

**THE MRC PROGRAMME FOR FISHERIES  
MANAGEMENT AND DEVELOPMENT  
COOPERATION**

**ANNUAL REPORT 2000/2001**



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## **ABBREVIATIONS AND ACRONYMS**

BDP Basin Development Plan

Danida Danish International Development Assistance

TAB Technical Advisory Body on Fisheries Management

MRC Mekong River Commission

WUP Water Utilization Programme



## **FOREWORD**

**by Joern Kristensen, Chief Executive Officer**

The Lower Mekong Basin is endowed with huge fisheries resources, indispensable to the food security, income and employment of the people of the Basin. Fish are often thought to be an everlasting commodity like air and water; however, many river basins around the world have seen their freshwater fish stocks diminish or almost disappear completely within the space of a few decades. It is clear that such natural resources will not be here forever unless they are cared for, protected and tapped in a sustainable way.

The MRC Programme for Fisheries Management and Development Cooperation was formally established in 1995 with the objective of "coordinated and sustainable management, use and development of the economic and nutritional potential of the inland living aquatic resources in the Mekong River Basin." Under this programme, the line agencies for fisheries in Cambodia, Lao PDR, Thailand and Viet Nam have worked together within a single organizational framework. The programme has greatly increased our knowledge of fish resources - the huge number of species, their impressive seasonal migrations, the importance of habitats for breeding, feeding and dry season shelter, and their dependence on the huge Mekong floodplains in creating this unique resource - as well as developing fisheries management systems to ensure the availability of this resource for future generations.

Development of small-scale aquaculture is also part of the Fisheries Programme. Though this may never replace the value of naturally occurring resources, it can significantly improve the incomes and livelihoods of small-scale farmers, and address a growing population's increased need for food.

The present report covers the activities and achievements of the Fisheries Programme from April 2000 to March 2001. It also gives some idea of the challenges ahead, and of how the Fisheries Programme intends to respond. Staff of the riparian line agencies for fisheries have produced the material in this report, with support from national and international advisors assigned to the Fisheries Programme.

I would like to take this opportunity to warmly thank the national line agencies for fisheries, the National Mekong Committees of Cambodia, Lao PDR, Thailand and Viet Nam, and the donor, DANIDA, for their cooperation and support of the Fisheries Programme.

Joern Kristensen, CEO  
Mekong River Commission

## **An Incredibly High Fish Production**



From the start of the Fisheries Programme, a key task has been clarifying the role of the fisheries resources, and to document their role in the nutrition and economy of the people in the Basin. The estimate of the total catch in the Lower Mekong Basin has grown along this road. From an official figure of approx. 356,000 tonnes in 1991, an estimate of "more than one million tonnes" was made by the Fisheries Programme in March 2000. During 2000-2001 further and more thorough studies of fish consumption and production in the Basin have been carried out, focusing on selected provinces in the four countries, and new figures point to a total catch close to two million tones of fish per year, distributed over more than 1,500 different fish species, and supplemented by an aquaculture production of approx. 230,000 tonnes. It is, however, too early to consider these figures final, and more surveys, planned for 2001-2002 in selected provinces of the Mekong Delta and the Central Highlands of Viet Nam, are expected to throw more light on the situation.

## **Food Security for 60 Million People**

With the present preliminary results, the importance of fish to food security is clearly demonstrated. With an average annual fish consumption of not less than 30 kg per capita, fish is the most important source of animal protein in the diet, with no alternative in sight. New research has, however, indicated that fish is more than just protein and energy. Small fish which are consumed whole may constitute the most important source of calcium in the diet, which is a key factor in the growth of young children. Small fish consumed fresh or as traditional dried or fermented products seem to have a role in the nutrition in Southeast Asia similar to that of milk in the Western diet. More studies will be carried out during the coming years in order to fully clarify the nutritional role of fresh and traditionally processed fish, and to ensure safe processing methods.

## **Migrations In and Out of the Flood Plains**

It is the flood plains, which create the huge fish production in the Mekong Basin. The flooded areas are sources of food and habitat for the fish of the Mekong Basin. Studies of fish migrations on the mainstream Mekong have demonstrated that most economically important Mekong fish species are highly migratory, and are crossing country border in their seasonal migrations at the beginning and the end of the rainy season. Migrations may stretch over 500-1000 km or more, and may pass national borders. During the dry season many fish are seeking shelter in the deep channels, mainly in the mainstream. They typically spawn when the rain starts, and the juveniles follow the current downstream and enter the flooded areas to feed on plant material, insects and plankton as these fill up with water during the rains. The migrations along the mainstream of some 50 important fish species were surveyed with the help of the local fishers, and have given valuable

knowledge of how to manage and protect the fish resources. A study of the migrations into the tributaries is under finalization and will complete the picture for these species.

### **Cross-Border Fisheries Management**

The management and conservation of these resources requires cooperation over the borders in the Mekong countries. In June 2000 a Technical Advisory Body for Fisheries Management (TAB) was created by the four countries, as an important step towards the establishment and coordination of management systems for the shared fish resources. The Fisheries Programme is providing resource information for management purposes on request, and is giving secretarial assistance. A number of important tasks were carried out by the Programme during the past year at the request of the TAB related to management of transboundary stocks of Pangasius (river catfish), preservation of the threatened giant Mekong fish species and the role of deep channels in the Mekong River as a dry season habitat for fish.



**Examples of migrations of the small fish "Trei Riel" between the Mekong Delta, Lake Tonle Sap and Stung Treng**

### **New Freshwater Fisheries Research Institute in Cambodia**

The joint management of the shared resources requires scientific institutions, which can house the research and coordinate it with sister institutions in the other Mekong countries. As an important contribution to research and cooperation, the MRC Fisheries Programme is supporting the Department of Fisheries of Cambodia in the construction of an Inland Fisheries Research Institute in Phnom Penh. Funds have been made available through Danida, the first drawings are ready and the construction work is expected to start later in 2001. It will be a key element in the efforts to manage the important fish resources of Cambodia. The Fisheries Programme has assisted the Department of Fisheries of Cambodia in the study of its large-scale fishing lots system, which accounts for some 21% of the inland fish catches. It has also studied the quantitatively much larger small and family-scale fishery, accounting for some 40% of the total catch, and important results have been obtained on conflicts of interest among different types of fishers and other stakeholders and how to solve them. This has given important inputs to the formulation of a Sub-Decree on Community Participation in Fisheries Management. Capacity building is another important result of the Cooperation under the Programme and many former staff members have been promoted to high positions in the fisheries administration.

## **Co-Management Is the Way Ahead**

Once important resources and habitats have been identified, the question of how to protect them arises next. When it comes to protection from over-harvesting by fishers or to prevention of destructive fishing methods, policing of wetlands and fisheries resource have proven expensive and inefficient all over the world. The best and most cost effective way may be to let the resource users - the fishers - play a strong role in the protection of the resources which are important for their livelihood, in cooperation with government authorities. This kind of set-up, which can have various structures, goes under the name of co-management of fish resources. Development of co-management systems is a major element under the Fisheries Programme, and the population living around 19 reservoirs in the four countries took part in the development and establishment of co-management systems during 2000-2001. It is expected to be the solution to management and preservation of resources at the local level in many kinds of water bodies, including wetlands and river reaches all over the basin. On request by the TAB, a regional training course in co-management has been arranged. This course will run continuously over the next few years.

## **Dangers Ahead! Cooperation from Other Industries Required**

The management of fisheries resources requires more than local co-management systems. The most important threat to the resources is coming from outside the fisheries sector. Other sectors using the water may inadvertently create problems in the fisheries sector, which may lead to severe reductions in the productivity of the sector, and even to the extinction of species and collapse of parts of the fisheries, often at costs, which are far higher than the value of the benefits obtained.

A healthy fisheries sector depends on a number of critical habitats and on open river reaches allowing for unhindered migrations between these. Polluting industries may destroy wetlands and streams as habitats for all living organisms and thus cause considerable economic loss. Unlimited drainage of wetlands and felling of flood forests in order to give more space for rice fields may destroy in the process fish resources more valuable in consumption than the increased production of rice. Inappropriately placed dams may block migration routes and result in the decline or collapse of fisheries hundreds of kilometers away from the dam site. The huge fisheries of the Great Lake Tonle Sap and the flood plains in the Vietnamese part of the Mekong Delta are such examples. They depend on the protection of the deep channels around Stung Treng and the Khone Falls, on the wetlands and river reaches around Stung Treng and the lower Sesan and Srepok tributaries and on the unhindered migration on the Mekong between Stung Treng, Tonle Sap and the Mekong Delta. Serious damage to any part of this system, which stretches over 600-1000 km along the mainstream, may cause the virtual collapse of the fisheries.

## **Joining the Basin Development Plan and the WUP Initiatives**

In order to bring these issues to the knowledge of the planners, the development of aquatic environmental impact assessments will be the object of an important part of the activities of the Fisheries Programme during the next two years. Included will also be a close cooperation with the Basin Development Plan and the Water Utilization Programme. Both of these will become important instruments for the planners and decision makers in getting to know the development options, their wider consequences and costs, and to take decisions, which are based on a thorough knowledge of the various development scenarios.

## **Fishways - An Option which Should Be Tested**

Important fish migrations may be stopped by dams and weirs and cause considerable harm to the resources and the communities depending on them. Fishways or fish ladders are often mentioned as ways and means to help the fish pass such obstructions.

No real success has yet been demonstrated in the Mekong Basin with this kind of technology, but the Fisheries Programme has visited successful installations in other tropical areas. Preliminary calculations of the capacity of existing artificial fishways show that they would not be capable of handling the huge numbers of fish migrating on the mainstream and lower parts of the large tributaries, where the fish migrations are huge. They may, however, be effective on low irrigation weirs on smaller streams. In order to increase the riparian knowledge base on which mitigation methods may or may not work in the Mekong Basin, a Component is under preparation which will bring riparian biologists and engineers out to see installations in other countries designed for mitigation of the side effects of dams and weirs, and to test the most promising options at existing weirs and dams in the Mekong Basin.

## **Aquaculture: A Supplement to Capture Fisheries and an Important Source of Income**

The Mekong Basin has considerable potential for the development of aquaculture. However, loss of production in the fishery will not to any important extent be compensated by aquaculture. With a population increase of 2% per year, the present aquaculture production must already grow by 10-11% per year in order just to cater for the increased demand. But this also clearly demonstrates the need for aquaculture development. Small-scale farmers are the owners of most of the land in the Mekong Basin. That makes them the owners of the biggest potential for aquaculture development as well. Being usually more expensive than fish caught in the "wild", aquaculture represents an important source of income for low-income farmers.

The aquaculture institutions in Cambodia and Viet Nam and the Fisheries Programme working with small-scale farmers in the Mekong Delta have demonstrated a range of aquaculture systems, combining fish culture with the existing agriculture practices. "Fish-and- rice" and pond culture systems comprising variations of "fish-and-animal-husbandry", together with low-cost fish hatcheries and nursery techniques may increase the income of the farmers considerably and in a safe way.

One of the crucial issues, which forms part of the scope of work together with the Fisheries Programme is the development of extension methods, which put the focus on the farmer and the family's needs and livelihood in the development and extension of the techniques. After a number of good results, the Fisheries Programme is now ready, together with the riparian line agencies for fisheries, to expand these extension methodologies and techniques for adaptation of fish culture techniques to existing farming systems in other regions of the Mekong Basin. Finance is presently being sought for this purpose.

### **Culture of Indigenous Fish Species for Ecological Safety**

Fish culture is not an activity, which can take place in isolation from the rest of the environment. In flood plain areas as the Mekong Basin, aquaculture becomes strongly integrated with capture fisheries. They share water bodies and often also seed supply and feed sources, and when ponds are flooded accidentally during the rainy season the stocked fish species will spread to natural systems. Most fish species presently used in fish culture are exotic to the Mekong Basin, and some of them may establish themselves in nature and change the ecosystem with danger of negative effects.

To find a long-term solution to this problem, the Fisheries Programme started during 2000 a Component aiming on the development of aquaculture systems of indigenous Mekong fish species. It comprises the cooperation among 11 aquaculture stations all over the Lower Mekong Basin on the development of culture systems of initially 20 fish species. The Component runs over 5 years and is expected to successfully develop aquaculture systems for at least 5-10 Mekong fish species, which may replace or challenge the use of exotic species, although it is recognized from the start that it is not an easy task.

### **Information Dissemination Becomes More Important**

Knowledge generation and dissemination will always remain an important part of the work under the Fisheries Programme. Increasingly, it is necessary to turn fisheries knowledge into policy advice and management practice. In the future, more emphasis in the Programme will be put on information production and dissemination. A Mekong Fisheries Sector Status Report is under development and will be ready by mid-2001. It will provide a 10-year perspective on fisheries and aquaculture management and development issues throughout the Lower Mekong Basin. The formulation of a much-needed Communication Action Plan will be ready in the latter half of 2001. It will detail new reporting series aimed at



technical and general audiences, so providing a wide outlet for the information from the Programme. Short video productions are seen as an excellent tool for reaching a broad audience with general information on the importance of fisheries in this region. A new Component aiming at the establishment of basinwide inland fisheries statistic will come under implementation by the end of 2001. In addition, the Programme will continue to improve the flagship publication "Catch and Culture". In this regard, contributions from staff of other agencies are welcomed, as we really would like Catch and Culture to serve as a reporting medium for all fisheries workers in the region.

### **Mekong Women in Fisheries Network**

Gender aspects form part of all surveys carried out under the Fisheries Programme. The Programme shares in this respect the aims of all Programmes under the MRC, to mainstream gender perspectives in order to ensure that men and women benefit equally from the development, according to their different needs and with the input and equal participation of men and women at all levels. As a very important activity under the Programme, support has been given to the establishment of a basinwide Mekong Women in Fisheries Network. It was finally established in May 2000 with the objective of ensuring women a fair role in the development in the region, increase the knowledge of women's roles in the fisheries sector in the four countries of the Lower Mekong Basin, and giving mutual support within this network to reach these goals. The regional network consists of four national networks, electing together the Regional Coordinator. A proposal for international funding has been produced, and the funding is being sought.

### **Catchment-Based Approach to Fisheries Management and Development**

Much of the work during the first five years of the Programme has been centred on information generation, with individual Components on "aquaculture development", "co-management", "fish migrations", "impact assessments", etc. One of the challenges for the near future will be to combine the results obtained from these different "disciplines" in an effort to manage and develop the inland fisheries sector. During 2000 the Fisheries Programme started the development of a catchment-based approach to fisheries management and development. The Mekong Basin will be considered as interlinked tributary basins, and capture fisheries management and aquaculture development and the needs of the target groups will be considered together in an integrated way. Coordination will also be sought with other Programmes under the MRC, e.g., the Land and Water Programme, and the Environment Programme, as well as with representatives of the various other non-fisheries stakeholders in the catchment areas under consideration. The first two "model projects" are under development and will target Sesan-Srepok Tributary Basin from the Central Highlands in Viet Nam and down to the mainstream Mekong in Cambodia and Nam Ou Tributary Basin from Dien Bien Phu in Viet Nam and Phongsaly in the Lao PDR and down to the mainstream at Luang Prabang in the Lao PDR.

## **New Perspectives**

With a solid survey base behind it, and a catchment-based approach ahead the MRC Fisheries Programme is now gradually entering a phase of actively assisting in fisheries management and development. The next 5-years Programme will see an increased emphasis on manage advice and assistance and on information production and communication. A steady advance towards the achievement of the long-term objective, coordinated and sustainable management, use and development of the economic and nutritional potential of the inland living aquatic resources in the Mekong River Basin is foreseen. It is hoped that funding will continue to follow the good ideas and plans, which have been developed in full cooperation with the riparian countries.