

The Role of the World Bank in Fisheries

Between fiscal year 1964 and fiscal year 1981, the World Bank provided \$259 million for twenty-seven fishery projects; the total cost of these projects amounted to nearly \$470 million (see Table). Although Bank-supported fishery projects have been quite diverse, they can be classified into four broad categories: boat building, construction and improvement of ports, the development of small-scale fisheries, and the development of aquaculture. Within these areas, funds have been allotted in these proportions: boat building (32%), ports (27%), technical assistance (13%), fish ponds (15%), onshore infrastructure (5%), processing and marketing (4%), and the remainder for working capital, project preparation, repairs, and maintenance. Among the various regions, Europe, Middle East, and North Africa received the largest share (33%), followed by South Asia (25%), East Asia and the Pacific (23%), Eastern Africa (10%), Latin America and the Caribbean (7%), and Western Africa (0.5%).

Until quite recently, the major objective of the Bank's lending for fisheries had been to increase production for export and to generate foreign exchange; nearly 60% of the loans made were for the development of large-scale fisheries, including large vessels and the facilities to service them. Processing and marketing, on the other hand, represented only a small share of total lending. The Bank's first fishery project, in 1964, provided \$7.8 million to Taiwan for boat building; it was followed three years later by a \$14.4 million loan for a second phase of the project. The Bank's loans for the construction and renovation of port facilities in Iceland, India, and Tunisia were designed to improve the handling and transporting of the catch produced by commercial and, to some extent, small-scale operations. Funds for facilities such as cold-storage plants, freezing centers, and ice plants were also included.

Where assistance was provided for small-scale coastal fisheries, it was used to rehabilitate landing sites, acquire

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motorized boats, provide extension services and technical assistance, and carry out feasibility studies (such as in Tunisia); and to renovate canoes, upgrade gear, and improve marketing and processing (as in Tanzania and Burundi).

Some small amounts of money were loaned for aquaculture activities, but

these were included mainly as components of credit projects and were aimed at improving productivity to meet the increased local demand for fish. Components included the rehabilitation of existing fish ponds and the construction of new ones, the provision of hatcheries, the construction of access roads, and the development of local organizations to manage these activities. In the Philippines, for example, Bank-assisted rural credit projects contained fishery components (\$4 million in 1974) to finance boats, fish ponds, and fish pens and \$14.6 million to train fish-pond managers and upgrade technical institutes for training in fisheries.

World Bank lending for fishery projects, fiscal years 1976-81 (in million dollars).

Fiscal year of Board approval	Country	Project name	Total Bank lending	Total project cost
1964	Taiwan	Fishing vessel I	7.8	9.4
1967	Taiwan	Fishing vessel II	14.4	17.7
1969	Ecuador	Fisheries	5.3	6.6
1970	Ghana	Fisheries I	1.3	2.3
1971	Indonesia	Fisheries	3.5	4.3
1972	Tunisia	Fisheries	2.0	3.1
	Panama	Fisheries I	3.4	5.4
1973	Yemen, PDR	Fisheries development I	3.5	4.2
	Philippines	Fisheries	11.6	18.5
1974	Iceland	Fishing harbor rehabilitation	7.0	11.3
	Indonesia	Agricultural fisheries II	6.5	12.9
1975	Iran	Fisheries I	12.5	18.0
	Yemen, PDR	Fisheries supplement	1.6	2.0
1976	Burundi	Fisheries	6.0	8.6
	Philippines	Fisheries II	12.0	23.5
1977	Tanzania	Fisheries I	9.0	12.4
	Panama	Fisheries II	7.5	12.6
	India	Fisheries	18.0	38.0
1978	India	Marine fisheries II	17.5	36.5
1979	Tunisia	Fisheries II	28.5	67.5
	Yemen, PDR	Fisheries II	10.0	32.0
	Bangladesh	Oxbow Lake fisheries	6.0	7.5
	Maldives	Fisheries	3.2	3.9
1980	Kenya	Fisheries I	10.0	14.9
	Yemen, Arab Rep.	Artisanal fisheries	17.0	30.3
	India	Fisheries IV, inland	20.0	40.8
1981	Egypt	Fish farming development	14.0	26.3
		Total	259.1	470.5

Note: This table lists only those projects devoted exclusively to fisheries. It does not include 26 agricultural projects with fisheries components that were approved during the same period.



Fish cage on chinampa, Camellones Chontales, Mexico.

Past Problems with Bank-Supported Projects

A review of the Bank's experience in this sector suggests that fishery projects have encountered significant problems that have resulted from an inadequate assessment of the social, institutional, and economic constraints on fisheries in the developing countries. Factors that were initially overlooked (such as a lack of support industries, for example) eventually caused delays in the construction of large vessels. These delays, along with a general lack of assimilated technical knowledge, a shortage of trained personnel, limited capacity and efficiency of landing facilities, and poor information on the location of fish stocks were subsequently responsible for disappointing production levels achieved using the large, expensive vessels constructed under these projects.

Because of an inadequate assessment of such constraints in both the large-scale and small-scale sectors, the profitability of the investment for the countries and individual fishermen was overestimated. Delays led to cost overruns. Operational and maintenance costs (especially for fuel) were also underestimated, while projections on the quantity and value of production overlooked the problems associated with inefficient operations.

Although most small-scale fishery projects assisted by the Bank are not yet completed, a similar pattern of problems is emerging. While it is true that somewhat less technical expertise is required for improving, maintaining, and operating the equipment associated with small-scale fisheries, other problems have surfaced. For example, because there are

far more participants, coordinating the various elements becomes a significant obstacle. At almost every juncture—from providing credit, organizing training for fishermen, facilitating licensing, and arranging for the efficient handling of the catch—numerous individuals and groups, both public and private, must interact. In a developed economy, this interaction tends to occur spontaneously to the mutual benefit of all concerned. But in less-developed settings, additional incentives often are needed to encourage interaction in the direction desired.

Therefore, projects must be monitored and evaluated, both before and after they are completed, to enable sector planners and project managers to utilize the country's resources most efficiently. Experience has shown that projects can serve as instruments to improve weak local institutions by providing funds for the hiring and training of local staff; this is especially important as governments place increased emphasis on fishery activities in rural areas where institutions are usually the least developed.

Recent Trends and Future Strategy

In recent years, in response to the rearrangement of priorities in developing countries, emphasis by the Bank in lending to the sector has shifted to financing inshore coastal fisheries. The aim of such financing is to increase the flow of benefits to the rural population and to raise the standards of living of fishermen's families.

By supporting projects for small-scale fisheries, the Bank will be meeting its overall objectives that include: (a) improv-

ing the incomes and well-being of large numbers of rural poor by enhancing the productive resources available to them and by increasing their productivity; (b) providing a reliable and adequate supply of nutritious food at prices that people can afford; and (c) increasing the export earnings of developing countries, whenever possible, by expanding the production and processing of commodities for which there are global markets. Loans to this sector will generate both employment and income for some segments of the population that live on the margin of existence.

At present, twenty fishery projects with an estimated Bank funding totaling approximately \$540 million are included in the lending program for the period fiscal 1982 to fiscal 1986.

While there will be differences among the projects, it is expected that most will focus on increasing the marketable surplus of small-scale operations and aquaculture. The projects are to accomplish this goal by providing assistance and technology to improve the harvesting, handling, processing, storage, transport, and distribution activities and allow for a more efficient organization of the sector. To improve harvesting, the projects are likely to supply more efficient boats and engines to enable artisanal fishermen to exploit fish stocks further offshore and to operate more frequently, quickly, and safely.

Investments will also flow into marketing and distribution systems (cold storage, refrigeration, transport, and so forth) since these are considered essential to the expansion of small-scale production.

Technical assistance will also be provided. In addition to the conventional support for financial assessment and planning, assistance will focus on fishing technology and its transfer; construction of port infrastructure and landing facilities; processing and marketing arrangements; fishing-sector management, policies, and regulations; and promotion of conservation and environmental policies. However, in view of the modest pool of expertise available in the Bank, collaboration with other agencies, notably with the FAO, will be extremely important in ensuring that developing countries receive the help they need. At the same time, a number of fishery

experts currently are being recruited to join the Bank. Further, several consulting firms have expanded their capacity in this area in response to perceived opportunities attached to the adoption of EEZs. Adequate professional resources are likely, therefore, to be available.

The preparation and appraisal of fishery projects may need much longer time because fisheries contain so many complex elements and require so many specialized skills—such as in fishing technology, port facilities, and marketing—in addition to those normally required for financial and economic analysis.

Sector Management

Given the complex social, economic, and institutional nature of fishery development, it is expected that Bank-supported projects will, whenever possible, provide technical assistance to build appropriate administrative, research, and training institutions and develop environmental policy. Again, the Bank does not expect to expand its own expertise in these areas; rather, it will rely on the FAO's Department of Fisheries and other specialized institutions to provide the necessary skills.

Expertise is needed by developing countries to plan and coordinate strategies so as to allocate limited resources efficiently; this requires technical and management skills that are in scarce supply in most low-income and middle-income countries. The Bank can make an important contribution to building up these

capabilities at the government level by providing financial assistance for training and institution building.

When developing a natural resource that can be overexploited, it is essential that countries be able to assess the supply and regulate the exploitation of the resource. The countries, therefore, must have the skills, technology, and funds to (a) determine the location and size of the fish stocks, (b) assess, monitor, and manage the fish stocks, and (c) stock lakes and various rivers where feasible. They also must have patrol boats and radio equipment to enforce regulations.

In addition, the sociocultural characteristics of the rural populations must be carefully considered, particularly of those who live outside the social and economic mainstream, or of those who reside in remote or isolated communities. There is a strong likelihood that there will be resistance from these groups to new technologies, training, and to the organization and regulations planned by sector-management authorities. With an understanding of such factors, planners can modify innovations to promote greater acceptance. Bank-supported projects will provide for the specialized expertise needed for information gathering and analysis in all these areas, as well as the sophisticated equipment required for the management of resources.

In the past, the Bank has supported fishery-research programs in a number of countries. In the future, efforts will be expanded to include research on: (a) the

resources (land, fish, and water) available to rural people; (b) fish species to assess the possibility of introducing new varieties into lakes, rivers, and reservoirs and to determine the extent to which lagoons, estuaries, brackish water systems, and low-quality land might be utilized; (c) the impact of projects on production and employment at the regional and local levels; (d) ways to adapt new technology to national and local conditions; (e) patterns of consumption of, and demand for, fish; (f) those features of successful projects that can be replicated; and (g) the activities and motivation of people in rural areas.

In addition, the Bank will support research that is specifically related to the development of aquaculture; this might include: (a) investigating the species naturally occurring in proposed project locations and their preferred food, with the aim of maximizing the use of existing resources; (b) determining the technical and economic feasibility of combining complementary activities (such as aquaculture with livestock or crop production), and (c) studying the physiology of maturation and spawning, the effects of pollution on these activities, and the nutritional characteristics of various types of fish in various processed forms.

The Bank also is assisting research by supporting national research institutions in developing countries that are able to respond to the identified concerns, as well as international research centers (such as the International Center for Living Aquatic Resources Management located in the Philippines) and by promoting the creation of an international network that would disseminate experience in fishery management, new technology, and research findings.

The Bank also will consider lending for training programs for supervisory and managerial staff and for fishermen. In addition, projects will include funding for training individuals involved in processing and marketing activities. While some formal instruction may be necessary, it is expected that, in a majority of cases, training will occur on the job, or in service. The creation of permanent training institutions devoted to upgrading and promoting university-level graduates will generally be avoided.

Tilapia culture in pens, Laguna Bay, Philippines.

