

FISHERMEN INCOME AND COMMUNITY-BASED FISHERY MANAGEMENT: OPTIONS FOR IMPROVING INCOMES OF FISHING COMMUNITIES IN PHANG-NGA BAY

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1. INTRODUCTION

The fisheries resources in Phang-nga Bay are mainly exploited by small-scale fishermen who employ small and low efficiency fishing gears. The majority of the fishing boats have outboard engines. The main fishing gear operated in Phang-nga Bay are traps and gillnets. The catches comprise fish, prawns, squid and crabs that are sold to the local middlemen at a price determined by middlemen. In the past, the total catch of each fishing household was plentiful, **but** the price per unit was rather low owing to the lack of fishermen's bargaining power. Hence, the income of the small-scale fishermen in this area was comparatively low. While the price of fish today has increased owing to the rising demand by tourists, supplies are limited due to the depletion of fisheries resources. The income of fishing households therefore remains at a low level.

In order to improve the income and living conditions of small-scale fishing households in Phang-nga Bay, the DOF has established several development projects for the Bay. Community-based fishery management is one of the development programmes that are being implemented in close collaboration with the FAO Bay of Bengal Programme.

2. PROBLEMS AND CONSTRAINTS OF SMALL-SCALE FISHING HOUSEHOLDS

The problems and constraints of small-scale fishing households are social, economic and sometimes political. However, the most severe problem is poverty.

Juntarashote and Daosukho (1986) have described the major problems and constraints of small-scale fishery households as follows.

1. Limitation of coastal fisheries resources

Overfishing, by the large-scale fishery and illegal fishing by the small-scale fishery through the use of dynamite, electric shock and poison, has an adverse effect on the coastal

fisheries resources utilized by the small-scale fishery. In addition, the degradation of the coastal environment is another factor that has led to the depletion of the resources.

2. Lack of investment capital

The depletion of coastal fisheries resources has been the cause of minimal production and low income, and has ultimately resulted in a lack of funds for further investment. Most of the fishery households normally rely on non-institutional credit because they are unable to offer collateral to the value required for obtaining loans from credit institutions.

3. Inefficiency of fishing boats and fishing gear

Owing to the lack of investment funds, the fishing boats and gear employed by the fishermen are small and inefficient. The average size of a fishing boat is less than 8 metres **and** are either without an engine, or equipped with a small engine. The fishing gear is simple; hook and line, traps, beach seine and gill net. These imply a low catch.

4. Lack of bargaining power at the market

This problem results from the low catch of each fisherman, low quality of fish due to improper handling at sea, limited means of transportation from the village to town and the relationship between the fishermen and fishmongers in terms of indebtedness.

5. Lack of infrastructure and public utilities

The fact that small-scale fishing households are located in remote areas and are far from the government's basic infrastructures and public utilities results in a higher fishing cost, and lower prices for fish sold.

6. Lack of alternative sources of income

Job opportunities for small-scale fishermen are rather limited. In general, fishing is their only source of income because they cannot take up other occupations on account of their low level of education and lack of skills.

Hongskul (1981) has pointed out that these problems are interrelated and, that, generally, they need both short-term and long-term solutions.

Short-term

1. Placing limits on fishing effort appropriate to available resources.
2. Improvement of fish processing techniques.
3. Extension of services for production and marketing.
4. Improvement of public utilities, education and health care.
5. Development of other sources of income.

Long-term

1. Enrichment of fishing grounds.
2. Improvement of the marketing system.
3. Improvement of fishing boats and fishing methods.
4. Coastal aquaculture management.
5. Promotion of fishermen's groups and fisheries cooperatives.

3. COMMUNITY-BASED FISHERY MANAGEMENT AND INCOME OF FISHERMEN

The income of small-scale fishermen in Phang-nga Bay derives mainly from the fisheries resources, with very small earnings from other sources such as selling their labour and services to amateur fishermen and tourists. Therefore, fisheries resources are the mainstay of small-scale fishing households in Phang-nga Bay.

The income of small-scale fishermen is in general rather low compared with that of commercial fishermen; however it is above the poverty line in Thailand. The DOF wants to improve the socio-economic conditions of the small-scale fishing households in the country. Main reasons:

1. The small-scale fishery is the main supplier of fish for the local populace; its quality is much higher than that from commercial fishery catches;
2. The small-scale fishery employs a high proportion of the labour force. Past marine fishery censuses of Thailand, show that this sector absorbed more than 100,000 persons. This figure would increase if assistants to fishermen on the shore were included; and
3. Small-scale fishermen constitute the majority in the fishery sector, but their earnings are limited.

The DOF has realized that, in order to improve the income of fishermen, the Department should:

1. Enrich coastal fisheries resources;
2. Reorganize the fishery by establishing new fishery management measures, such as co-management, community-based fishery management, etc.;
3. Strengthen fishermen's institutional activities in order to improve their bargaining power and enhance the capability of fishermen's institutions in the fishery management programme;
4. Create more competition in the local market and seek new markets for fish and fishery products; and
5. Advise fishermen about fish processing so that they meet quality standards demanded by the consumers.

Enrich coastal fisheries resources through community-based fishery management

So far, fisheries resources have been treated as a common property and the management of these resources is the responsibility of the government. The DOF has implemented many management programmes on the basis of a "top-down" management policy. However, as mentioned in several papers, fishery management measures that have been practiced for many decades have failed for several reasons. But the main reason is that the DOF could not ensure the co-operation of fishermen, who always believe that fisheries resources belong to the fishermen. They have therefore exploited the resources to the utmost without the "wise use" concept. Thus, fisheries resources in Thai waters face severe depletion, resulting in low catch and low incomes for fishermen.

Therefore, the community-based fishery management programme has reversed the concept of exploiting the fisheries resources as common property. It is now regarded as the property of the community. The resources of the sea area where the DOF grant a fishing right to community(ies) are no longer a common property. They are the property of the community; only the fishermen in that community or from other "approved" communities can fish in that sea area. The community has to establish a fishery management committee by general election that can have responsibility for establishing any management programme for the benefit of fishermen as a whole. These management programmes differ from past programmes. They will operate on the basis of a "bottom-up" policy. In general, it is believed that the fishermen will collaborate closely in implementing the management programme as they realize that they will benefit from it.

In order to assist fishermen in enriching the fisheries resources, the DOF allocates a considerable budget for the construction of artificial reefs along the coastal area. The two main purposes of installing artificial reefs. First, to create more habitats for aquatic animals and at the same time a device to attract big fish. Small-scale fishermen are allowed to operate on selective gears. Secondly, artificial reefs restrict fishing by trawls and push nets in the coastal area.

Supongpan (1995) conducted an assessment of the impact of artificial reefs in Phetchaburi Province and concluded that the artificial reefs installed in 50 sq. km of the near-coastal area could enrich several fisheries resources. The average catch per trip of every type of fishing gear has increased from 12.31 kg in 1990 to 22.4 and 37.9 kg in 1992 and 1994 respectively. However, the study did not mention the operation of trawls and push nets in that area.

Increase in fishermen's income through community-based fishery management

Under community-based fishery management, the fisheries resources have been enriched and have resulted in an increase in fishermen's catches. In addition, with proper fishery management programmes, the size of fish caught is larger than in the past and this has led to a higher price per unit. It should be noted, however that the community-based fishery management programme cannot make small-scale fishermen rich – it could, however generate higher income and prevent conflicts. The socio-economic conditions of fishermen would improve.

The Ban Lam Makham fishing community in Trang Province is a good example. Under the small-scale fishery development of the DOF and with the guidance of the Yard Fon (Rain Drop) Association, this community has practiced partial community-based fishery management on the basis that coastal fisheries resources in their traditional fishing grounds belonged to them. At the initial stage, the main objective was to conserve seagrass and protect the dugong in that area by restricting the operation of trawls and push nets in the coastal area. The push net is the target gear to ban but law enforcement had not been entirely successful in doing so. Fishermen in the community have therefore introduced a new approach. Instead of law enforcement, they convinced fishermen who operate push nets to quit and offered them a fishing ground for gill net and traps.

Finally, all push netters in the community had exchanged their destructive fishing gears for a selective gear that catches only fish of marketable size. Consequently, the income of fishermen in this community has increased dramatically; for instance, squid trap fishermen now earn 400-600 baht a day compared with 100-200 baht a day in the past; hook and line fishermen earn 800-1,000 baht a day from artificial reef fishery. In addition, the fishermen spend less time on fishing because they need not to go to more distant fishing grounds. Squid trap fishermen leave their homes at 6 a.m. and return to the shore at 9 a.m.

They complete their fishing activities, including marketing, during the morning. Hence, they have free time for participating in community activities or seeking additional income from other occupations in the afternoon. However, there are still trawlers from other areas which try to operate in this fishing ground. The fishermen of this community complained that when trawlers fish on a single day, small-scale fishermen's catches drop sharply for the next **15** days. If the trawlers can be banned, the income of fishermen in Ban Lam Makham will greatly increase substantially.

Therefore, community-based fishery management is another option for improving the incomes of fishery households in Phang-nga Bay. Their higher incomes will derive from the following;

1. Increase in total catch. As mentioned above, through the community-based fishery management programme, coastal fisheries resources have been able to increase. The stock size of fish is larger, resulting in better catches for fishermen. Furthermore, owing to management measures on gear selectivity, the size of fish caught is bigger than in the past. With the increase in catches and higher prices, fishermen's earnings have improved.

2. Decrease in fishing costs. Since coastal fisheries resources have been enriched, fishermen need not go to more distant fishing grounds as in the past. Therefore, fishermen can save at least the fuel and maintenance costs of fishing boat and engine. The fact that total sales are increasing and fishing costs are decreasing, would indicate that the income of fishery households under the community-based fishery management programme are increasing.

3. Decrease in fishing time. In the past, fishermen in Phang-nga Bay had to spend a long time to reach the fishing grounds. Owing to overfishing during the last two decades, coastal resources available for exploitation remain only in distant fishing grounds. If the fisheries resources are enriched, fishermen will be able to reach the fishing grounds in a short time. They may finish their fishing activities in the morning, and spend the remaining time to carry out other activities to rest.

4. CONCLUSION

Fishermen in Phang-nga Bay are entering a new era of fishery management. It is hoped that they can earn more money than in the past through to the coastal fisheries resources enrichment programme. It is assumed that the total catches will increase and also fetch higher prices. However, this will not happen in the short term as it takes some time for resources to recover. Thus, at the beginning of the programme, an appropriate source of income has to be provided for them. In addition, the success of the programme depends to a great extent on cooperation from fishermen in various respects. As for the fishery officials, they should keep in mind that this programme is a very challenging one and needs dedicated

persons that can work closely with the fishermen. The past relationship between **officials** and fishermen has to change. They must work together in partnership and as friends. Then the success of the project is ensured.

However, an increase in fishermen's income is not the ultimate objective of the programme. Increasing their income is not a difficult task. The more difficult task is for the fishermen to learn how to manage their increased incomes for the benefit of fisheries development. They may fritter away their increased income on luxury goods and services, and have nothing left for their families improving their fisheries, and lapse into poverty.

Lastly, it should be stressed that small-scale fishermen in Phang-nga Bay must experience real development and not just economic growth. The Thai economy, one may observe in this context, has experienced growth without development.

5. REFERENCES

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