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The Artisanal Fisheries of Lake Albert and the Problem of Overfishing

Andrea von Sarnowski

Geographisches Institut, Johannes Gutenberg Universität Mainz, 55099 Mainz, Germany

Abstract

Lake Albert contributes significantly to Uganda's fish production and ranks third behind Lakes Victoria and Kyoga. The population at the lakeshores lives almost exclusively from fishing and fishmongering. However, like the other large inland water bodies of East Africa, Lake Albert is heavily overfished.

The few existing studies on fisheries in Uganda predominantly look at Lake Victoria and at fisheries technological and biological issues. This study, however, sheds light on the socioeconomic aspects of the artisanal fisheries at Lake Albert and the determinants of the overfishing of the lake.

The results of the study show that the problem of overfishing cannot be explained with a simple causal chain, but that it is a result of a complex set of economical, socio-cultural and political factors. Firstly, factors such as widespread poverty, a lack of economic alternatives or the high cost of appropriate fishing gears lead to an overexploitation of the open access fisheries. Secondly, collective action to solve the problem is inhibited by a lack of problem awareness and the conflicts of interest between rich and poor fishermen as well as between indigenous people and migrants. Moreover, on the political level, the lack of enforcement of existing fisheries laws is a problem.

In the long term, the sustainable use of the fish stocks and a sustainable basis for nutrition, employment and income are mutually dependent. In the short term, however, there will be conflict, since any measure for the recovery of the fish stocks will immediately lead to a reduction in income. It is therefore recommended that any measures for the conservation and sustainable use of the fisheries resources should be accompanied by an integrated development. Moreover the population of the fishing villages should participate in the development and the implementation of the measures in order to ensure their success.

1. Problem and Objective

With lakes, rivers and swamps covering nearly 20% of its land surface, Uganda has an important fisheries sector. Lake Albert contributes significantly to Uganda's fish production and ranks third behind Lakes Victoria and Kyoga. However, like the other large inland water bodies of East Africa Lake Albert is heavily overfished. This is not only an ecological problem but also jeopardizes the livelihood of the lakeshore population that depends almost exclusively on fishing and fishmongering.

While the few existing studies on fisheries in Uganda predominantly look at Lake Victoria and at fisheries technological and biological issues, this study investigates the socioeconomic aspects of

the artisanal fisheries at Lake Albert and the determinants of the overfishing of the lake. To this end, 70 semi-structured interviews were conducted with fishermen, fishmongers and experts at the North-Eastern shores of Lake Albert and a stretch along the Albert Nile (see Figure 1).

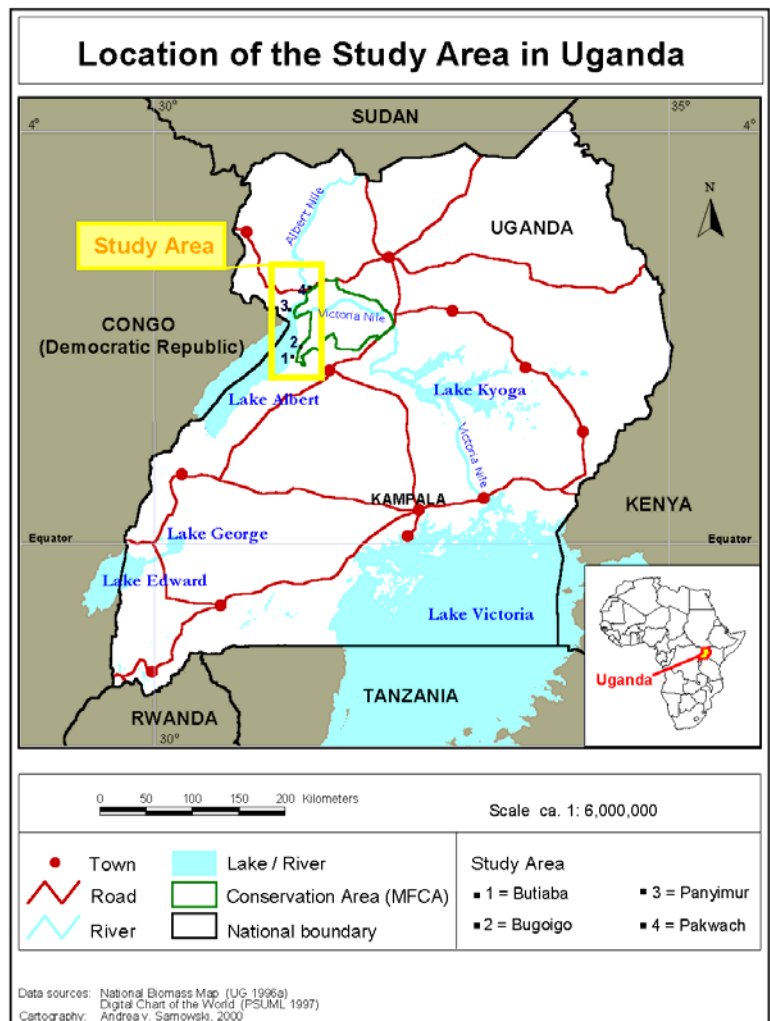
2. Evidence for Overfishing

The official catch statistics for Lake Albert do not portray a decline of total fish catches despite considerable fluctuations but rather an increase (See Figure 2). However, from 1989 onwards, the Ugandan production has been above the lower potential yield and in seven out of ten years also above the higher potential yield of the Ugandan part of Lake Albert. It can consequently be argued, that the fisheries are no longer sustainable, since more fish is extracted from the lake than can be reproduced. But since the validity of this data on fish production is questionable (FAO 1999) local fishermen and fisheries experts have been consulted, too. All indigenous fishermen reported that their catch per unit of effort (CPUE) had decreased over the years and used to be four to twenty times higher in the past as can be seen from the following statement of a fisherman:

“Today you can catch 30 fish with seven fleets, but in the 1980s five or six fleets would catch 500 to 600 fish!”

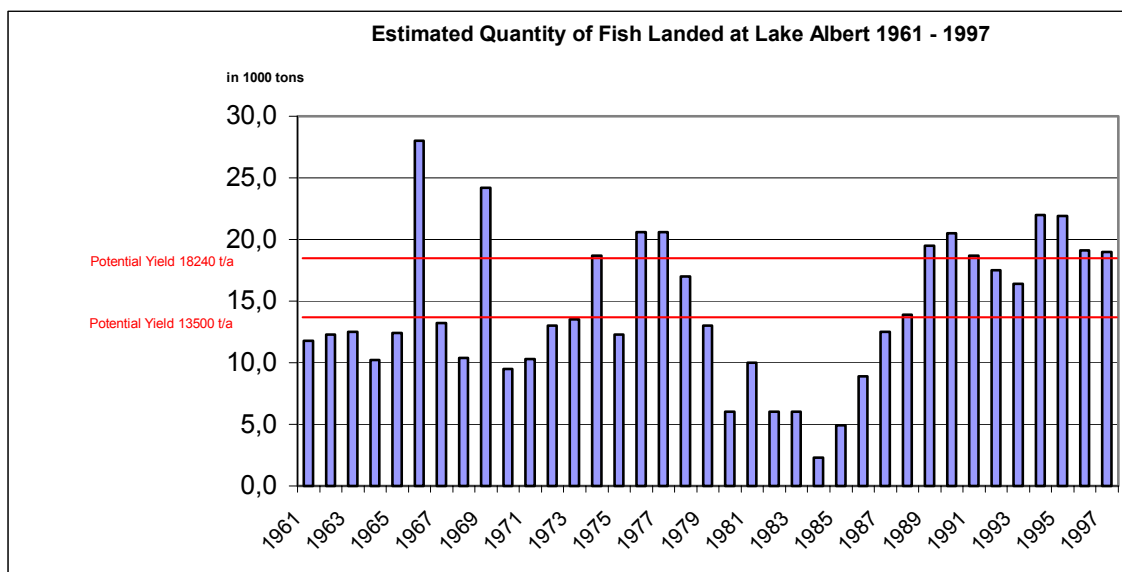
In one village, total fish catches had declined from four lorry loads a week in the period from 1994 to 1996 to not even one lorry load in 1999 indicating that the individual decline in CPUE also reflects a decline in total fish catches (contradictory to what the official statistics suggest). Moreover, fishermen reported that the size and weight of the fish had decreased substantially. This was confirmed by the chairman of the Uganda Fisheries and Fish Conservation Association (UFFCA) in Kampala who gave two examples for Lake Albert: while *tigerfish* used to weigh approximately 0.8 kg when caught, it now weighs 0.1-0.3 kg. Similarly, *tilapia* is now caught at a weight of 1 kg while it used to weigh up to 8 kg. The decrease in the size of fish is another indicator for biological overfishing¹. The reason for the decrease is either due to a relative decline of the number of mature fish or because fish now matures at a smaller size.

Figure 1: Map of Uganda with the Study Area



¹ Economic overfishing could not be proved in the scope of this study since accurate figures for cost of fishing effort and revenue from fishing could not be established.

Figure 2: Fish catches at Lake Albert



Data Sources: EIU 2000; UG 1998; UG 1996; Vanden Bossche & Bernacsek

3. Factors Contributing to Overfishing

Like other common property resources the fisheries of Lake Albert are experiencing the tragedy of the commons where “freedom in the commons brings ruin to all” (Hardin 1968, p. 1244). Under a well defined property regime the individual fisherman would not exceed the maximum economic yield. However, in an open access situation, the individual fisherman will try to fish as much as he can before somebody else takes the fish. Since all fishermen act this way, the consequence is not only economic but also biological overfishing.

However, this explanation is too simple and in order to really understand the problem and remedy it, one has to look at the underlying causes that prevent a sustainable use of the common property resource.

Figure 3 shows the many factors that contribute to overfishing either by increasing the fishing effort or by catching immature fish. These factors can be categorized into economic, socio-cultural and political factors² and will now be explained in more detail.

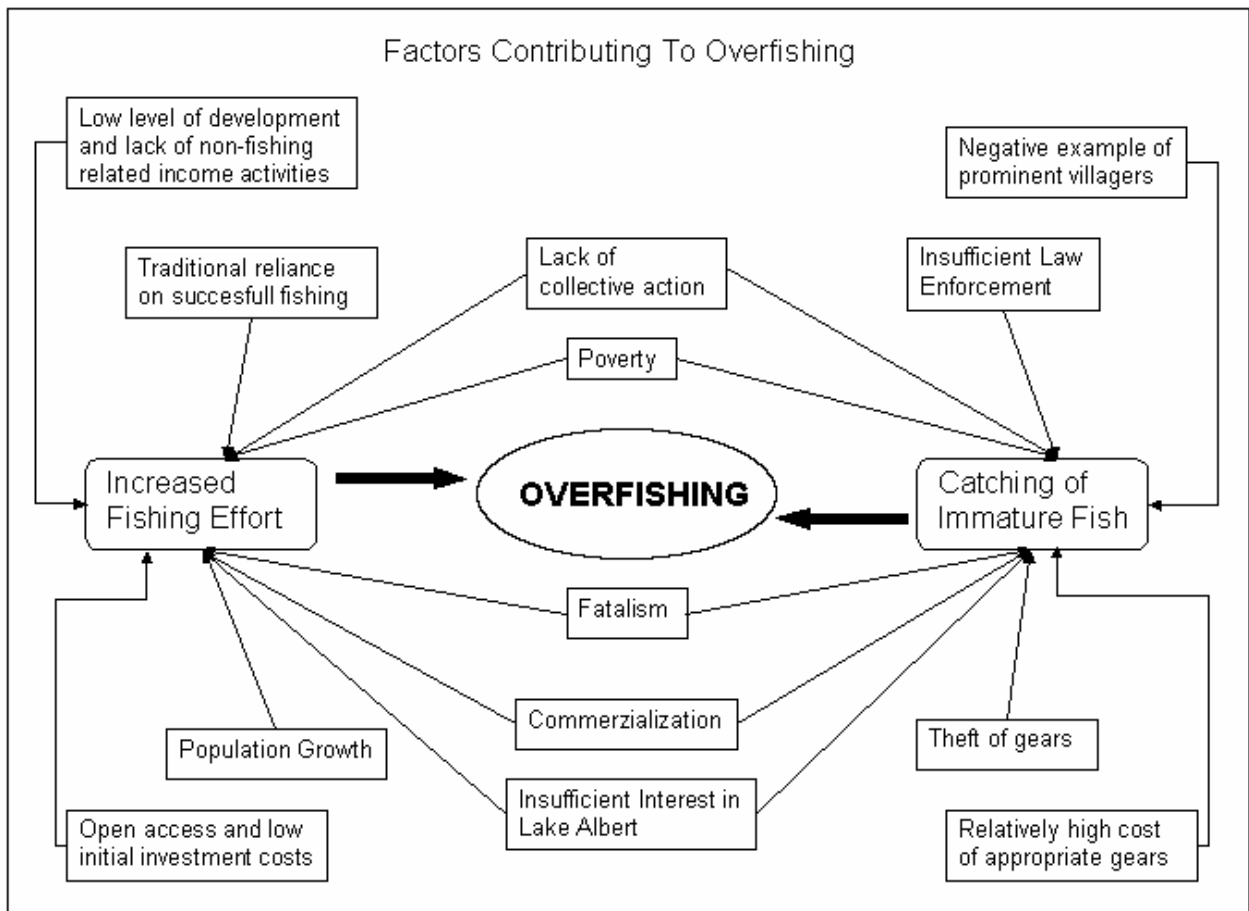
3.1 Economic Factors

Low level of Development of the Study Area

The lakeshore areas of the Northern part of Lake Albert and the Albert Nile feature a low level of development with poor transport and communications infrastructure, no electricity supply and few employment opportunities. Agriculture is hampered by erratic rainfalls, sandy soils, land shortage and insecurity because of the Lord Resistance Army, a Ugandan rebel group. Cattle raising faces serious problems due to repeated outbreaks of Contagious Bovine-Pleuro-Pneumonia. As a result, the majority of the population depend on fishing or fishmongering for their living.

² The categorization can sometimes be arbitrary since some factors could be assigned more than just one category. However, this categorization only serves a better understanding rather than being a goal in itself.

Figure 3: Factors Contributing to Overfishing



Open Access and Low Initial Investment Costs

Access to the fisheries of Lake Albert is unrestricted: although fishermen have to register and license their boats and gears, their numbers are not limited. As a result, and given the lack of alternatives more and more people enter the fisheries either as fishermen or as capital owners. For poor people it is not difficult to enter the fisheries since gears like castnets can be obtained at a low cost. And for those who want to reinvest their profits the fisheries seem to present the only option.

Poverty

Poverty is another factor that contributes to overfishing, because people are vulnerable to fluctuations in income and depend on a daily catch for their living. In order to guarantee a daily catch fishermen therefore fish in breeding grounds or use small meshed nets thereby contributing to overfishing.

Commercialization

In the past, fishing used to be a subsistence activity. Today however, income from fishing has to pay for education, medicine, taxes, luxury goods, etc.. As a consequence, the pressure on the fish stocks increases. Today, boys go fishing at the age of 6 or 7 to contribute to the family income while in the past they would only go fishing at the age of 18 when they started their own family.

Relatively High Cost of Appropriate Gears

Appropriate gears with a large mesh size are significantly more expensive than nets of a smaller mesh size. Instead of investing in a 7” fleet at a cost of 2.5 million Uganda Shilling³ most fishermen prefer to invest in a 2.5” fleet at a cost of 300,000 USh.

Theft of Gears

Theft of gillnets that are left in the lake overnight is widespread. As a result, fishermen try to minimize the risk of loss by using the cheaper, smaller meshed nets or by turning to active and more destructive fishing methods such as beating the fish into the nets.

3.2 Socio-Cultural Factors

Lack of Collective Action

Natural resources do not need to be owned privately in order to be managed in a sustainable way. However, in case of a common property resource that is not protected by a higher authority such as the state, collective action from the resource users is required. This, however, is hampered at Lake Albert by the diverging interests between rich and poor fishermen and indigenous and migrant fishermen. Both, the migrants and rich fishermen, do still have other economic options that they can turn to, once the fish has been depleted. However, poor indigenous fishermen depend on the fisheries and would be willing to take action. Yet, they do not find the necessary support from all parties. The ethnic heterogeneity, which has resulted from the continuous migration, adds to the problem since there are a lot of animosities and prejudices among the various tribes, especially between the two larger ethnic groups of Nilotics and Bantu.

Population Growth

Population growth due both to a high birth rate (ca. 2.7%) as well as immigration from zones of conflicts (such as Northern Uganda or Eastern Congo) or regions with high unemployment, results in an ever increasing pressure on the fish stocks since the number of people whose livelihood depends on the fisheries increases.

Fatalism

Most fishermen agree that fish catches have declined and they might even understand the causes. Nevertheless, many of them have a fatalistic attitude and like to leave the problem to God as becomes clear from the following statements that were given by respondents at various landings:

“We don’t know how God has created the fish. We don’t know what God has planned for us. We don’t keep the fish there in the lake. We just go fishing.”

“Fishing was there in the times of Jesus. Why should it not be there now and for ever?”

These attitudes might reflect the lack of awareness and/or helplessness that the individual fisherman feels in confronting the situation rather than pure religious trust in God. Notwithstanding, these attitudes hinder any remedial action that would improve the situation.

Traditional Reliance on Successful Fishing

In the past, the lakeshore inhabitants could always rely on fishing for their survival. According to older fishermen, one just had to go to the lake and throw a net and would catch some fish. Fish

³ At the time of the research, the exchange rate was approximately 1500 Ug. Shilling for 1 US Dollar.

was always available for food as well as for barter and so there was no need to make provisions for the future. The example of a fishing village in Northern Uganda where the World Bank had proposed a project illustrates this attitude very well. The response to the project proposal was: “We do not need the World Bank. The Nile is our World Bank”⁴.

Consequently, the fishermen have not developed a strong culture of piling up stocks or saving in order to plan for the future. Instead, many of them spend a large part of their daily income on alcohol, thereby remaining dependent on fishing, rather than investing into supplementary businesses or agriculture. Now that fishing is not a reliable source of income anymore, they find it difficult to adapt to the new situation. Instead, their response to the declining catches is the use of smaller meshed nets or active methods.

3.3 Political Factors

Influence of Prominent Villagers and Local Politicians

At some places, local politicians from the village to the sub-county level give a bad example to other villagers. Many of them own beach seines and were among the first to pay bribes to the fisheries staff. In addition, according to one informant, these politicians were also protecting and supporting other owners of destructive gears regarding prohibition measures from the fisheries department. This way they could be sure of some votes in the next election and remain a strong interest group. Many fishermen, too, expressed their disappointment that the local politicians were not assuming their responsibility of working for the development of their communities, but only helped and mobilized during periods of election.

Insufficient Law Enforcement

There are laws to protect the fish stocks of Lake Albert: e.g. the use of nets with a mesh size below 2.5 inches, the catching or selling of immature fish and fishing in breeding grounds is prohibited. However, these laws are hardly enforced due to insufficient material and personnel resources of the fisheries department as well as due to corrupt fisheries officers. The subdivision of the lake into two states and several districts without much co-ordination does not help the sustainable management of this large water body, either.

Lack of Interest in Lake Albert

One can witness a general lack of interest in Lake Albert. While Lake Victoria and its fisheries that serve the export market is the focus of many researchers, international donor projects and the Ugandan government, Lake Albert seems to be a “forgotten lake”. Hardly any recent research is available on Lake Albert. The person in charge of research at Lake Albert at the National Fisheries Research Institute could not provide any written information on the lake and its fisheries. Moreover, he admitted to not going to the lake very often due to its remoteness. In fact, he had not been there for the first half of 1999. In addition, so far no environmental management plan exists for Lake Albert (UG 1998). The lack of information on Lake Albert as well as the lack of resources and development programs for the lake, its fisheries and the lake shore population, are a major hindrance to the sustainable development of the Lake Albert region.

4. Fishermen’s Responses to Overfishing

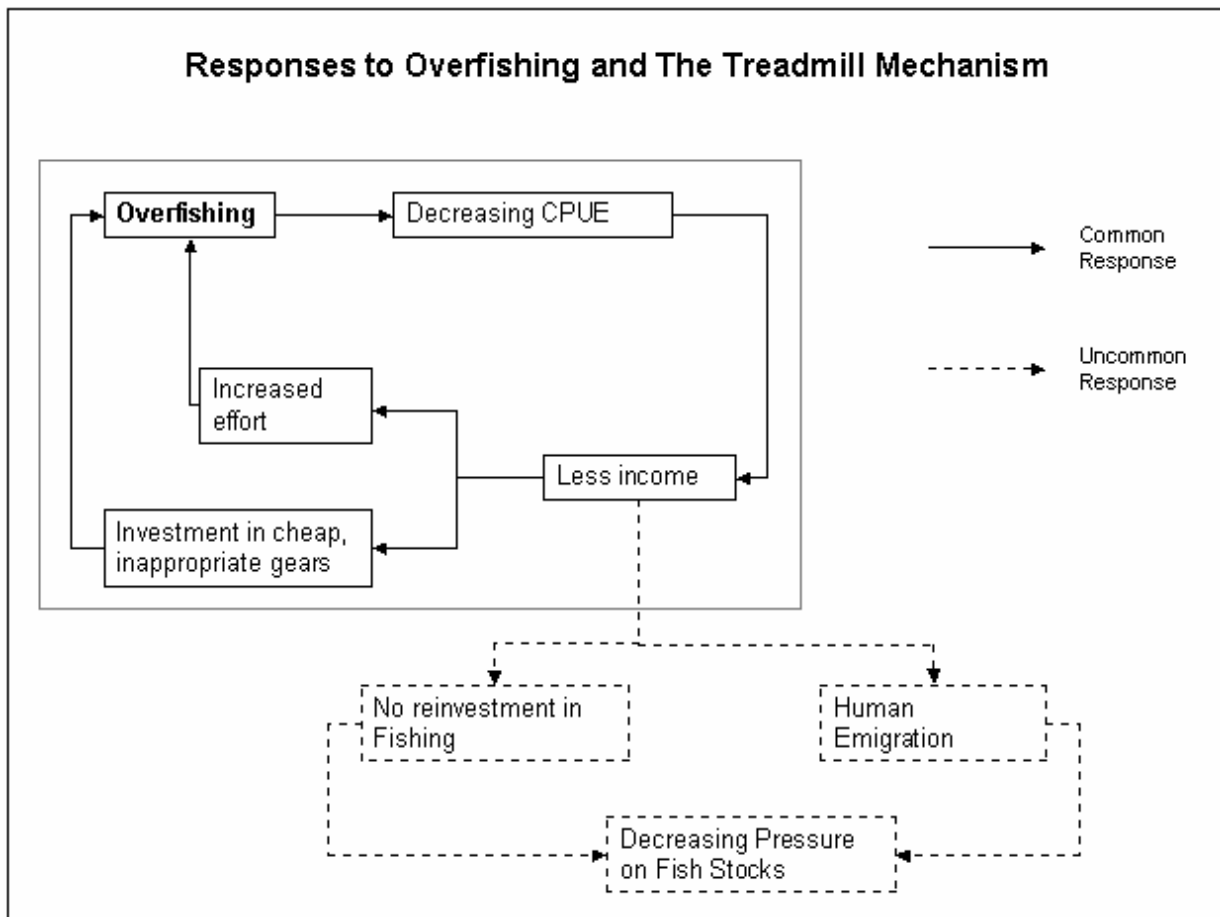
As has been shown, a complex set of factors contributes to the overexploitation of the fish stocks of Lake Albert. One of the factors is a lack of collective action in order to remedy the problem. But how do individual fishermen respond to the problem? The more the fish is exploited, the more the catch per unit of effort (CPUE) decreases and as a result the individual fisherman’s income falls. In order to counter this fall in income the common response of fishermen is to try to

⁴ Personal communication from Dr. Moyini, former executive director of the Uganda Wildlife Authority

increase the fishing effort (the number of nets, the number of fishing hours, using active methods) or invest in cheap, inappropriate gears that catch immature fish. As a result, the pressure on the fish stocks increases further and the problem deteriorates leading to a further decline in CPUE and income thereby causing a treadmill mechanism that reinforces itself.

Only a minority of fishermen responds in a way that decreases the pressure on the fish stocks: they do not reinvest in fishing or even emigrate from Lake Albert. When the fisheries will be even more exploited than today and fishing will be less economically viable, this response is expected to become the common response.

Figure 4: The Treadmill Response to Overfishing



5. Recommendations

Almost the entire lakeshore population depends on the fisheries for their livelihood and a deterioration of the state of overfishing will therefore present serious problems to this population. Consequently, two objectives should be achieved to ensure a sustainable development of the northern tip of Lake Albert:

1. The long-term improvement of the living conditions of the fishing communities
2. The conservation of the fish resources.

The following measures should be taken to achieve these objectives:

1. the existing laws for the protection of immature fish should be better enforced by increasing the personnel and material resources of the fisheries department and by combating corruption among the fisheries officers.
2. the fishing effort should be reduced through improved fisheries management measures such as closed seasons or rotational systems where different groups refrain from fishing at different times
3. a new approach should be taken that involves the fishing communities. Such a community-based fisheries co-management is the precondition that the fishing communities feel responsible for the fisheries and fully engage in its protection.
4. In the long run, there is a mutual dependency between the goals of improved living conditions and the conservation of the fish resources. Without a sustainable fishery, the living conditions of the fishing communities cannot be improved in the long term. And without consideration of the basic needs of the people, the recovery of the fish stocks and a sustainable fishery cannot be achieved (GTZ 1997). However, there is a conflict in the short term when reducing pressure on the fish stocks leads to an immediate loss in the fishermen's and fishmongers' income. To mitigate this effect, non-fisheries related income activities should be developed in an integrated development approach.

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