories, and livelihood resources, Brazil's Marine Extractive Reserve is a radical departure from conventional approaches to setting up and managing no-take Marine Protected Areas (MPAs). In the past most MPAs were established opportunistically, or, more recently, almost solely on the basis of biodiversity criteria. MER require biological as well social and cultural criteria for its establishment.

One important function of these coastal reserves is to draw a sea territory where fishing resources can use sustainably only by the members of the Reserve Association, formed by traditional fishing users. The Association, in cooperation with the Government and using scientific as well traditional knowledge, is charged to formulate fishing management plans that have to be approved by the General Assembly of villages participating in the Marine Extractive Reserved

At present,(2008) there are around 30 coastal and marine extractive reserves , and many others are in the process of being legally established.(see map 1.)

From the already officially established MER, some (41.1%) are located in the North Coast (Amazonian Coast), 41.1% in the Northeastern coast, totaling 82.2% of all the MER on the Brazilian Coast. It coincides with the two regions with largest number of Brazilian artisanal fishermen .Only 18% of them are located in the Southeast coast and 6% in the southern coast.

As far as the number of users around 28.248 people are living in MERs. The largest number of fishermen participating in MER are living in the North/Amazonian coast (13.700 fishermen)or 48.5% of the total users and in the Northeast coast(11.697 fishermen) or 41.4% of the total users. As the total number of artisanal fishermen in the North/Amazonian coast is 49.991 , some 27.5% of total fishermen of that coastal area live already in MER. Around 10.2 % of the total number of fishermen in the Northeast (114.205) live already in marine extractive reserves.



Map 1

Source: IBAMA, 2888

II. – MER Benefits and Management Challenges

If the MER initiative is successful, Brazil will come closer perhaps than many other tropical country in establishing a socially-responsive, economically realistic, and environmentally sound multi-use MPA framework.

A. Potential

Marine sustainable development reserves-MER- offer opportunity of

a) conserving marine biodiversity through sustainable use. Allowing for areas of non-use, controlled by the communities they offer to the reserve members the opportunity to be involved directly in biodiversity conservation.

b) Breaking "de fato" the open access regime in the sea, creating a " new commons" of responsibility of the coastal communities

c) improving the fisher´s communities socio-economic well being and their culture, based on their traditional way of living.

d) fully participating in decisions concerning the sustainable use of natural resources, monitoring and surveillance.

e) Introducing innovative approaches to marine conservation that fit better to the ecological and socio-economic conditions of developing countries. Innovative activities such as family based aquaculture are being introduced in areas where fishing are the main source of labour and income.

f) Finding new sources of income for women (part time aquaculture, craftwork) and power as in many places they are participating in the deliberative councils

g) Being part of larger conservation efforts, creating a barrier against threats of unsustainable use of resources, represented in Brazil by the increasing number of large shrimp-cultivation farms, urban/tourist expansion that destroy the habitats in which artisanal fishers work and from which they take their subsistence such as mangrove, coastal forests, etc. These reserves can also hinder " free-riders" that unsustainably use natural resources. Allowing for the establishment of participatory fisheries/aquaculture management plans.

h) Being associated with more strict protected areas such as marine parks, they create a mosaic of protected areas of different categories.

i) Integrating a network of marine protected areas (both no-take and sustainable development) in the existing coastal management plans.

B. Constraints and difficulties

Among the main difficulties in establishing MER there are:

a) Threats from more intensive and destructive users of the marine environment such as shrimp cultivation enterprises, industrial fishing boats, urban/tourism developers, fish traders.

b) insufficient managerial capabilities in the government environmental institutions that until recently were trained for the management of no-take reserves.

c) Suspicion of large international NGOs and part of the strong preservationist movement who believe that biodiversity conservation can be achieved only through no-take protected areas.

d) insufficient funds to support sustainable use of resources, as most of these international funds are directly almost exclusively to strict protected areas.

e) Lack of administrative experience of local communities in managing more complex economic undertakings directed to the market, through marketing associations and cooperatives. Training and administrative support are therefore essential for the success of the marine sustainable use protected areas.

f) lack of power of fishing communities as the formal associations (guilds/colônias de pescadores) lack sufficient authority and often are controlled by no-fishers. Lack of a strong national movement compared to the National Movement of rubber-tappers or the Indigenous Peoples Movement.

g) lack of experience of community management of natural resources, particularly in the reserves where some migratory species are relevant for the local economy. Adaptative management is probably the only option where biological and social data are scarce.

h) difficulties of integrating scientific and traditional knowledge and management due to lack of tradition of multi-disciplinary approach. It is also important to highlight the extent of cultural documentation and social sciences inputs required to develop these reserves, from original proposal submission to monitoring and evaluation, and both internal and external conflict resolution.

III. – Examples of Marine Extractive Reserves

A. Mandira Extractive Reserve: southern coast of Sao Paulo

It is a very small reserve of 600 hectares of estuarine area, mainly mangrove, in southern São Paulo coast, created in 2002 by the Federal Government benefiting some 25 families of traditional fishers and oysters collectors.(see map 2). The Mandira extended family has been established in the area since the 18th century, first engaging in agriculture but gradually shifting to seafood harvesting—due to changing economic conditions, pressures for land, and environmental restrictions. Mandira is a *quilombola*, a community made up of slave-descendants who have proven resident and can trace their ancestry over generations (through Catholic Church records and oral histories). Mandira, like other quilobolas, have collective rights over the land protected under Brazilian legislation.

Before the project, the market chain for oysters was dominated by traders, who paid little regard to legislation or to hygiene and health standards for shellfish processing. There was overexploitation of some oyster stocks. Outside shellfishers, often from distant states) tended to "invade" the region with little regard to local traditions, as coastal areas were of open access.

The project started in 1993 by Nupaub-the Research Center on Weltands Conservation of the University of São Paulo and a local Ngo-Gaia by the process of selection of the most suitable community from several ones existing in the coastal area. Mandira village was selected because of strong families ties, clear leadership and rich biological environment. The main effort for almost two years was directed to community organization and the building of a local association, an approach that proved successful in the long run.

In 1997, even before the formal approval, with funds from the Federal Government and other sources, a Cooperative was formed, benefiting 40 families of oyster cultivators living in 5 different nearby communities, from which 17 families were from the MER-Mandira.

With funds from the Federal Government the Cooperative headquarters was build , a depuration system was established, commercialization started with the use of a small insulated truck that brought fresh oysters to larger consumer centers, increasing substantially income and improving living conditions of its member. The Cooperative and the Reserve were supported by a variety of donors including Margaret

Mee Botanical Foundation, Shell Brazil, World Vision, the Brazilian Fund for Biodiversity (Funbio), the Forest Foundation of São Paulo (Fundação Florestal). They also got an international reward from the Tropical Initiative in Johannesbourg Conference in 2002. (Medeiros, Dean, 2004)

The MER Mandira is one of the few where the management plan is working in a participatory way in the sense that rules are built by the reserve assembly of users and it is monitored by its member and by Ibama (Federal Environmental Agency)in a co-management process. Knowledge from natural and social scientists as well traditional knowledge of fishers and harvesters are used the process,based on the adaptative approach (learning by doing).

Summary of the main characteristics of Mandira Reserve

1. Small size in surface and user´s compared to the other Mer studied
2. One single and organized community living out of urban area, with a clear leadership.All members belong to the same religion (Catholic)
3. The ecologic and socioeconomic assessment was done jointly by the village members, men and women and the research Institute.Local knowledge was intensively used. Change from an ecological unsound way of collecting oyster, cutting the mangrove roots to a new technique- oyster rearing beds-
4. Community organization and discussion on extractive reserve took more than one and half year and was a decisive strategy for a solid building of the reserve.
5. Strong commitment of the Mer reserve in protecting the boundaries against free riders, and in ameliorating the quality of sold oyster
6. Build up of a cooperative where the Mer members represent the core group and occupy the key posts.
7. Stong support of different State,Federal,local Ngos and research institutes
8. The Mer was able to raise funds from different public and private sources for its establishment.
9. Co-management is working, with special enphasis on the monitoring of the activities and rules established by the Deliberative Council
10. Several training workshops on different aspects of community organization , oyster rearing, bookkeeping ,etc

The MER leaders are often being called by other fishing communities to teach how to rear oysters along the São Paulo and Rio de Janeiro (where a new experience started).

B. Corumbau Marine Extractive Reserve in Bahia

The Marine Extractive Reserve (RESEX) of Corumbau was established in 2000 through a Presidential Decree.(MAP 3). The Corumbau MER encompasses a total area of 98,174 hectares, spanning municipalities of Porto Seguro and Prado in the south coast of the state of Bahia .Corumbau is a federal conservation unit/entity, so IBAMA is responsible for its management. Corumbau is intended to protect marine biodiversity and improve livelihoods in five small fishing communities and one Indigenous *Pataxó* group. All six villages are dependent on reef and soft bottom fishes captured with hand-lines, spears and nets; trawled shrimp (recently introduced); and small-scale tourism. Corumbau was the first MER specifically designed to protect coral reefs. Considering fishers and their families officially registered as members of the RESEX, roughly 1,750 people are directly dependent on the extractive activities in this area.The Bahia coastline harbors some of the most extensive remaining areas of Brazil's Atlantic Forest, the most important portions of which fall within a range of land and sea protected areas.

Although it is a new conservation unit, the MER Corumbau is already organizing its Deliberative Council and is drafting a management plan that embodies a strong participatory approach with provisions for ongoing participatory monitoring, and decisions about zoning.

MER Corumbau occupies a much larger open sea surface than RESEX Mandira which is an inshore protected area. It also harbours a greater number of fishers, belonging to different villages which do not have necessarily the same demands and perspectives in the Deliberative Council. Given these features, social participation is more complex in Corumbau than in Mandira and the threats from industrial boats coming to fish in the area are also higher. The positive aspect is that a broader marine area is protected and it is a part of a regional protected network that includes the important Marine Archipelago of Abrolhos. It is also considered an important defense line against the large shrimp farms that are threatening the whole Bahia coast. Fisheries management is also more complex as there are many migratory fishes that require specific management measures.

Some problems affect the Resex Corumbau: the physical distance among the 5 different villages and insufficient means of transportation to take people to meetings. Each of these five villages have a user´s association, but they function unevenly, pending of the type of leadership they got and the conflicts they have to solve . Conflicts with tourism occupation seem to be higher in the fishing village that is part of the main city but it exist also in other more distant villages, as the whole area is attracting a larger numbers of visitors.

One of the main conflicts, however, envolves the shrimp cultivation farms that are expanding in its last frontier: the southern coast of Bahia where MER Corumbau is located. In fact, close to the reserve there is a plan to build the largest shrimp farm of Brazil, covering 5.000 hectares that may affect the MER and the Abrolhos National Park. The MER users associations, IBama and NGOs are fiercely opposing the establishment of this new shrimp farm, whose owners are important politicians and investors of the Province and have developed a strong lobby in the State Parliament to get the project approved. In the place where the shrimp farm would be located, there is also a project to build a new Marine Extractive Reserve.

Apart from these conflicts, very little funding from outside sources was found to ameliorate the fish landing areas, the commercialization system, the functioning of the schools and health services. For the moment, the main advantage of the MER is to keep the trawlers out of its boundary and the consequence increase in fish available for artisanal fishermen of the reserve.

Summary of the characteristics of the Corumbau Reserve

1. Large open sea area and a greater number of dispersed villages, including one in an urban area
2. Diversity of fishing techniques employed
3. Diversity of ecosystems, including beaches, mangroves, coral reefs and islands
4. Great distances between villages part of the MER and problems of communication
5. Limited participation of women in user associations
6. Villages where fishers live are not part of the protected area, and as some villagers are selling their houses on the beaches to tourists, the whole MER could be in danger
7. Increasing importance of tourism in several villages

8. Co-management is still in its initial phase, although the utilization plan was already approved
9. Difficulties in controlling boundaries because of lack of appropriate boats. Surveillance is often done with the infrastructure of the nearby Abrolhos National Park.
10. Southern part of Bahia is seriously threatened by the expansion of shrimp cultivation farms. The Corumbau Reserve has been helping the fishermen of the area to resist the expansion of these farms, by creating additional MERs in the region
11. Weakness of user associations and insufficient staff from government institutions (IBAMA/CNPT)
12. Limited and badly maintained physical and social infrastructure (roads, health and education)

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