

SOCIO-ECONOMIC CONSTRAINTS IMPEDING IMPLEMENTATION OF THE NEW FISHERIES MANAGEMENT POLICY IN BANGLADESH

by

Garry M. Bernacsek
Fisheries Consultant

ABSTRACT

All inland water bodies in Bangladesh are the property of the State. They are compartmentalized into individual *jalmohals* or water estates. Some 20,000 such units are registered and leased, typically for 1 to 3 years, through an auctioning system which yields very substantial revenues to the government. This leasing system, aggravated by the conflicting responsibilities of the various Ministries involved, has led not only to over-exploitation and inefficient resource management but also has benefited middlemen and wealthy outsiders at the expense of genuine fishermen. In 1986 the government therefore initiated a new fisheries management policy (NFMP) which seeks to restrict access to fishing rights solely to genuine fishermen through a licensing system. The paper examines the socio-economic problems being encountered in introducing this new policy, including the strong opposition mounted by entrenched interests. It suggests, however, that notwithstanding the limited progress so far achieved, the NFMP clearly has great potentials to ensure greater equity and benefits for the fishermen and to promote the better management of the resources. The author makes a number of recommendations for the strengthening and wider implementation of the NFMP, in particular the need for more secure tenure and more accessible credit channelled through self-regulatory fishermen's organizations, supported by NGOs. A review of the government's policies regarding revenue raising from the fisheries is also counselled.

1. The Jalmohal Leasing System

All rivers, khals (natural drainage canals) and beels (floodplain lakes), with a few exceptions, are the property of the Government of Bangladesh (GOB) with legal ownership held by the Ministry of Land (MOL). A comprehensive system of water body registration exists which is used for the collection of revenue from the fishery resources contained within these waters. Thus, each river is segmented into compartments. Each compartment is defined as a single fishery (*jalmohal*, or water estate), and is coded with a name and number. All beels are similarly named and numbered as individual fisheries. In some cases several small beels are lumped together as a group fishery and this can include parts of adjacent rivers. In theory, all river and beel fisheries units, of which there are about 20,000, are recorded in the revenue registers of district government offices.

The Government is interested in collecting revenues from fisheries. It does so primarily by leasing out under MOL individual fisheries, usually through open auction. GOB collects about Tk 460 million annually from *jalmohal* leasing. Deputy Commissioners are the custodians of all *jalmohals* within their district. Lease planning and auctioning is carried out with the assistance of the Additional Deputy Commissioner (Revenue). Beels over 8 ha (20 acres) are leased to the public by open auction. The highest bidder for a particular *jalmohal* unit must immediately deposit 50% of the lease fee with the revenue accounts. River fisheries and seasonal (annual) beels normally are leased out for one year periods, while permanent

beels are leased for 3 year terms. A few beel leases may run for 6 or, exceptionally, 9 years. Generally there is competition among the lessees. Money lenders take advantage of this situation. Usually, fishermen become the representatives of the rich money lenders and on behalf of them they go to the auction. Sometimes leases contain conditions for development investment in the fishery (i.e, system of operation, tree plantation around the beel, etc.), but there is no monitoring to see whether such activities are being performed or not. In case of default, GOB rarely exercises the right to cancel the lease agreement.

Some beels between 1.2 ha and 8 ha have been transferred to the revenue collection systems of local government for a token rent to MOL (in order for MOL to retain ownership). This is so that local government can lease them out and earn revenue for their own use. Beels under 1.2 ha are not leased out, but the MOL allows local community residents to fish freely for subsistence purposes. However in recent years even some of these small community beels have been leased out to individuals by local government officers in contravention of MOL policy.

Because lease fees for large beels may run into several hundred thousand taka, lease holders are usually rich investors who are not fishermen themselves. They act as middlemen. They may either hire fishermen as daily labour to carry out fishing operations on their behalf, or may sub-lease to fishermen (i.e., sell individual fishing rights for a fee). Daily fishing labourers are paid in cash and/or receive a small share of the catch. Most of the sale value accrues to the leaseholder.

In practice, *jalmohal* leasing applies only to the dry period of the year when the individual river and beel fisheries are demarcated (separated) from other fisheries by land. During the monsoon flood season, when many parts of Bangladesh are covered by a single continuous sheet of water, the *jalmohal* system is cancelled out because of the difficulty of enforcing private access rights to geographical boundaries that no longer exist. Customarily, therefore, there is open access to all fishermen on the inundated floodplain during the monsoon with no fishing fees payable (although *jalmohal* and fishing fees are paid on an annual basis). This conversion of the region's fishery resources from private access to public access through the agency of flood is of tremendous social and economic importance, as the flood phase allows many poor local residents to share in the benefits of a resource which is concentrated in the hands of status quo during the dry phase. Inundation removes the rigid borders of private property, and converts the whole floodplain which becomes a large common property resource pool. Privately owned agricultural plots become a capture fisheries ground, a source of other aquatic resources and provide numerous boatmen opportunity to earn a living. In general, the floodplains become the only common property upon which people, particularly the landless poor, can depend to make a living.

The leasing system promotes over-exploitation. The leaseholder believes it is his right to harvest all fish in the *jalmohal*. The fisherman is also driven to maximizing catch. He faces exploitation from middlemen, money lenders and government revenue collectors, and so has to catch enough to satisfy these pressures and also be left with enough for his family to live on. Fishermen themselves suggest solutions to this issue: the government should either provide loans to pay for lease fees, or should abolish the lease fee system altogether. Many fishermen want to do away with the auction/leasing system. They want to fish freely. Also, if fish stocks are depleted, there is no justification for government to charge a royalty for a resource that does not exist. It is also difficult to justify increasing the royalty by 10% annually (thus fuelling inflation) when fishery resources are known to fluctuate from year to year depending on annual flood intensity. Many senior DOF officers have seen catches decline over the long term, mainly due to over-exploitation. Leaseholders now harvest piles

annually, and in the third year drain the beel completely. This breaks the fishing law regulating pile fisheries. The 3 year lease period is too short. If leases ran for more than 5 years (or better 10-12 years) people would have an incentive to develop seasonal beels. Short leases promote over-exploitation. The 3 year pile leases are being reduced to 1 year, thus tripling fishing effort. This encourage a "plunder mentality" among leaseholders. Also, if fishery resources become depleted fishermen do not renew their licenses. The over-exploitation of fish stocks has resulted in investors showing a declining interest in bidding for *jalmohal* leases. Indeed many leaseholders have lost money in recent years. GOB has recently attempted to salvage the leasing system by terminating public auction of leases and instituting a sealed tender bidding system. The DC office publishes tender notices to lease out *jalmohals*. Representational organizations such as the National Fishermen Association (NFA) are firmly opposed to tendering because it further decreases public accountability of *jalmohal* leasing and increases opportunities for unprofessional conduct.

Because of the varying responsibilities of a number of Government Ministries, the *jalmohal* leasing system leads to a severe resource management inefficiency. While the Ministry of Irrigation, Water Development and Flood Control is responsible for water resources management and development in the broadest sense, and the Ministry of Fisheries and Livestock (MFL) is responsible for management and development of a major renewable living aquatic resource contained within and completely dependent on the quality and quantity of the larger water resource, legal ownership of water bodies rests with the MOL. The latter is not properly equipped to carry out its mandates and its continuing hold-over *jalmohals* seriously constrains attempts to develop further the inland fisheries sector of Bangladesh.

2. New Fisheries Management Policy

The *jalmohal* lease system is oriented toward generating revenue for government and substantial incomes for leaseholders. However, it exacerbates exploitation of fishermen (who do not own their own produce and therefore realize only a small part of its full economic benefits) and leads to resource mining (as the leaseholder considers all fish in the *jalmohal* to be his personal property to be totally harvested if possible so as to maximize his profit). The ownership of *jalmohals* by MOL severely weakens the capacity of the MFL to carry out its mandate to scientifically manage, protect and conserve the inland fisheries resources of Bangladesh.

In 1986, MFL began a major new initiative to overcome such problems. This is known as *Nitimala* or the New Fisheries Management Policy (NFMP). It seeks to divert the maximum benefits from fishing to the actual fishermen and put into place management systems which attempt to ensure long term sustainability of fisheries resources.

Under NFMP, access to fishing rights is only given to genuine fishermen. This is done through a process of local peer/official selection and certification and issuing of renewable annual fishing licenses to approved and listed genuine fishermen. The NFA draws up a list of genuine fishermen at local level. This is first approved by the local NFMP committee and then is sent to the district NFMP committee for approval.

Because most *jalmohals* are much too large for one fisherman to harvest, the DOF licenses out *jalmohals* to fishermen's cooperatives, associations, etc. The license fee is based on the lease fee that would have been collected had that *jalmohal* remained under the old leasing system, as the Government insists that the aggregate total of all license fees for individual fishing gears issued for a particular *jalmohal* must be equal to the old lease fee. Because fishermen have little accumulated capital, NFMP also contains a credit component.

The Krishi Bank has a credit window in support of NFMP to enable genuine fishermen to purchase gear. Resource conservation is to be achieved through installation of permanent kathas and similar FADs in designated "sanctuary areas" within NFMP jalmohals. Closed seasons for certain species were also to be enforced.

The national NFMP committee has so far identified some 300 *jalmohals* out of the 20,000 in Bangladesh for inclusion in NFMP under the direct supervision of the DOF, but only 250 of these have actually been handed over from MOL. NFMP is managed by three hierarchies of committees at national, district and local levels. All committees have (in theory) two NFA representatives. Corporate members of the national NITIMALA Committee are NFA, MFL, DOF, MOL and Krishi Bank. New *jalmohals* are in theory brought under NFMP based on recommendations of the local *Nitimala* committee. At present the transfer of *jalmohals* from leasing to NFMP is very slow. The DOF does not consider itself well equipped to "manage" all *jalmohals* and therefore is not presently actively seeking their transfer.

3. Opposition to NFMP

There are difficulties between MOL and the DOF as regards implementation of NFMP, resulting from a reluctance on the part of MOL to give up ownership (and thus administration and revenue collection jurisdiction) of *jalmohals* in favour of DOF. Even for *jalmohals* already under NFMP, MOL retains ownership, and thus these *jalmohals* are under an arrangement of "joint management" between MOL and DOF.

This situation has arisen because *jalmohal* leasing is lucrative and the main source of income for the MOL. Net income from revenue collection from MOL land leasing is small because expenditure for the wages of collectors is almost equal to the revenue collected. *Jalmohal* leasing is in contrast very profitable because public auctioning and tendering of leases entails almost no labour costs.

Jalmohal leasing also offers many opportunities for unprofessional conduct. This occurs in several ways. For example, officially recorded *jalmohals* are leased out in the normal manner but the lease fee is under-recorded (for example, a lease fee of Tk 900,000 is collected, but only Tk 800,000 is recorded as paid). There also exist officially recorded *jalmohals* which are not leased out and are nominally derelict but are used for fishing. Under-declared and unrecorded *jalmohals* which are "property" of MOL effectively become "private property" of officials, who lease them out at their discretion and retain the lease fee and any other income from shares and such.

The MOL and DOR criticize the inability of the DOF to provide enough backstopping to genuine fishermen, and use this as an argument against transferring more *jalmohal* to DOF jurisdiction. The basic premise is that it is the DOF (and not the fishermen) who are supposed to be the managers of the fisheries. "Management" is used in the sense of revenue collection rather than the conventional fisheries usage of regulating or limiting fishing effort on the fish stock.

NFMP in the form presently implemented by GOB does not appear to present any great impediment to the rent-seeking aspirations of *ex-jalmohal* leaseholders and moneylenders. NFMP is subverted and defeated in a number of ways. If the license fee is too high, only middlemen and moneylenders can afford to pay. Neither can poor genuine fishermen who must turn to them for credit. Middlemen are strong opponents of NFMP and try to take control of fishermen cooperatives. They also try to extract fees for getting

fishermen's names on to the district approved list of genuine fishermen. If the aggregate license fee for a particular jalmohal demanded a fishermen's cooperative is too large, an ex-leaseholder may bribe cooperative leaders to sell him exclusive fishing rights to the beel in exchange for paying the fee. In one such case, the leaseholder went so far as to attempt to extract a tax on all prawns caught in an adjacent river, as well as monopsony rights to purchase the prawns at a fixed price. In some cases, NFMP thus simply reflects existing power relationships in fisheries rather than instituting a new trend. Some of the NFMP leases have been over-priced and fishermen have been unable to pay the required license fee. As long as GOB insists on collection of substantial amounts of revenue from natural resources sectors, it will may well be impossible for the poor to escape from the circularity of their poverty trap or to substantially benefit from the exploitation of these natural resources.

Although the licensing system appears to be "pro-fishermen" and the leasing system yields more revenue to GOB, neither system has been able to solve the basic problems confronting fishermen and fisheries development of Bangladesh. The real problem is much more deeply seated as the existing society is one in which the rural and urban rich are dominant. These groups control all power structures through various dependency relationships and effectively use these in pursuit of various socially unproductive but individually profitable activities. The fisheries sector is actually (and potentially) profit-rich and thus attracts power elites. The share of profits yielded to labour (i.e., genuine fishermen) is minimized to the extent possible, within the "constraints" of labour's opportunity cost and its awareness of fishing as a profit rich economic activity. Consequently, the objectives of sustainable production and equitable progressive development cannot be pursued adequately. Leasing promotes anti-productive use of the fisheries and the licensing system may degenerate into all the vices of the leasing system within the existing socio-economic structure. On the other hand, a licensing system could fulfil the objectives of production and equity in the fisheries sector if basic structural reforms were carried out in Bangladesh.

4. Experiences in Implementing NFMP

Studies by the Bangladesh Centre for Advanced Studies on selected NFMP fisheries indicate that NFMP could be a breakthrough in ensuring equity and benefits to genuine fishermen. The objective of increasing earnings of fishermen is by and large achieved under NFMP. Economic returns to capital and labour, catch value, net and pure profit and implicit daily wage rates are all significantly higher for NFMP fisheries. NFMP has been well accepted and appreciated by fishermen. Exploitation by middlemen is largely eliminated. Fishermen own their own produce and can market it themselves, thus increasing gross income. However, because of the insistence on high license fees, many fishermen who lack the opportunity to raise credit to pay the fee are not able to keep their fishing license and end up having to sell the fishing rights back to *ex-jalmohal* leaseholders.

Genuine fishermen under NFMP are now said to be better off than before NFMP. Annual earnings of a fisherman may reach Tk 4,000 (US\$ 100). If a fisherman's family has 5.3 members, this amounts to a per person income of US\$ 19, still well below the Bangladesh national average per person income of US\$ 180. True, the family will have other sources of income. But as NFMP sets out to develop career professionalism in the fisheries sector it is important to recognize that the benefits accruing to fishermen are still very low. The new system is still far from attaining its goals because the driving force continues to be revenue-seeking. License fee rates (cum loan interest) can almost equal a fisherman's annual salary. NFMP still has a very long way to go before it can make genuine fishermen and their families wealthy. The Government should consider reducing its rents from the fisheries sector and encourage the entrepreneurial talents and energies of genuine fishermen.

Resource conservation has proved more difficult to implement. There is presently no biological fisheries management at all in many fisheries. However, promising trends in control of fishing effort have emerged in some NFMP fisheries. For example, at Kanglar Haor, fishermen have begun practising self-regulation through adherence to a fishing schedule arrived at by consensus. The schedule has the objective of setting the harvesting rate at a level that would maintain the productive capacity of the waterbody. The fishermen have agreed to contribute to the cost of inputs according to their marginal incomes; any excess profits is distributed equally to the group members. Other groups of fishermen have instituted a closed season during the early monsoon to allow fish to breed and to allow the young to grow to a marketable and haverstable size, or have begun artificial stocking to replenish fish stocks in the beels. A process of evolution is also under way into community-managed common property fisheries which have the potential to become sustainable over the long term. Under NFMP fishermen can be motivated to increase their sense of ownership of fishery resources, thus facilitating both the conservation of resources and the protection of community interests.

Case studies on implementing the NFMP licensing system have uncovered a number of problems and negative impacts. These include:

- (a) Fishermen compete to get licenses for more productive fishing gears, and only the richer more powerful fishermen win in this competition. Similar competition also takes place over strategic locations for setting gear in a given water area. Poorer fishermen tend to become excluded, and limited to low-productive gears and inferior locations.
- (b) Seasonal and part-time fishing is not compatible with the provision of licensing for a tenure period of one year with a fixed license fee. Part-time and seasonal fishermen enjoyed greater flexibility under the leaseholding system.
- (c) Fishermen have difficulty raising the full amount of the license fee, which is required to be paid all at once at the beginning of the fishing year before any income from fishing has been realized. This burden is in addition to the amounts needed to invest in fishing craft, gear and other fishing equipment at the beginning of the fishing year. Middlemen leaseholders were more flexible with regard to payment of tolls, as fishermen were able to raise the amounts from their day-to-day incomes during the fishing season.
- (d) Fish stocks are depleted in some waters, and poor fishermen are unwilling to take out licenses as they do not anticipate catching enough fish to earn an adequate profit.
- (e) Genuine fishermen do not have any effective representation because the various fishermen cooperatives and association which operate under the slogan of fishermen often consist of landlords, leaseholders, middlemen and other non-fishermen.
- (f) Because of the absence of institutional funding, licensed fishermen are still forced to resort to middlemen moneylenders for supply of equipment and operating capital.

- (g) The problem of controlling fishing effort efficiently cannot be easily resolved because of the absence of adequate assessments of exploitable biomass and allowable fishing pressure.
- (h) There remains a lack of alternative and supplementary income generating sources to divert pressure on direct fishing, which is generally in excess of what is required to sustain the current level of production.

It is important to stress that the high license fee and the lack of access to credit represent major blockages to poor fishermen, and this undermines the NFMP. Moreover, the fee increases by 10% each year, thus building inflationary pressure into the cost structure of fish production.

Many fishermen say their biggest problem is capital. Lack of credit is a major impediment for two reasons: fishermen cannot pay the high license fee which is the entry "ticket" to the fishery, and they cannot buy gear and boats and meet other costs associated with processing and marketing. Credit is the key and backbone to NFMP. A major problem with implementation of NFMP has been failure of banks to come up with credit to genuine fishermen. Banks request mortgages and other securities for loans, conditions which fishermen cannot meet. At the same time, many fishermen are not aware that the Krishi Bank has a fisheries window and that boats and nets are acceptable security. Loan recovery is also a major problem. Many NFMP fishermen have to turn to moneylenders who charge 7-15% interest per month, or fish wholesalers who take delivery of fish for 3% commission and a share of the catch.

5. Community-Based Fisheries Management in Bangladesh

During the present century, the fisheries of Bangladesh have undergone a major change in ethnic and tenure structure from Hindu to Muslim ethnic predominance. This has apparently had an impact on stock levels. Currently there is little user group management and conservation of fish stocks, and a general prevalence of resource mining. It has been said that under the previous Hindu predominance there was greater effort to conserve stocks and respect for customary/traditional fishery management practices.

Until very recently GOB did not actively promote community-based fisheries management. This situation is now changing, and existing examples of community-based fisheries management (access, tenure and control of fishing effort) in Bangladesh are coming under close scrutiny in order to understand the various elements that are at work.

In some parts of the country, waterbodies had been given to the village people for common use and resource exploitation. Usually these were minor beels, and the intention was to placate village people so they would stay away from larger *jalmohals*. These community *jalmohals* were used for bathing, fishing and dry season irrigation. No taxes (or in some cases only token taxes) were charged to the villagers. *Jalmohals* were managed by the community which enforced some rules for sustainable use of water and fishing (such as restriction on complete de-watering, complete harvesting of fish, detrimental gears and community harvesting once or twice a year). These types of *jalmohals* were called *Mohalshamil jalkar*, and some still exist today under village people or in some cases exclusively under fishermen communities. In some cases management structures have come under pressure. A few examples of *mohalshamil jalkars* are:

Bijna River, Devpara, Nabiganj

A section of the Bijna River near Baasdor and Devpara villages was given for a token annual lease to the local fishermen group. The fishermen have been managing the river section successfully since 1973/74. There is a fishermen management committee which meets once a month. Problems are discussed and savings are collected. Group savings are spent on *jalmohal* management. No conflicts are reported among the fishermen.

Beels in the Rouchunni haor, Govainghat

Mohalshamil beels are now given up for leasing to the lessee of the adjacent Rouchunni beel as these all are under the common floodplain of the Rouchunni haor. Village people meet together and decided how much money they will charge for the lease and then bargain with the lessee. Lease money is equitably distributed among the villagers. Some money is set aside for repairing of village roads and other development works. This system has been in place for more than five decades.

Kalibarir duar, Parashkhila, Atpara

This *duar* (deep scour hole in river used by broodstock as a refuge habitat) has been kept as a fish sanctuary under fishermen community management for a long time. The fishermen have traditionally believed that they must protect part of the broodstocks to ensure sustainable production in the floodplain and the rivers. The fishermen themselves protect the *duar*.

Khoilajuri beel, Bonni village, Companiganj

This beel has a dry season area of 5 to 6 ha. It produces mainly smaller species of fish, and few carp. Due to some conflicts among the villagers (rich and poor), the majority of people have not been getting the benefits of the *jalmohal* since 1988.

Nandina River, Khola Chandpur fishing village (adjacent to Shanir Haor)

The portion of the Nandina (Abua) River adjacent to the village was permanently allocated for the use of Khola Chandpur fishing village by order of the Deputy Commissioner. This order was issued when the fishermen's leader appeared before the court and claimed customary as well as community rights over the fishery. This took place during the hearing of a case filed by the lessee to evict the fishermen from the fishery. The fisherman has tenure over the river stretch, and there have been no conflicts either within the fishing village or with outside fishermen. The area is however very small compared to the number of fishermen who are entitled to share the fishery.

6. Strengthening Fishermen Organizations

There are many fishermen organizations in Bangladesh but in most cases the top people are not fishermen. Fishermen cooperatives have share systems for member benefits depending on the amount of work done and the size of the net brought into the fishery. However, mushrooming growth of cooperatives around highly productive *jalmohals* has presented problems, and many cooperatives are still controlled by powerful middlemen who reap most of the benefits from the fisheries. Lacking politically strong cooperatives, fishermen can not take on a continuing lease of *jalmohals*. Politically committed persons or

organizations are needed to help build up real fishermen organizations. There are several constraints on strengthening fishermen cooperatives:

- lack of motivation
- lack of prior organization or group homogeneity
- poor communication among members
- pressure from local power groups
- lack of monitoring and evaluation
- illiteracy
- lack of finance
- poor leadership.

The cooperatives remain loose and atomistic, and thus less effective than they could be. Also they do not incorporate other fisheries sector groups such as women who make nets and process fish, and fish vendors.

The National Fishermen Association was formed in 1946 but only received a certificate of registration in 1992. Its primary objectives are enhancing socio-economic development of fishing communities and increasing fish production. It has remained politically neutral as an organization and is not linked to any political party. The NFA is not an NGO as such, but is registered as a non-profit association. The national officers are not working fishermen, but have fishing community and caste family backgrounds. They work for the NFA on a volunteer basis. The NFA is the agency which represents fishermen at national, district and local level NFMP committees. It is also empowered to carry out registration of genuine fishermen. The NFA considers itself to be the only organization looking after the interests of the several million fishermen of Bangladesh. It therefore attempts to carry out a policy dialogue with the DOF/GOB. NFA activities and office overheads are financed on a subscription basis, and this severely restricts its programme. The NFA is opposed to the tender leasing system and is in favour of nominal license fees and greatly extending the tenure period, ideally into perpetuity.

7. Recommendations for Improving and Implementing NFMP

Two factors are of crucial importance for the further development of capture fisheries in Bangladesh and which must be taken into account in strategic planning.

- (a) The 250 or so jalmohals that have come under NFMP represent a positive advance in what must be considered an evolutionary process to install an equitable and cost-effective fisheries tenure and management regime in Bangladesh. The positive step forward that NFMP represents must be strengthened, consolidated and secured.
- (b) Fishing communities, if awarded security of tenure over adjacent fishery resources, and if freed from exploitation by middlemen and excessive taxation, will gravitate towards self-regulation and other forms of community-based fisheries management. Fisheries development projects which do not contain long term tenure, credit and moderate license fees for genuine fishermen as central core architectural elements will not be of significant benefit to fishing communities and will not result in resource conservation.

Aside from maintaining a high level of inequality of rural income distribution, the leasing system and other revenue-focused fisheries tenure systems undermine local economic growth. The marginal increase in aggregate demand which would accrue to the region's

economy by changing the fisheries tenure, revenue collection and credit systems from leasing to fully liberalized NFMP are very substantial, given that the number of fishermen in the country is several million.

However, revenue collection remains the biggest roadblock to sound management, income equity and economic growth in capture fisheries. The GOB should therefore re-examine its revenue-seeking policies.

One approach might be to collect revenue post-production, and not pre-production in the fisheries sector. Taxation should in particular target the fish wholesalers. To impose a heavy fixed cost tax right at the starting point of the production process against the poorest segment of the sectoral hierarchy pre-empts any possibility of equity and economic efficiency.

The duality of meaning of the term "fisherman" as both an occupational category and a caste lineage causes not only a certain amount of confuse as to who is and who is not a genuine fisherman, but creates opportunities for individuals who are not actually hands-on professional fishermen to misappropriate various benefits intended to support genuine fishermen. In order to solve the problem of non-fishermen becoming listed as genuine fishermen, a joint committee consisting of various government departments, representatives of fishermen's associations and NGOs should be empowered to identify and list all persons dependant on fishing as their primary source of income, and approve the issuance of licenses to listed fishermen by the local fisheries officer.

An important phenomenon that has emerged since the introduction of NFMP has been the emergence among NFMP fishermen of a trend to invent and practice rational and effective resource management measures as a result of having some security of tenure over the resource and freedom from usury credit exploitation for inputs. This is in keeping with experiences and social inventions by rural communities to conserve and rationally utilize on a sustainable basis common property natural resources such as floodplain fish. NFMP is capable of being modified to promote and incorporate community-based fisheries management regimes.

DOF should work in partnership with NGOs and fishing communities to solve the problems of NFMP by increasing the participation of local fishermen in managing the fisheries; utilizing NGO resources for input support to fishermen in place of middlemen; and mobilizing NGO experience in human development training and organization building to create alternative or supplementary income opportunities for fishermen. The involvement of NGOs at field extension level would be of significant utility in making community-based management a workable proposition. NGOs have a positive role to play in implementing NFMP by helping to organize licensed fishermen into groups and provide the following services:

- human resources development training;
- training and motivation to create awareness for conservation of fishery resource;
- group formation;
- organizing savings and collecting of savings fund;
- provision of credit for fishery related and other income generating activities.

There is also a need to strengthen the National Fishermen Association so that it can act, independent of government institutions, as a producer association to effectively represent and promote fishermen interests. Keeping professional occupational organizations of fishermen separate and distinct from government institutional structures and political organizations might be of crucial importance for achieving the shift in socio-economic structure needed to ensure the equitable and sustainable development of Bangladesh's floodplain fisheries.