

THE SUNDARBANS: A RIPARIAN COMMONS IN SEARCH OF MANAGEMENT

Introduction: The Framework

The "tragedy of the commons" has come to symbolize the problems between the survival of nature and the extractive tendencies of humans interacting with nature in order to ensure subsistence as well as profit. The use of the very term 'natural resources' to signify nature as is the wont of development institutions and bureaucracies worldwide is tantamount to subordinating it to human use and modification. The term "tragedy of the commons" connotes the destruction of grazing resources on the commons on account of a local societal failure to control individual maximizing tendencies. What is often not well understood is that when a tragedy of the commons type situation is averted with cooperation on profit maximizing activities by groups of resource users, it often poses a real threat to the survival of the nature itself. Often this term is also used both historically and contemporaneously to clamp down on individual and or social/community based systems of resource use and extraction, by the intermediary role of the state. However, the typical use of monetary controls to regulate extraction by the state leads both to subterfuge by the users who are no longer responsible, as well as widespread rent seeking behaviour by officials, both of which defy any regulatory attempts by the state.

At the outset it must be understood that while the existence of common property systems with regard to the Sundarbans is referred to in passing in historical sources, there are traditions and folk religious elements that provide subtle hints about the evolution of a belief system that would have necessarily impacted upon patterns of resource use. The role of dominant elements in the local communities in determining the orally transmitted principles determining rights of access and use of resources is also significant in terms of developing common property management. However the scarcity of information directly related to common property issues has to be compensated for by drawing upon related sources of information and building upon linkages between different sets of developments. There is however a tremendous need for further in-depth primary research on the issues at hand, which can contribute significantly towards developing new systems of management and conservation based upon participation of users and transparency.

The paper examines a) the evolution of use patterns of the Sundarbans, the largest mangrove eco system in the world, by local communities in centuries prior to British rule, b) the development of traditions of access and extraction that evolved as part of a system of common property management) the changing state policy towards the Sundarbans, and d) the tragedies associated with a breakdown of common property systems on the one hand, and the imposition of state controls by a colonial state suffering from i.) lack of clarity of objectives of state policy on the one hand, ii) and the historical persistence of graft in defeating the limited conservationist role of the state. d) The role of foreign assistance is further studied with regard to shaping objectives and policies towards the Sundarbans. e.) Recent attempts to renew and reestablish common property management systems within a framework of participation and transparent management based on principles of equity, sustainability, and governance will be studied and some conclusions drawn with regard to longer term management and conservation of the Sundarbans.

The Sundarbans: Straddling the border between India and southwestern Bangladesh, the Sundarbans is the largest remaining contiguous block of mangrove ecosystem in the world, with a total area of approximately 10000 square kilometers (sq. km.) The Sundarbans reserve forest (SRF) in Bangladesh comprises slightly over 60 percent of this area and sprawls across the ancient delta of the Ganges River. Located within a zone of cyclonic storms and storm surges which originate in the Bay of Bengal and devastate the coastal area from time to time, the SRF provides a strong buffer and protects the lives, livelihoods and assets of approximately 3.5 million people who live in the immediate vicinity, and also provides protection to regional infrastructure and urban populations in major towns such as Khulna and the international shipping port of Mongla.

The Sundarbans is also the most important remaining habitat in the world for the highly endangered Bengal tiger (*panthera tigris tigris*), and is a major pathway for nutrient cycling and pollution reduction. Both the Indian and Bangladesh portions of the Sundarbans have received national and international acknowledgement for their high biodiversity value. While being home to several hundred different genera and plant species, the Sundarbans is home to several species of fish and a major habitat for wild shrimp. The SRF provides breeding grounds for a large number of ocean fish varieties. The SRF has historically been known for its wood and timber species, the sundry, and the gewa, the goran and golpatta used as building materials, as well as honey and beeswax. Over the centuries the greatest value was of course accorded to the clearing of the forest for rice growing. Land clearing was ongoing from at least the thirteenth century A.D. This process went on consistently until 1875 when the Sundarbans were declared a reserve forest.

The History of the Sundarbans and the emergence of common property regimes:

At the advent of British rule in the eighteenth century, the Sundarbans forest were at least double their present size, while to the north were areas taken earlier from the forest and converted to rice production. In the medieval period, conversion of the forest was already taking place with wet rice growing communities opening the forest for settlement purposes. Islam was an important force in this conversion. Persons armed with rights from the state to settle land and extract rent, jagirdari, and professing the Islamic religion, moved to support the process of land reclamation and settle populations involved in wet rice cultivation. "For several centuries after 1200, the Bengal delta saw two frontiers, both of them moving -a cultural frontier dividing Turk and Bengali and an agrarian frontier dividing forest and field..." (Eaton. "Human Settlement and Colonization in the Sundarbans:1200-1750") While Eaton describes the latter process of rice cultivating communities moving into forest areas, clearing land and settling down, this process was not limited to the Bengal delta alone. The term 'khas' lands wherein the Mughal state had absolute rights included lands not hitherto brought under the plough. The Mughal state and its predecessors and successor feudatories turned 'independent rulers', followed the same practice of giving land grants to persons who had the capability to settle new areas and pay revenue/tribute for such lands to the state. Such grants, variously titled jagirdari, taluqdari, were provided also to religious institutions, families etc. who also were expected to increase the area under the plough. Such processes also went hand in hand in certain areas with Islamization of local populations. As Eaton points out, .."So far as the Sundarbans are concerned, the link between the

deeds of the Sufis and the process of colonization is first seen in the life and legend of Khan Jahan (d.1459), the patron saint of Bagerhat in Khulna district..." (Ibid)

A similar figure is to be found in the clearer of the Sundarbans in the Twenty Four Parganas , in Mubarra Ghazi who is remembered as a clearer of jungles and his descendants claimed his authority to clear more forests. To this day he is revered and no local persons would enter the forest without first offering prayers to his shrine. Similar patron saints of the land clearing process emerged during this time and the following centuries. (This phenomenon had important connotations for the emergence of the rules of common property management as will be noted later) The process involved both in using local populations to extend the frontiers of cultivation as well to settle new groups of people including tribals through the process of land clearing. Tribals were renowned for their skill in clearing virgin forest and in bringing land under the plough. They were used by zamindars and jagirdars alike in Bengal and Bihar to cut down jungles and establish cultivation of rice. We find this process happening in districts as far apart as Khulna, and Purnea. It is also not surprising that the successors of these saints emerged as zamindars and taluqdars under Mughal and later British rule, claiming their prior right to collect rents from local cultivators. Many of these taluqdars were men of means who could not undertake cultivation personally on account of caste status, but had the means to finance the process of land clearing and cultivation which would require substantial means. Such men acquired the primary right of rent collection, superimposed upon which came the zamindars. Zamindars emerged both as people who had developed close links with the provincial authorities as well as people who pioneered new settlements and land clearing processes themselves. This chain of land clearing, settlements, land rent collection, revenue payments were based on a complex set of factors including patron client relations, capacity to finance movement of laboring poor to new areas and their subsistence during the period of reclamation. These processes produced in turn a complex chain of rent collection claims, which in time produced an almost unbearable burden on the Bengal peasant.

Generally on top of the chain were Hindu zamindars followed by their immediate sub in feudatories who were both Muslim and Hindu followed by non Ashraf Muslim and low caste Hindu and tribal cultivators. The process of land reclamation was both energy and capital intensive and persons who were moneylenders and traders with access to ready capital were able to finance such operations, thereby establishing themselves as zamindars and taluqdars. Often the Hindu zamindars utilized the services of Muslim saints to further the task with the peasantry, providing a moral authority and backing to that of the zamindar. Some such saints went into the process of extending the frontiers of cultivation on their own behalf and not of that of zamindars. They patronized particular areas leading to the Islamization of the population and emerging in later generations as local taluqdars and zamindars. The transformation of the forest into cultivated land also signified a shift from fishing as the main livelihood for local communities to cultivation. The need to raise revenues through taxation of rice harvest, which could be more easily done than the fish catch of the local populations, could have been a factor in the role of the state in supporting the extension of cultivation as the major livelihood of the people of the area. Population growth both natural as well as with the settling of tribals in the area, and the siltation of fish bearing lagoons also contributed to the process.

However the forest was still regarded as open to all peasants to extract goods required by them both for subsistence and livelihoods. While the indigenous populations worked hard at the task of land clearing and cultivating the newly cleared lands, were allowed

access to the forest adjacent to the cleared areas. In 1798 Buchanan noted when travelling into the Chittagong Hills that ... "The woods, however are not considered as property; for every ryot may go into them and cut whatever timber he wants. (Buchanan, Francis, "An Account of a Journey Undertaken by Order of the Bd. Of Trade Through the Provinces of Chittagong and Tipperah in Order to look out for the Places Most Proper for The Cultivation of Spices" (March -May 1798), (British Museum European Mss. Add.19286.) p.36). However it can be well established that the Sundarbans were not an open resource open to unlimited exploitation by all and sundry, and thus open to the "tragedy of the commons" type situation prior to colonial rule. There were pre-existing local common property arrangements for the utilization and management of natural resources. Local communities had specific, well-established rules, customs, and norms regulating the use of local forests, including rigorous sanctions for those violating established practices. Traditionally the forest and its products were used as sources of food including fish, which was used along with the products of settled cultivation, medicines, fodder, wood and other products, and were often revered as sacred places, protected by religious/customary sanctions. Rights of access to common property resources were based upon right by birth or invitation. Also such systems of access were based upon communal forms of use.

As stated earlier, from at least the thirteenth century onwards the Sundarbans have been regarded as a wasteland or forestland, in which the ultimate right vested with the state. Both earlier states as well as the colonial state until the mid- nineteenth century regarded the extension of cultivation as the most desirable use of the forest. The governments of succeeding states including the colonial state to start within order to assert their prior claim to the Sundarbans, limited the rights of private individuals from moving freely into the Sundarbans by a system of leases or grants allowing the extension of cultivation by the grantees. Two types of processes must have co-existed, with persons actually supporting land reclamation and then emerging as owners of rights to rent armed with state given licenses, as well as licensed individuals providing the wherewithal including the human resources as well as finances for such reclamation. However, there was considerable space for the emergence of community based common property resource management.

Access to the forests in the early nineteenth centuries was most likely limited to local communities living in the immediate vicinity. Rights of access while never formally regulated flowed from birth into local communities/castes and by settlement into the area. Traditions developed regarding the extraction of resources, which exercised controls over individual greed. In the area of fisheries, traditional fishers were aware of the spawning seasons of different species of fish and the catching of these types of fish during such months was prohibited. During fieldwork done recently in the Bangladesh Sundarbans among fishers working the Sundarbans, it was reported that traditional fishers knew from childhood when the different species were not to be caught. If such fish entered the nets, the practice was to release them. The use of otters to catch fish for instance represents one of these non-intrusive methods of fish catch, which was practiced by specialized fisher folk. It is now a dying trade. With the growth of commercial fisheries, the entry of outsiders, non-fisher castes from further away, as well as big fishing trawlers belonging to traders and moneylenders, any kind of traditional practices with regard to fisheries have long been abandoned. (Mitra, Manoshi, Social Assessment of the Impact Zone of the Sundarbans Reserve Forest, ADB, 1998)

The indigenous techniques of fishing also were “perhaps the least technologically intrusive economic activity in the Sundarbans.”(Bhattacharya, “J. The Sundarbans and its Agro Industrial Products”) some seventy species of fish were commonly available and fishing was an important ‘home industry’. Traditionally fish were harvested from the estuaries, rivers, khals (creeks), and bils (marshlands) at no cost except the traditional home spun nets and boats of fishers.

Other important products of the forest included goran timber, honey and beeswax. The best-known tree species include the sundri and gewa. While the sundri has become commercially extremely valuable and has been extracted to the point of extinction, traditionally local peasants for poles, rafters, and beams for house building required the sundri. The local peasants entered the forest in order to get wood for their subsistence requirements. Access was based on informal membership of the local Samaj, which grew in the settlements that emerged among the local communities. The wealthy people who dominated the Samaj also controlled access. Their primary interest would be to keep the peasants on the land and only allow limited access for purposes of taking out what they required for their subsistence. For house building, construction of ploughs, and fuel, the peasants would be allowed access. Commercial extraction of wood resources got underway with the growing demand from cities like Calcutta and Dhaka mainly from the 1830s onwards, for construction, railways, the tea industry, and paper pulp production onwards. With the growth of commercial demand and exploitation, the common property rules weakened and became irrelevant. The role of zamindars and jagirdars etc with regard to controlling access by their peasants to the forest, changed from deciding the principles of determining access to the forest, to that of charging of various cesses from the resource extractors, who increasingly came from areas further off from the forest, with commercial interests.

Settlers carried out fuel wood extraction in order to meet their domestic requirements. Until the early nineteenth century, it was limited to the local needs of communities living around the forest. The role of fuel wood extraction was important in meeting the subsistence needs of the local communities whose major livelihoods consisted of cultivation of wet rice and fishing. The emergence of fuel wood extraction as an independent occupation can be associated with the role of bawalis or woodcutters who did not constitute a specific caste or social group but could be drawn from the land-poor groups looking for opportunities for labor, particularly in the agricultural off season. The emergence of fuel wood extraction as an independent economic activity can be linked to the growing land hunger and increasing rent burdens on the Bengal peasantry in the mid nineteenth century onwards on the one hand, and the growth of demand from other parts of the country. The bawalis emerged as contract labor entering into agreements with the traders and moneylenders who would finance their expeditions, to sell the produce to them at prices that were always considerably lower than market prices.

Honey collection was also carried out traditionally by peasants for local use. It was a seasonal activity that demanded considerable skills and knowledge. The mowalis as they came to be called, had to track the bees and during the spring and summer months. They had to calculate the wind velocity and following the bees’ movements, in order to determine the location of the beehives. As per the recollections of older mowalis interviewed they studied the habits of bees and only entered the forest during the season for the purpose of honey collection. They did not resort to destructive practices are used by the increasing numbers of mowalis who enter the forest today to collect as much as possible and in doing so, end up destroying the habitat of the bees irrevocably.

The Sundarbans were incorporated into the popular religion and that too acted as part of the common property management system that was evolving. "So vast and terrifying a region has, indeed, evoked its own ideational representations." (Bertocci, P. "Notes Toward an Ethno sociology of the Bangladesh Sundarbans, 1998,p9) Deities associated with the Sundarbans include the Bon Bibi who was worshipped by all the resource extractors. Any offence to her could be caused by willful destruction of the forest and its flora and fauna other than what was required for subsistence. The Bon Bibi was worshipped daily in several of the villages surrounding the Sundarbans. The Dakshin Rai was regarded as the Lord of the South, and had to be propitiated by sacrifices and offerings etc. Such deities were regarded as protectors of the forest and its flora and fauna. Any willful or unnecessary destruction of the flora and fauna was thus bound to cause the deities to be angered and this acted as a deterrent on undue extraction by the users of the forest. The peasants who were brought in by religious men to clear the forest were also dependent upon them for protection from the potential and very real dangers that existed in the forest. The role of pirs or holy men in accompanying the resource extractors, propitiating the deities in order to afford protection to the expeditions, also signifies the authority and role in developing rules of access and acceptable behavior within the forest. "The exorcist fakirs would appear to exercise considerable shamanistic powers over men who regularly risk their own lives to extract forest produce. In this sense they are surely central to the indigenous social organization of the bawalis and mowalis as the latter carry on their trades. .." (Bertocci, ibid).

However a gradual transformation of the belief systems also appears to have accompanied the changing motivations of the resource extractors, whose own identity changed from being merely local peasants and fishers, to contract workers linked up commercially with traders and moneylenders, seeking to satisfy larger and distant markets. The Dakshin Rai's role as protector of the forest subtly underwent a change to one who protects the cultivators or the ones who clear the forest. This change may also denote almost a justification of changed levels of resource use and extraction than formerly would be the case. The power of the gods who if propitiated, may have at one time helped humans against the dangers of the forest became associated with successful exploitation of the forest!

Communities Impacting Upon the Sundarbans Today:

The Sundarbans is being seriously depleted through over exploitation and inadequate management. This process of overexploitation and depletion is accompanied by processes of pauperisation and increasing exploitation and powerlessness of the communities that live around the SRF and are dependent upon it for their livelihoods. Over a period of time their roles in resource management, their traditional belief systems and their leadership have been destroyed and replaced by state monopoly and control, based upon monetary instruments to control and regulate resource extraction. This system as will be subsequently discussed, has led to complete commercialisation of resource collection, domination by traders and moneylenders, and a serious and persistent problem of graft.

The resource users of the SRF live in an area within 0-20 kilometres around the SRF, known as the Impact Zone, and are seriously disadvantaged by their poverty, lack of organization, lack of access to productive resources such as land, capital, boats and gear, as well as their low levels of effective access to social services and infrastructure.

They have little direct access to markets, and are not organized to voice their views in any manner regarding the state of the SRF or its management at present. They are not in control over their own livelihoods, nor do they have any control over decision-making regarding management practices in the SRF. While there are approximately 29 NGOs working in the Greater Khulna area in the Impact Zone, a review of their programs shows that there is little focus on conservation and natural resource management of SRF resources. The activities related to aquaculture, fishery, agriculture and social forestry are not conceptualised in an integrated manner. In most cases all these activities are carried out in isolation from each other, as well as from the greater issue related to sustainable use and management of SRF resources. There has not been any systematic attempt to mobilize and organize the SRF resource users into viable groups of their own, in order to articulate their stakes in the sustainable management of SRF resources. It is within this natural and politico economic context that participatory management strategies, and alternative livelihood planning, fully involving the poor stakeholders, will need to be evolved and implemented.

Social Issues Which Impact on the SRF

In the context of a recent project (the Project) developed by the Asian Development Bank, I carried out social assessments in the Impact Zone, with a view to determining peoples' views with regard to their conditions, developments that were taking place within the SRF, and their suggestions for the future management and conservation of the SRF.

Initial Social Assessment

The ISA carried out under the Project showed that approximately one million people depending upon the SRF for subsistence live in an area which lies within 0-10 kilometres of the SRF, and another approximately another 2.2 million such persons live in a band of 10-20 kilometres around the reserved forest. Dependency also extends outside this area, and varies between different groups of resource users. While fisher folk and their financiers and traders come from Chittagong as well as Mongla, there are timber collectors coming from two thanas in Pirojpur district.

The major socio-economic characteristics of the SRF dependent households are the following: (i) prevalence of high levels of landlessness and marginal farms; (ii) high income poverty levels; (iii) high levels of human development poverty in terms of high overall illiteracy, female illiteracy, prevalence of child labor, and limited access to basic social services and infrastructure; (iv) very heavy debt bondage for consumption related loans, as well as SRF resource extraction activities, with high interest rates, lack of free access to markets, and long term relations with creditors; (v) the prevalence of creditors cum traders who adopt monopolistic practices; (vi) vulnerability of SRF dependent groups to risks pertaining to unpredictable and declining resource availability, sudden loss of life on account of accidents and attacks by unlawful elements known as *dakats*, (vii) low level of well being on account of limited access to basic social services such as safe drinking water, low access to health services, and lack of knowledge of preventive health and sanitation practices; (viii) gender issues pertaining to low levels of access of women to incomes, livelihoods, education and health, water and sanitation, as well as lack of organization and access to decision making, as well the emergence of shrimp fry collection not only as a new occupation for women ending their absence from the forest, as well as introducing new gender issues such as gender violence perpetrated against women workers inside the SRF by unlawful elements, increasing use of female child

labor in shrimp fry collection, thereby leaving them with no other future livelihood options; (ix) the absolute lack of mobilization and organization of SRF resource extractors in order for them to be recognized as stakeholders in SRF planning and management.

The ISA further revealed the need for a two-pronged strategy under the Project based upon organizing these SRF dependent groups into viable organizations, and the development of alternative livelihood activities. These organizations would be important both for economic activities as well as their role in sustainable resource management. During the ISA communities living in the impact zone showed great keenness to participate in the Project, both because they recognize the need to manage the resources more viably in future in order to protect their livelihoods and the biodiversity upon which their livelihoods depend. They also expect that participating in the Project may improve their access to alternative sources of credit, and basic services such as safe water, medical services. They look forward to the development of new livelihood activities, which can reduce their dependence upon the SRF, and diversify their economic activities. Several resource extractors pointed to the existence of traditional practices related to resource collection in the SRF, which have given way under the pressure of numbers as well as lack of other options, and the absence of any collective body of the SRF workers themselves, which can express the collective interest, and enforce sustainable resource management practices. The communities are keen to organize such groups, whereby they would be able to participate in otherwise remote decision making processes. Women are keen to participate both in such stakeholder organizations whereby they can make their voices heard, as well as gain access to financial services and alternative occupations. They are hopeful that in the long run, with efforts such as this, their children may be able to get options, which they do not have at present.

Poverty Levels among the SRF Resource Users and Extractors

Bangladesh with a population of 120 million has 50 percent of its population living at income levels less than a dollar a day. Rural communities are poorer than their urban counterparts. GOB's Poverty Line defined as a recommended intake of 2,122 kilocalories/day/person, shows that about 50 percent of the rural households live below this poverty line. The poverty Monitoring Survey by the Bangladesh Bureau of Statistics (BBS) converted this calorie intake into expenditure on food and estimated it at Tk440 per month or Tk5275 per annum.

Impact Zone Strategy Objective

The objective of the Impact Zone Strategy developed under the Project is to empower the resource user/extractor groups to be organized under the Project, through which they can participate meaningfully in resource conservation and management of the SRF through collective self-regulation, as well as access productive resources and markets, by successfully breaking out of the chain of moneylenders and middlemen, who at present dominate and control access to SRF resources and their exploitation and marketing.

An alternative survey by the Bangladesh Institute of Development Studies in 1995 defined it as Tk6, 300 per annum. This is the upper poverty line. The “hard core” poverty line consists of a kilocalorie consumption of 1805 kilocalories/day/person. According to the 1995/96 surveys by the Bangladesh Bureau of Statistics (BBS) 56.7 percent of the rural population of Bangladesh is below the upper poverty line. The comparable figures for Khulna and Barisal divisions are 60.6 percent (higher than the national average) and 51.5 percent (marginally lower than the national average). On an average, 56 percent of the rural population of these two divisions are below the upper poverty line. The poverty status of the population in the impact zone further indicates that at least one third of the households are well below the ‘hard core’ poverty line with per capita incomes of Tk4, 575 per annum.

There are added dimensions to rural poverty in Bangladesh, and more particularly, in the impact zone, which will need to be clearly understood in defining a needs based strategy for strengthening the socio-economic status of the poor resource users in the impact zone, and enabling them to participate in Project activities. There are rural poor households consisting of entrepreneurs who are just above the poverty line, and while not in formal poverty, can rapidly descend into poverty by income and asset erosion. They usually work at the margins of ownership of productive resources. Households living on the upper poverty line constitute a second category of the moderate poor. The majority of households however, live significantly below the hard-core poverty line. The tendency to easily slip to way below the hard core poverty line is fairly common and is due to high levels of vulnerability in the SRF to economic exploitation, exploitative regulatory practices, rent-seeking practices, and the personal vulnerability of SRF workers to disease, and insecurities associated with working in the SRF, as well as extremely low levels of human resource development, and poor access to basic social infrastructure and services.

Another aspect related to poverty in the impact zone is that of significant gaps in the income levels of better-off households and those significantly below the hard-core poverty. The richest households have incomes, which are six times more than those of the hard-core poverty groups (which subsumes those living below this level too).

Increasing inequalities in land ownership is a trend occurring all over Bangladesh. In the impact zone, agricultural land ownership is low, with only 51 percent of the population owning land. Among the poorest households, only 35 percent owned agricultural land. However, the mere possession of land does not guarantee security of livelihood or food security even in partial terms, on account of the large-scale conversion of agricultural land into shrimp ponds. Absentee landowners in collaboration with outside business interests have initiated this process of conversion. Muscle power is used to persuade small and marginal landholders to part with their lands, which further erodes their asset base and increases their dependence upon the SRF, as well as their vulnerability.

Food security is another major issue for the SRF dependent population of the impact zone. Some indication of the added dimensions of poverty and vulnerability can be gauged from the World Food Program (WFP) food Security Indicators. WFP used the 1991 population census data together with the latest data available from the Disaster Management Bureau of the Ministry of Disaster Management and Relief, and the BBS to assess the relative levels of food insecurity of poor rural women. The indicators chosen to determine insecurity levels were:

- Incidence of natural disasters
- Food grain deficit/surplus
- Agricultural wage rate
- Proportion of households not owning land
- Proportion of unemployed persons
- Proportion of widowed, divorced, and separated women
- Proportion of literate women.

Data on the seven indicators was standardized and combined for each thana giving equal weight to each indicator. All thanas were then classified into four categories of relative food security (very high, moderate, low-25 percent in each category). In the very high and high food insecure thanas, Dacope, Koira, Shyamnagar, Mongla, and Kaliganj, the proportion of food grain deficit, proportion of households not owning land, and the proportion of unemployed persons, are high on account of the conversion of agricultural land on a large scale for shrimp farming. Participatory Rural Appraisals (PRAs) carried out during Loan Fact finding and Pre-Appraisal in these thanas revealed that shrimp cultivation has reduced the multiplicity of livelihoods that households had on account of loss of agricultural employment, both as own-account farmers as well as agricultural labor. Livestock rearing is nearly impossible now due to the lack of fodder and foraging grounds. Shrimp cultivation is not labor intensive. Also, the *gher* owners prefer labor from outside. People displaced from their lands also lose the possibility to grow fresh water fish on account of conversion of pond lands.

Demographic Characteristics of the Population in the Impact Zone

The household size in the impact zone at 6.3 persons on average is higher than the national average. The high adverse sex ratio (100-117) shows temporary male migration for work in the area. Temporary male migrants include fisher folk; shrimp fry traders, and other SRF resource extractors. The dependency ratio was low with children of the age group 0-4 fewer than children in age group 5-9. It indicates a declining population growth rate affected by a high rate of contraceptive use (IRMP, 1997). Marriage is universal with 5.9 percent women widowed as compared to 1.2 percent among males.

In terms of education, while enrolment rates for both boys and girls are high, the problem lies in high drop out rates as well as low attendance rates. The literacy rate is 36.5 percent, and there are significant gender differentials as regards literacy as well as enrolment of girls in junior and high school levels. While access to primary schooling facilities may exist on the ground, effective access is lacking on account of poverty as well as growing employment opportunities for child labor in the SRF activities particularly for girls. Boys of poor households not owning means of production, are sent in to work for several months of the year as helpers and apprentices in fishing and fish processing

as well as in the collection of other non wood forest produce (NWFP). Girls work along with their mothers in the collection of shrimp fry for which the demand has been rising since the development of the shrimp industry in the country.

The prevalence of severe malnutrition among children is comparable with national figures. However, the level of disabilities affecting children is notably high in the districts of Khulna, Pirojpur, and Barguna. The impact zone districts have very high levels of diarrhea among both children and adults. Immunization rates have improved but vary between districts. Immunization of children is notably low in Satkhira and Barguna districts. Effective access to health services at village level is impeded both by poor communications as well as poverty, and the lack of reserves to tide over illness and loss of incomes.

Access to safe drinking water is a major problem in the area. It is notably lower than the national level. More than a quarter of the population in Khulna, Bagerhat, and Pirojpur districts still drink water from marshes and ponds. Nineteen percent of the population of Satkhira and seven percent of Barguna have similar water sources. This contrasts highly with only 2.5 percent of population using such sources for drinking water at the national level. Sanitation facilities are almost non-existent. Domestic fuel consists of wood from the SRF.

As regards asset ownership, as stated earlier, land ownership is low, with 49 percent of households being landless. Poverty and landlessness are coterminous with 65 percent of the poor being landless. The ownership of livestock and trees was low. The local communities have lost the coconut, mango, dates and other fruit trees on account of the shrimp farms, which require stagnant saline water for 7-8 months in the year.

The Target Group: Resource Users/Extractors and Their Issues

Most of the traditional resource extractors (wood and NWFP collectors, honey collectors, fisher folk) are poor. They work as wage labor for the moneylenders and traders. The moneylenders and the traders are the owners of the means of production, and finance and control resource extraction activities in myriad ways.

The target group of the Project in the Impact Zone will include the SRF resource extractors from the poverty groups: poor bewails, moralist, poor fisher folk, crab collectors, shrimp fry collectors, marginal farmers, the landless poor, and women, and children. More than 50 percent of the target population will be women. Female-headed households will be particularly targeted, as they are disadvantaged and particularly vulnerable.

Needs Assessment of the Target Population in the Impact Zone

Through the use of Participatory Rural Appraisals carried out during Project preparation, Loan Fact Finding as well as the Follow-on Mission, issues related to specific groups of resource users and extractors from the SRF became clear. The Resource users/extractors can be categorized in two ways. Firstly, there is a clear difference between the owners and non owners of capital, boats and gear, who range from big traders and middlemen based in urban trading centres, to petty village-based moneylenders, who may even work on their boats which are worked by crews put together by the principal borrower or *manjhi*, who is the leader of the expedition. The

non-owners of resources are those who work in the SRF for a living, in every type of resource extraction activity that is ongoing. All such persons have to depend on borrowing from big or small lenders of capital and equipment for their ability to work in the SRF. Thus, the issue that dominates the relations of production within the SRF are those of indebtedness, usury, and near bondage that characterizes many of the dealings between the workers in the SRF and their creditors. They are tied to them sometimes for generations. Their access to markets for most SRF produce is mediated by layers of middlemen ranging from the direct creditor and owner of the means of production, to bigger elements that may be financing significant parts of the industry and the trade. Thus, the issue of the origins of the SRF dependent population goes well beyond the immediate borders of the SRF, but what needs to be kept in mind is that those poverty groups who provide the labor for resource extraction and use, as well as the first and primary source of credit and gear to extractor workers mainly live in these areas identified during the study. Those who may control the financing and the trade may be found well outside the SRF area, as far away as Chittagong, and even Dhaka.

The second differentiation is on the basis of the types of resources that are collected and used. These include the following:

- (i) *Mowalis* (Honey collectors)
- (ii) *Bowalis* (Wood cutters/golpata collectors)
- (iii) Fishers
- (iv) Crab and shell collectors
- (v) Shrimp fry collectors consisting mainly of women, girls, and boys

Mowalis

Honey collectors known as *mowalis* are mostly from Munshiganj, Koira and Sharankhola. They are a major stakeholder group. Honey collection is done from the end of March to the end of May. In Sharankhola area 500-600 *mowalis* go for honey collection each year. Hders. Traditionally, honey collection was sustainable, with limited numbers of people engaging in the activity. However, as with other resources, particularly fisheries, SRF activities are emerging as a livelihood of the last resort for the poor of the area and beyond. There are new moneylenders interested in financing the lucrative trade. Rent seeking by the Forest Department (FD) as also the *dakats* also increases costs to the *mowalis*. As a result, traditional levels of honey collection that were accepted earlier are ignored nowadays.

Bowalis

Bowalis collect goran as well as golpata during the season as laborers for the moneylenders. During the off-season the *bowalis* search for work as agricultural labor, fish fry collectors, and construction workers. *Bowalis* can cut goran only from the coupe identified by the FD. The coupe identified by the FD is not always productive. When *bowalis* identify a good coupe, they bribe the forest officer to get access to the coupe. As a result, *bowalis* harvest more goran than their permits authorize. Similarly, golpata in excess of their permitted amounts is harvested. Due to the scarcity of golpata, cutters do not always follow the rules of golpata collection, and as a result, the golpata become dry and do not grow back.

Shrimp Fry Collectors

In Khulna, Bagerhat, and Satkhira districts, there are approximately 107,000ha of land under shrimp farms and they require a constant supply of fry. A large number of people have shifted from agriculture into shrimp fry collection. They are supposed to pay Tk76 per week for official permits to catch the fry. In practice they pay approximately double, and collect much more than is sustainable. They also catch other species, which are dumped on the banks, leading to the destruction of fisheries in the SRF. *Mahazans* or moneylenders provide credit for the purchase of nets, gear, and fishing supplements, as well as consumption items.

Crab and Shell Collectors

Crab and shell collection is on the decline. Crabs are often harvested during the breeding season. Female crabs with eggs are harvested for export. On account of the use of fine nets for shrimp fry collection, leading to the destruction of crabs and finfish crab collectors find the yields declining. Crab collectors are also dependent upon moneylenders for both consumption loans as well as production loans.

The problems of the different groups of resource extractors and users while specific to their trades are also common inasmuch as the unsustainability of their current activities, as well as their lack of access to productive resources on fair terms are clearly responsible for the depletion of the SRF as well as the continuing poverty and inequities that characterize the lives of those who labor inside the SRF.

Identification of Problems and Solutions by the Stakeholders through Participatory Approaches

During participatory meetings and workshops, the issues faced by the different groups were analyzed. In summary these consist of the following:

- (i) Rent seeking practices at different levels leading to increased pressure on the resource base;
- (ii) Illegal destruction of trees;
- (iii) Prevalence of usurious interest rates;
- (iv) Lack of direct access to markets, as most resource extractors do not have the right to sell their produce directly in the market;
- (v) Profits go to the owners of capital and gear;
- (vi) High levels of prevalence of child labor, male children being engaged in fishing and resource collection and fish processing for several months every year, while girls are withdrawn from school in order to collect shrimp fry;
- (vii) Seasonality of employment in the SRF and lack of alternative economic activities and outlets;

- (viii) Financial dependence upon the moneylenders and traders not only for production capital but also consumption expenses of households during lean periods; and
- (ix) Lack of agricultural land for food production due to induced conversion of land into shrimp farms.

Gender Issues

Gender issues in the impact zone stems from gender division of labor, which necessitates that women be wholly responsible for reproductive work, which is not regarded as economically valuable. Women are also fully responsible for processing of the SRF goods that are brought in by the men, drying, storing of wood, golpata, weaving of mats, etc. While these activities are labor intensive and value adding, these are not regarded as such. Women and girl children traditionally did not enter the SRF. But since the emergence of the shrimp industry, and the increasing demand for fry, they have entered this activity in a big way, thereby disrupting girls' educational possibilities, and exposing women to new dangers of being kidnapped and raped by illegal elements operating inside the SRF. Their families are unable to effectively protest on account of the prevailing gender ideology, as well as their social exclusion and powerlessness. Another emergent gender issue relates to the growth of female headed households (percentage not known precisely), caused by accidents and disease affecting men working inside the SRF, as well as divorce, desertion, etc. Female-headed households are typically more disadvantaged than male-headed households and their incomes are approximately 40 percent less than those of their peer group of households headed by men. Women heads of households are disadvantaged doubly by their absolute lack of access to resources, as well as their vulnerability in a work environment and habitat where the frontier culture still operates, and women as a gender group are particularly vulnerable.

Women also suffer from all the disadvantages resulting from lack of access to safe drinking water and sanitation, and health services, leading to increased vulnerability to disease, need for care giving in the family, as well as their own debilitated state on account of malnourishment, disease prevalence, labor intensive work both inside and outside the home. Women lack access to credit and training, markets and organization, and from participation in decision making in the family and the community. They may be considered to be amongst the most disadvantaged sections living in the impact zone and working in the SRF. Child laborers are another highly disadvantaged group that needs immediate attention.

Project Strategy for Participatory Resource Management and Alternative Livelihoods in the Impact Zone

The Project Strategy for the impact zone is based upon the foregoing analysis, which emphasizes the poverty and resourcelessness of the resource users/extractors, as well as their lack of economic alternatives on the one hand, as being responsible for unsustainable practices within the SRF. On the other hand, their not being organized into viable producer organizations capable of upholding their interests and monitoring the activities of members, as well as facilitating access to new knowledge, training, credit and the means of livelihood renders them incapable of responsible participation in SRF

management as stakeholders, and living lives which are economically viable and which dignifies them as workers and entrepreneurs in their own right.

State Policy Toward The Sundarbans and the Resource Extractors

The policy of the colonial state as already referred to was no different to those of its predecessors inasmuch as clearing the forest for purposes of cultivation; rent collection and revenue extraction were the major driving forces. By the late nineteenth century however concerns for conservation had emerged in the policy discussions of the colonial state. In 1875 it was observed that ... "The Sundarbans supply Calcutta, the 24-Parganas, Jessore, and Bakarganj with fuel, timber, and thatching grass. Because of the peculiar ecology of the region, regeneration is uncertain, especially where the forest has been extensively cleared. It is our duty to see that supply is not exhausted. It appears that the western part of the Sundarbans, which is that nearest to Calcutta, is already exhausted... and that fuel cutters proceed more to the east year after year." (Schlich, W. "Remarks on the Sundarbans" Indian Forester, 1:9-11, Quoted in Presler, F. Forest Management in the Sundarbans 1875-1952)

The argument being made here reflected the assumption that there was a 'problem of the commons'. In order to address the problem it was assumed that the extension of state control, operation of the forest on an economic basis, and controls on the access of resource extractors. The argument to reserve the forest was accepted and the Khulna and Bagerhat sections were reserved the same year.

Brandis who became the first Inspector general of Forests in India in 1866 became part of a group of pioneers in forestry in India for whom the starting principle of managing forests in India was the need for state action. The right of the state to all uncultivated, unappropriated land was set forth based upon the similar rights of preceding states in India. Since for some time, the state had not exercised its right, forest users had got used to utilizing them as they pleased. In this context the claims made by local communities that they had ownership rights over the forest, or that they had the right to privileged use, became the "chief difficulty" of Indian forestry. Presler reveals the terms used by foresters with regard to villagers' claims, which shows their own attitudes, "pernicious", "foul cancers", "injurious", "and obnoxious". That these rights were generally undefined and vague did not help matters. That also left it to the state to define what these rights and privileges should be.

Foresters were also supposed to make the forests remunerative. Based upon these principles, the objective was to control the 'reckless destruction' of the forests through basically a minimalist approach, which was fiscal in nature: royalties were charged on forest products. But there was no limit on what or how much could be cut except for sundry in the Bagerhat block. Forest stations were set up at the principal points of ingress into the forest where permits were issued to cut, collect, and remove forest produce and fees were levied on permit holders as their boats left. The system was essentially based upon taxing resource use. Yet the system apparently did not achieve the main purpose of forest conservation. However the surplus rose. The problem of illicit traffic in forest produce was noted in 1891. The cause was located in the prevalence of graft among the low paid forest staff.

In the late nineteenth century attempts to close nine tenths of the forest in order to serve the need for conservation were evidently too radical and it led to large-scale theft and subterfuge. Theft was widespread and the sundry was reported to be even more depleted than ever. Attempts were made to restrict cutting of sundry in particular blocks, control over girth etc. An important means of control was to restrict boat size. However

the main instrument of control with the government continued to be royalties levied on permit holders, and this did not prove adequate to prevent unregulated fellings. Restrictions imposed on large boats merely led to subterfuge by large boat owners simply substituting several smaller boats to extract the same amounts.

For most of the years of management of the Sundarbans by the colonial forest department, the objectives remained unchanged: to provide for regional demands for timber, fuel wood, thatching and building needs, to protect the upland agriculture from the fury of cyclones, and to contribute to state revenues. However the task of actually felling, thinning, extraction, and sometimes even the marking of coupes were left to professional woodcutters and local population. The forest staff remained inadequate to meet the needs of forest management, and the department was plagued by corruption.

Nowhere in the thinking of the colonial state, did the need to involve the forest users or the local communities that would have the stakes in proper management of the forest and its regeneration, arise at all. The colonial policies were continued by the successor forest department of Pakistan and Bangladesh. The success of these policies can be measured in the fact that the SRF boundaries have been kept virtually free of permanent human encroachment. However the structure of the Forest Department is hardly conducive to participatory management of natural forests, afforestation of degraded lands, conservation of biodiversity, management of the aquatic resources of the SRF, and the promotion of social forestry.

Based upon the findings of the participatory research carried out during the preparation of the ADB project, it was found essential to base the strategy for future forest management upon the principles of stakeholder participation, organization of resource extractors, evolving of principles of collective rights and responsibilities for forest use and management, social accountability and transparency, as well as the restructuring of the forest department to bring in new skills and approaches, and build up national and international awareness of the values of the SRF.

The Project Strategy:

It is based upon the principles of participation and flexibility, and consists of approaches which will be molded and further developed during the Project which is a process oriented one. The impact zone strategy is based on a fourfold approach, and consists of:

- (a) collection and analysis of baseline data on socio-economic conditions of communities and households living in the impact zone. The data collection will be done by NGOs working in the area, in close collaboration with the University of Khulna. The data collection will be done through socio-economic surveys, which will be updated annually through representative sample surveys, to measure significant socio-economic indicators such as access to services, access to institutional finance, group formation, non-formal education, incomes and livelihoods, and overall quality of life.
- (b) Mobilizing and organizing the resource users/extractors into viable producer organizations which:

- (i) will act as their collective voice in planning and decision-making regarding SRF management and their own activities inside the SRF;
- (ii) develop and enforce over a period of time, collective norms of behaviour for resource users/extractors, based upon both indigenous knowledge and technical advice and training provided by the Project Implementing Agency;
- (iii) provide access to members to institutional sources of finance (PKSF) for their SRF related activities, and develop mechanisms for responsible borrower behaviour, and peer group solidarity, and accountability;
- (iv) develop over a period of time, direct access of members to markets bypassing middlemen;
- (v) provide access to members to new sources of technical advice and training for alternative livelihoods development {poultry, social forestry, energy saving stove-making, handicrafts, homestead gardening (where feasible), livestock rearing, among others}; and
- (vi) facilitate the access of members, to non-formal education programs emphasizing literacy, numeracy, life skills training, as well as awareness and conscientization programs to be conducted by NGOs working in the area.

Over a period of time such resource extractor/user groups are expected to federate into larger organizations. Membership of such organizations will be essential in order to access permits to extract SRF resources. The minimum conditions to be attached to membership of such groups will evolve through a participatory process guided by NGOs working with the local communities, However, it is expected that the minimum conditions would include the following: (i) that the resource extractor/worker should: a) have been working in the SRF for a period of at least 2 years prior to the start of the Project; b) he/she should be actually personally involved in laboring inside the SRF; c) he/she should be a resident of the thanas identified as the impact zone; d) he/she should not be a moneylender/trader; e) he/she should be willing to abide by the collective behavioral norms developed by the organization for resource extraction activities inside the SRF; and f) he/she should be willing to participate in all activities undertaken by the organization including training programs, non formal education among others.

c) The third element of the Project Strategy in the impact zone consists of developing access to alternative sources of institutional finance for micro credit programs to be taken up with (i) resource extractors/users, and (ii) women members of SRF dependent communities. Such programs will be developed by NGOs working /extending their activities, into the impact zone. NGOs will need to do the following activities in the impact zone: (i) Mobilization of community based micro credit groups, (ii) training in credit management, (iii) promotion of savings habits, (iv) development of collective behavioral norms for members of micro credit groups, (v) delivery of credit through developing and implementing linkages with institutional financing sources (PKSF), (vi) development of alternative economic activities through training programs, and (vii) provision of extension services, marketing assistance and strategies.

d) The fourth element of the Project strategy in the impact zone consists of facilitating, through the producer groups and community based micro credit groups, the identification by the SRF dependent communities themselves, their priority needs in terms of access to social services and infrastructure. This will be done through the process of mobilization and organization, and training, all of which is aimed at capacity building and empowering the groups at present socially excluded, in order that, in addition to developing collective voices in SRF management, and livelihoods protection and development, they will be able to improve their habitat and give the future generation a chance to access new opportunities and improved life chances. The process is likely to consist of the development of community based organizations (CBOs) by NGOs working as catalysts, which through the process of community participation will identify community priorities e.g. safe drinking water, communication facilities, improved schooling facilities, non formal education, health services, energy saving stoves, environmental education, among others. For certain activities such as drinking water, non formal education, extension of schooling facilities, it may be possible to use Project funds to develop such infrastructure and services, either through NGOs, or government agencies (e.g. LGED) as found appropriate. For others it may be necessary to facilitate linkages with ongoing government programs, by bringing them into the villages in the impact zone, so as to improve the quality of life and reduce pressure on the SRF.

Gender Issues will need particular attention in the impact zone strategy. In addition to mobilizing women members of the communities, and organizing them into SRF resource extractor groups, as well as micro credit groups, it will be important for NGOs working in the impact zone to deal specifically with gender sensitization, and empowerment of women. Women will need particular training aimed at capacity building for group formation, articulation of their views in gender specific and neutral venues such as workshops, training programs, as well as training in how to access modern financial services for savings and credit. They will need to be provided literacy and numeracy and accounting skills. They will also need programs on women's health requirements and issues, as well as knowledge regarding their rights and responsibilities.

Gender sensitization training programs will need to be carried out by NGOs at different levels including the communities, staff of the Project Implementing Agency, and where necessary among NGO staff themselves.

Implementation Arrangements

The Implementation arrangements for the impact zone strategy are based upon constructive cooperation between the Project Implementing Agency and NGOs. NGOs will be selected as per the criteria agreed upon between GOB and ADAB and the Bank in the Bank assisted Forestry Sector Project. The Khulna Chapter of ADAB will coordinate the consensus building process among local and national NGOs regarding selection of areas and programs to be implemented by NGOs. Proposals will be finalized by the ADAB Khulna Chapter and forwarded to ADAB, Dhaka, to be discussed and approved by the Apex Committee. The Apex Committee will be chaired by the Principal secretary to the Prime Minister with the MOEF serving as the secretariat. Members will be drawn from the Government NGO Bureau, ADAB, and FD. The Apex Committee will meet quarterly to start with in order to give a fillip to Project implementation and over a period of time will meet every six months, as determined by the members.

There will be a Coordination Committee at Khulna set up to monitor the implementation of activities in the impact zone as per agreed programs. The members of this will be drawn from ADAB, Khulna Chapter, and the Project director from the Implementing Agency, and concerned local government departments such as LGED. This committee will meet on a quarterly basis.

At the Thana the Thana Coordination Committee chaired by the Thana Nirbahi Officer (TNO), with representatives from NGOs, will provide level coordination and local concerned government agencies such as the LGED. This committee will meet on a monthly basis and will coordinate the implementation of Project activities, review problems that may arise, and report to the Coordination Committee at Khulna.

NGO Selection Criteria

The selection criteria which has been included in the Bangladesh Forestry sector Project, is a mutually agreed set of criteria between the Bank, ADAB, and the Bank.

Conclusion

The paper attempts to address the issues of common property management, and state policies towards the SRF historically. It further attempts to examine the socio- economic conditions prevailing among the Impact Zone communities and tries to explore the links between their disenfranchisement and their poverty and exploitation. It then lays out the recent attempt to re-establish resource extractor organizations within an overall context of participatory forest management, in combination with the evolution of common property management systems, and the use of multiple skills to manage a complex resource base.