

ASIAN DEVELOPMENT BANK

RES:MAL XXX

REEVALUATION

OF THE

**SABAH/SARAWAK FISHERIES INFRASTRUCTURE PROJECT
(Loan No. 563-MAL)**

IN

MALAYSIA

October 1998

CURRENCY EQUIVALENTS

Currency Unit — Ringgit (RM)

		At Appraisal	At Project Completion	At Postevaluation	At
Reevaluation					
\$1.00	=	RM2.150	RM2.710	RM2.490	RM3.800
RM1.00	=	\$0.465	\$0.369	\$0.402	\$0.263

ABBREVIATIONS

EIRR	-	Economic Internal Rate of Return
FIRR	-	Financial Internal Rate of Return
LKIM	-	Lembaga Kemajuan Ikan Malaysia (Fisheries Development Authority of Malaysia)
MSY	-	Maximum Sustainable Yield
PCR	-	Project Completion Report
PPAR	-	Project Performance Audit Report
SAFMA	-	Sabah Fish Marketing Sdn. Bhd.

NOTES

- (i) The fiscal year (FY) of the Government ends on 31 December.
- (ii) In this Report, "\$" refers to US dollars.

EXECUTIVE SUMMARY

The Project was packaged into two subprojects, one each for Sabah and Sarawak. For Sabah, fishery complexes with fish-landing, processing, and storage facilities, and an ice plant were provided to the newly established Government corporation, the Sabah Fish Marketing Sdn. Bhd. (SAFMA). These complexes were to enable SAFMA to operate a commercial business to buy, process, and trade fish, thereby expanding the market for the growing number of fishers in Sabah. Two complexes were built, at Kota Kinabalu and Tawau. The Project also provided SAFMA with a fishmeal plant, fish collecting vessels, and a boat repair yard to further support commercial fishers. In Sarawak, five fishery centers, each with a fish-landing jetty, a fish auction hall, ice plant, and other service facilities were constructed. The purpose of these centers was to centralize fish marketing to facilitate the introduction of an auction system for fish trading and expand trade, thereby breaking the control of traders over the small fishers and adding outlets for the large quantity of fish that could not be sold. The Project also provided for research into uses for low-value fish, a vessel to conduct fishery resource surveys and train fishers and fishery staff, and consultants. By providing these supports, the Project expected to foster balanced development within the sector and improve the socioeconomic conditions of fishers in both Sabah and Sarawak.

The Project was implemented from 1983-1991 and took three years longer than expected. Delays occurred in selecting sites in Sarawak, and because of additional piling works in some sites in both Sabah and Sarawak. The Project was constructed to an adequate standard, although land settlement has occurred in some Sarawak centers. The Project is smaller than that originally envisaged. In Sabah, a third fishery complex at Sandakan, a second boat repair yard, and fish transport and inland holding facilities were not established as the private sector had already constructed facilities in Sandakan, and SAFMA's business plan did not need the transport facilities. In Sarawak, two fishery centers were deleted due to cost overruns with the other centers, and the fish transport facilities for the constructed centers were not procured as the private sector was found to have sufficient capacity. The total Project cost was \$38.5 million compared with the appraised cost of \$41 million. The Bank disbursed \$17.63 million out of the approved amount of \$20.6 million.

The Project was postevaluated at the end of 1992 and assessed as generally successful. This assessment was based on expectations about future operations as most of the facilities had only just been completed and little operational data was available. With the exception of one poorly located fishery center in Sarawak, all Project facilities were expected to be fully utilized by 1997. There were no adverse environmental or social impacts and the Project was deemed to be sustainable.

The positive expectations at the time of postevaluation did not materialize however, and by 1998 the Project facilities were still underutilized. SAFMA's trading business peaked in 1991, just before postevaluation but, thereafter, steadily declined. At the time of reevaluation in 1998, SAFMA mainly supplied fuel and ice, rented out its processing facilities, and sporadically engaged in fish trading. SAFMA's fish-meal plant and boat repair yard had been operating satisfactorily but were closed in 1996 to make way for a cement clinker plant. The Sarawak centers are mainly used to land low-value trash fish and supply ice. Fish auctions were not accepted by either fishers or traders, and the auction halls are not used. The Sarawak landing sites are poorly located, and fishers and traders prefer to use the preexisting landing

sites. Both SAFMA in Sabah and the Fisheries Development Authority of Malaysia (LKIM),¹ which managed the centers in Sarawak, have built up huge financial losses.

Compared with the situation before the Project, the fishery sectors in both Sabah and Sarawak have expanded. An increased and more diversified catch has come from a larger number of boats, particularly larger commercial boats. The private trading and processing sector has responded to the opportunities presented much more than expected and, in Sabah, has successfully outperformed SAFMA. On the positive side for the Project, the landing jetties in Sabah do provide a general service to fishers and traders, and to general cargo operators in Tawau, and are well utilized. In addition, SAFMA did help pioneer the trade in new fish products, and did help several commercial fish trader/processors to get established. Nevertheless, the contribution of the Project to the development of the fishery sector in both Sabah and Sarawak has been relatively minor in relation to its cost, as reflected by low to negative recalculated economic and financial internal rates of return, and the Project has been reassessed as unsuccessful.

The poor performance of the Sabah component is largely because, first, the private sector's capacity was underestimated, and second, having decided that SAFMA was needed, it was not given the freedom to compete on the same basis as the private traders. As a part of the Government, SAFMA was burdened with a development role for which it was not financially compensated, and had to abide by Government rules concerning staff employment and disposal of assets. In Sarawak, weak utilization of most of the fishery centers can be attributed to their poor location in relation to alternative landing sites and failure to close the alternatives. Haste in selecting sites following early implementation delays, failure to give fishers and traders sufficient voice in the process of site selection and center design, lack of clarity about the target group of fishers who were to use the facilities, and failure to form binding agreements with the town authorities that controlled the allocation of land use permits contributed to the problems in Sarawak.

The Project highlights the need for adequate sector work prior to project formulation. The reductions in the Project scale, the outperformance of SAFMA by private traders, and the inability to introduce auctions indicates weakness in the information against which the Project was prepared. SAFMA's performance shows that the Government, in the form of a corporation, authority, or agency, is a high-cost operator without the same freedoms in staff management and investment/divestment as private operators, and is not suited to commercial operations. Although, all entities and groups with an interest in the fishery centers in Sarawak were involved in site selection and center design, the experience shows the importance of ensuring that institutionally weak groups, such as fishers, are not outvoiced by Government staff and technical persons responsible for construction. The Sarawak experience further shows the need to have binding commitments of support, such as the closure of alternative sites. The Project also shows the importance of clarity in defining target groups and the roles of operating entities. The poor location of the Sarawak fishery centers further highlights the need to avoid hasty decisions in selecting project sites. In projects where the location of facilities is crucial, it is desirable to complete site selection prior to appraisal. Further, in designing projects, the strength and intricacies of traditional trading linkages such as exist between traders and fishers should not be underestimated. The persistence of these linkages suggests that there may be large benefits to both sides not recognized by project planners.

¹ Derived from the Malaysian name, Lembaga Kemajuan Ikan Malaysia.

The original roles envisaged for both SAFMA and LKIM no longer exist and the operation of both entities represents a continuing drain on scarce public funds. Government should divest itself of its investment. Full privatization of SAFMA or the closure of both SAFMA's and LKIM's operations of Project facilities and the sale or lease of those facilities to the private sector would be appropriate. Government attention to the improvement of fisheries management is also needed. This requires an upgrading of the information base for the sector and a review of the policies governing the issue of fishing licenses. Fisheries management would be further enhanced by the parallel introduction of arrangements that would change fishers from hunters who compete among themselves for a limited resource to resource managers, such as by limiting access to fishing.

I. BACKGROUND

A. Project Description

1. The goals of the Project were to improve the socioeconomic condition of fisher communities and assist in the balanced development of the fishery sector in both Sabah and Sarawak. A significant unsatisfied local demand for fish was considered to exist, particularly in inland areas away from the coast, but this demand could not be met due to lack of insulated transport and holding facilities, inadequate fish preservation or processing, and insufficient interest in such trade by existing traders. The removal of these constraints was expected to create a more stable market for fish and scope for additional fish landing and reduced fish wastage, and was a major aim of the Project. To further encourage fishing, the Project also aimed to expand the supply of ice, improve fish landing and boat repair facilities, help establish outlets for low-value trash fish, and introduce fish auctions in Sarawak to replace the unfair domination of fishers by traders under the traditional arrangement.

2. The Project was divided into two subprojects, one each for Sabah and Sarawak. The main part of the Sabah subproject comprised the provision of facilities to a newly established Government-owned company to enable it to service the expanding commercial fishing fleet in Sabah and provide the missing marketing services. Fishery complexes with landing jetties, ice plants, processing areas, refrigerated storage, and ancillary facilities were to be constructed at Kota Kinabalu, Sandakan, and Tawau, and boat repair yards were to be established at Kota Kinabalu and Sandakan. The Sabah subproject also was to provide a fish-meal plant and three vessels to collect good and trash fish, trucks and vans for transporting fish from Semporna, refrigerated containers to hold fish in inland towns, and consultants. The Government-owned corporation was the Sabah Fish Marketing Sdn. Bhd. (SAFMA), which was established under Ko-Nelayan to undertake commercial activities within the Sabah fisheries sector.¹ SAFMA was to use the Project facilities to service fishers with ice, fuel, and repair services; buy and process fishery products, including trash fish for fishmeal; and sell these throughout the state. SAFMA was expected to become financially viable and to recoup all costs, including the investment costs. The main clientele of SAFMA was expected to comprise new fishers with medium- to large-sized boats financed under ongoing Government credit programs. The fisheries resources of Sabah were assessed as being underexploited and capable of supporting an increased fishing effort.

3. Under the Sarawak subproject, fishery centers were to be established in seven towns, and vehicles and vessels were to be provided for the transport of fish from these centers to inland areas. Each fishery center was to have a landing jetty, an auction hall, ice plant, refrigerated fish storage, and ancillary facilities. In addition, the Sarawak subproject provided research facilities to enable the Bintawa Research Center to undertake a pilot study aimed to

¹ Ko-Nelayan is a statutory authority under the Sabah State Ministry of Agriculture and Fisheries and implements fisheries development programs. Following the formation of SAFMA, Ko-Nelayan concentrated on noncommercial development activities. The existing commercial activities of Ko-Nelayan, primarily fishing operations using old wooden boats and some small fishery centers, were transferred to SAFMA.

establish a market for low-value fish, a survey/training vessel to provide information about the fisheries resources in Sarawak and Sabah and train fishers, and consultants. The Sarawak situation was seen to be different from that of Sabah. In Sarawak, the fishers and traders were predominantly small and traditional, whereas in Sabah, there were more large-sized fishing boats and the fishing industry was perceived to be more commercially oriented. Consequently, the Sarawak fishery centers were not expected to be operated as commercial ventures as was planned for Sabah, but managed as service centers by the Fisheries Development Authority of Malaysia (LKIM).¹ The trading and handling of fish was to be done by the existing private sector. An exception was that LKIM was to produce ice, and sell excess fish in inland areas on behalf of fishers using the Project's fish transport vehicles and boats. LKIM was to recoup service fees to offset the costs of its operations. An additional difference between Sabah and Sarawak was that the majority of fishing in Sarawak was expected to continue to be done by traditional fishers operating in coastal waters rather than in deep sea areas or by new fishing ventures. The coastal waters of Sarawak were considered already highly exploited, and the majority of the benefits were expected to come from the landing and sale of fish that would otherwise be wasted, that is, caught but not marketed, rather than from increased catch.² The Sarawak State Marine Fisheries Department was to implement the research and survey/training components and operate the survey/training vessel.

4. An important design assumption of the Sarawak subproject was that the fishers were being disadvantaged by the traditional trading arrangement between fishers and fish traders. Fishers depend upon traders for credit for both fishing and family needs. In exchange for credit, the fishers are obliged to sell their catch to the trader who provided the credit. Fish trading, therefore, was not open and fishers did not have access to price information. The problem was more acute in Sarawak, where the fishers were predominantly small and traditional in nature, than in Sabah where many fishers were medium- to large-sized operators. In Sarawak, the Project intended to change the trading system by centralizing trading within the fishery centers and establishing auctions to enable fishers to gain price information and access to additional outlets. In Sabah, the Project expected to deal mostly with new entrants to fishing who would not have any established fisher-trader linkage.

5. The Executing Agencies for the Project were SAFMA for the Sabah component, and the Fisheries Division of the Federal Ministry of Agriculture for the Sarawak component. Project implementation offices and Project steering committees were established in each state to facilitate implementation.

B. Implementation

6. During implementation, the Project scope and/or scale was modified twice, and the constructed Project is smaller than that planned. In Sabah, both the fishery complex and the boat repair yard at Sandakan, and the transport vehicles and refrigerated containers were deleted. These facilities were considered unnecessary as private operators had already initiated similar investments in Sandakan, and SAFMA preferred to procure different types of transport facilities using its own funds. The consultants under the Sabah subproject were not hired, but SAFMA recruited staff to fulfill the functions of the intended consultants. Under the Sarawak

¹ Derived from the Malaysian name, Lembaga Kemajuan Ikan Malaysia.

² The Appraisal Report mentions that up to 25 percent of the catch is wasted, either from not being sold or discarded at sea by fishers who believe that it would not be bought if they brought it ashore.

subproject, two fishery centers were not initiated due to cost overruns, and the fish transport facilities were deleted as they were considered unnecessary as private traders were already moving fish to inland areas. The remainder of the Project was constructed as planned. Apart from the settlement of the reclaimed areas at the Mukah and Miri fishery centers in Sarawak, and some minor defects, construction was assessed as generally satisfactory.

7. The Project was implemented from 1983-1991. Implementation took approximately three years longer than planned. The major cause of delay in the Sabah component was the substantial increase, compared with that expected at appraisal, in reclamation works and foundation piling for the Tawau complex. The Sarawak component was delayed because of problems in locating sites for the fishery centers, compounded by the need for additional design and construction works for reclamation activities for the sites eventually selected. The Kota Kinabalu complex in Sabah started operations in 1985, and the first of the centers in Sarawak, at Kuching, began operations in 1987.

8. The Project cost \$38.5 million compared with the appraised cost of \$41 million (Appendix 1). However, the lower total cost is for a much smaller Project, and some parts of the Project were completed at a much higher than expected cost. The Tawau fishery complex and all of the fishery centers in Sarawak cost substantially more than expected, and the working capital for both SAFMA and LKIM was increased.¹ The Bank disbursed \$17.63 million of the approved loan amount of \$20.6 million.

C. Major Postevaluation Findings

9. The postevaluation conducted at the end of 1992 (report circulated in January 1993) assessed the Project as generally successful. This assessment was based on expectations about future operations as most of the facilities had just been completed and little operational data was available. Due to the lack of operational data, financial and economic assessments were possible for only the Kota Kinabalu fishery complex, the boat repair yard and the fishmeal plant in Sabah, and the Kuching fishery center in Sarawak. The assessments for these facilities gave financial internal rates of return (FIRRs) of 15-18 percent and economic internal rates of return (EIRRs) of 15-22 percent. With the exception of the poorly located Belawai fishery center in Sarawak, all Project facilities were expected to be fully utilized by 1997. The management arrangements for the Project, involving SAFMA and LKIM, were considered to be satisfactory, and the Project was deemed to be sustainable.

10. The postevaluation found no significant adverse environmental or social impacts. The fishery resource was not considered under threat of overfishing as the fishery resource management practices were deemed adequate. A minor problem concerning odors emanating from the fishmeal plant was noted. Attempts to introduce the auction system for trading fish in Sarawak had not been successful, and the traditional fisher-trader credit link had persisted. Nevertheless, fishers were thought to be receiving increased incomes due to the Project. Other socioeconomic benefits noted were an increased availability of fish for local consumption, increased employment in service businesses, and increased export income for the state of Sabah.

¹ Despite the increase, most of SAFMA's working capital was in the form of old boats and SAFMA suffered from liquidity problems.

11. Lessons learned from the Project included the importance of developing infrastructure and introducing systems appropriate to the needs of small-scale fishers. At issue was the attempt to introduce new forms of fish trading, namely, auction systems, without a full appreciation of the sociocultural environment. The failure of the auction systems caused the large and costly auction halls to be underutilized. These halls could have been deleted from the Project, reducing the overall cost as well as enabling the fishery centers to be made operational at an earlier date. Additional surveys of user requirements would also have avoided some of the changes in the Project introduced during implementation. The postevaluation suggested follow-up actions to correct the construction deficiencies at the Sarawak fishery centers and to increase the use of the survey/training vessel in Sabah and Sarawak. Important issues affecting the fishery sector at the time of postevaluation were the lack of access to credit for fishers, and the need to expand private fish processing activities in Sarawak and privatize the commercial operations of SAFMA. The lack of formal credit access for fishers meant that fishers had little option but to rely upon the traditional credit from traders and continuance of the fisher-trader trading arrangement, which was perceived as detrimental to fishers.

D. Rationale and Objectives of the Reevaluation Study

12. Postevaluation was done at a time when the Project facilities had just commenced operations. Initial throughputs were small but were projected to increase. Nevertheless, the assessment of the Project at that time was based on projections rather than actual experience. This reevaluation study attempts to provide a firmer basis for assessment, now that 6-8 years of operating results are available for each facility established under the Project.

13. This Reevaluation Study Report is based on the findings of a Reevaluation Mission that visited the Project area during March 1998; a review of the Bank's previous postevaluation findings and material in the Bank's files; and on discussions with officials of the Executing Agencies, SAFMA, LKIM, other agencies of the Government, fishers, and traders.

II. REEVALUATION FINDINGS

A. Operational Performance: Sabah

1. Sector Changes

14. Recorded fish landings throughout Sabah, including at both Project and non-Project landing sites, increased from approximately 79,000 tons (t) in 1985 to 166,000 t¹ in 1995 (Appendix 2). These totals include a substantial amount of low-value trash fish sold to fishmeal plants. The landing of good fish was relatively constant at about 48,000 t/year (yr) until 1991

¹ The unpublished estimate of the Department of Fisheries, Sabah for 1996 is 180,000 t.

when it started to increase rapidly to 141,000 t in 1996. Trash fish output has been erratic over time, but has not grown substantially. Fishery statistics for the period, although incomplete, suggest that the catch per vessel remained relatively constant, which is supported by anecdotal evidence from fishers. The rapid increase since 1991 appears to have resulted from more vessels entering the fishery. Fish from Indonesia are also landed in Sabah, and some of the increase in recorded landings may represent a shift in the landing of Indonesian fish to Sabah in response to better prices.¹ Several traders indicated that the landing of fish from Indonesia was substantial and regular.

15. From the time that the Project was planned up to 1997, the fishing industry in Sabah has evolved considerably. Prior to and at the start of the Project, there was a small but thriving commercial fishery with medium-sized trawlers predominantly catching shrimp for private processors and export. Traditional small fishers were also present, catching inshore fish for local sale. The traditional fishers accounted for less than half of total landings. During the 1990s, the fleet composition and fishing activities changed considerably. Shrimp landings have remained static, but more medium- and large-sized vessels have entered the fishery. Many of the trawlers sought to diversify their activities and began targeting both fish and shrimp, while an increasing number of vessels began purse seining for tuna and small pelagic species of fish. Most of these medium- to large-sized boats are owned by traders and business people who employ crew to do the fishing. Over this time, the number of small fishers appears to have remained constant² and their relative importance to the overall fish supply has decreased. Nevertheless, they are an important source of high-value fresh fish for the local market as well as export. The number of processors and traders also has increased and the trade in fish diversified to include products such as octopus, abalone meat, crab meat, live fish, and different types of lobster. The diversification of products has particularly benefited artisanal fishers by broadening the range of salable products. By 1997, the fishery industry was diverse and mature, with well-defined catching, processing, and marketing segments. By this time also, there were nine fish-meal plants to handle the trash fish caught by the larger fishing vessels. The development of the fishing industry paralleled changes in Sabah's general economy. At the time of reevaluation, Sabah had an extensive network of good roads linking the various landing sites and markets, as well as telephone, air transport, electricity, and other support services.

2. Project Operations

16. After commencing operations in 1985, SAFMA used the fishery complexes to buy and process fishery products from fishers, and supply ice and fuel, as planned. SAFMA's fish processing and trading activities included not only traditional fish and shrimp, but new products for the area, such as octopus, live fish, abalone, and crab meat. SAFMA's activities helped to develop the trade in these nontraditional products. However, SAFMA could not compete well against private traders, and its trade in fishery products peaked in 1991, only six years after operations commenced, and has steadily declined ever since. Fuel and ice sales have continued at high levels as SAFMA's outlets are conveniently located near the major market places. At its peak, SAFMA's turnover was about 79 percent of the appraisal target. As a result

¹ Indonesia does have a national fish port near Sabah at Tarakan, in the northern part of Eastern Kalimantan. However, the local market for fish is small, and Tarakan is not well served by transport for moving fish to other demand centers. Throughput at the Tarakan fish port is small, about 116 t in 1996.

² Anecdotal information indicated that most small fishers were between the ages of 40 and 70. Sons no longer felt inclined to enter the fishery, a trend attributed to improved education and alternative income-earning opportunities.

of the decline in fish processing and trading operations, SAFMA leased part of its processing and refrigeration facilities to private processors/traders. This was not an activity expected at appraisal, but 11 of the existing processors/traders in Sabah started businesses using the Project's facilities, leased through SAFMA. As they grew, they moved out to their own premises. At the time of reevaluation (1998), the main business of SAFMA had declined to fuel and ice sales, rental of processing facilities to private processors, and sporadic trading of fishery products.

17. Three main factors contribute to SAFMA's difficulties in competing with the private sector. First, SAFMA and its parent organizations¹ considered SAFMA to have a development role that interfered with its commercial objective of maximizing its long-term profits. This was despite the intention, at the time SAFMA was formed, to separate the Government's commercial operations, which were to be put under SAFMA, from the noncommercial developmental activities, which were to continue under Ko-Nelayan. SAFMA also was not free to adjust its staff structure, employ staff under the same arrangements as the private sector, or divest itself of nonperforming assets as it was part of the Government and subject to Government rules and political influence in hiring and retaining staff. Consequently, SAFMA became overstaffed and ended up with assets that it found difficult to use but had to maintain. Third, some of the facilities provided to SAFMA were not the same as those used by the private sector, but were bigger or more complex and, therefore, more expensive to operate.

18. Despite the decline in SAFMA's trading operations, the Project's landing facilities at both the Kota Kinabalu and Tawau complexes have become important. The facilities are well positioned near to the main fish markets, and many fishers and traders who do not deal with SAFMA use the landing wharves and jetties, free of charge, for their own benefit. The Tawau wharf is also used for general cargo operations by a small number of coastal boats for which a fee is charged.² This situation is different from that predicted at the time of appraisal when it was expected that the jetties and wharves would be used for landing fish bought by SAFMA. Unfortunately, the non-SAFMA utilization of these landing facilities, either in terms of the amount of fish or cargo passing over them, or the number of boats using them is not recorded, and the exact worth of the facilities can not be quantified. Anecdotal evidence and the observations of the Reevaluation Mission indicate that the facilities are well utilized by the medium to large fishing vessels and fish traders, and also coastal cargo boats in the case of Tawau.

19. The fishmeal and boat repair yard operated with satisfactory throughputs until they were closed by the Sabah state government in 1996 to make way for a cement clinker plant. The fish-meal plant produced around 1,500-2,200 t/yr of meal, and the boat repair yard made some 400-495 repairs per year from 1991 to 1996. SAFMA was financially compensated for the loss of business, and offered alternative sites. However, there is adequate fish-meal production capacity in Sabah, and SAFMA is concentrating only on reestablishing the boat repair yard at an alternative site. The three fish carriers proved to be uneconomic. Their capital and operating costs could not be serviced by the margins available from the fish they carried. One of the vessels sank in 1992 and apart from some intermittent chartering, the remaining two vessels have languished alongside SAFMA's Kota Kinabalu wharf.

20. An important question is how much the Project contributed to the sector development noted in paras. 14-15. The facilities for fish landing and supply of ice, fuel, and

¹ The Ministry of Agriculture and Fisheries and Ko-Nelayan (para. 2).

² The alternative general cargo wharves either charge higher fees or are in relatively shallow water.

water were an improvement on previous arrangements and were well situated to fish-trading operations. These facilities supported the growth in the number of large commercial fishing vessels. The refrigeration and processing facilities also supported the growth of the private trading and processing sector as well as supported SAFMA's limited trading operations, but exceeded the needs. The boat repair yard and fish-meal plant provided services to fishers, although it could be argued that there was adequate fish-meal processing capacity in Sabah without the Project. The least impact has come from SAFMA's trading operation that was the central part of the Sabah subcomponent to which the various facilities were to contribute. The weak trading performance of SAFMA did not cause any problem, however, as the private sector has been more responsive to market opportunities than expected at appraisal. In retrospect, there was less of a need to establish SAFMA than thought at the appraisal stage. The growth in private sector trading operations is probably due to a combination of many factors, including improvements in communications, a slowdown in the shrimp market forcing traders to diversify, and increased fish supplies as well as the Project infrastructure.

B. Operational Performance: Sarawak

1. Sector Changes

21. For the whole of Sarawak, fish landings increased from 70,000-80,000 t/yr achieved prior to 1987 to approximately 110,000 t in 1997 (Appendix 3). Along with the increased output, the structure of the industry changed over this period. Prior to the Project, small, inshore¹ fishing vessels owned and operated by individuals and families dominated the sector. While these artisanal fishers remain, larger, middle to deepwater² trawlers owned by companies had become relatively common by 1997 and account for much of the increased landings. Many of the artisanal fishers have adapted to the additional fishing pressure coming from the increase in number of large boats by concentrating on areas, such as around reefs, where large boats can not operate. The boats of some of the small fishers carry sophisticated fishfinding equipment and global positioning navigational systems intended to help them pinpoint favorable fishing grounds and avoid unproductive search time. The catch of the artisanal fishers is predominantly high-value fish and shrimp. The trawlers land a diverse mix of shrimp, demersal fish, and trash fish. Fishers complained, however, that there were too many vessels, the catch per vessel was declining, and fishery laws were not applied. The presence of oil platforms, around which fishing is prohibited, is seen as a further constraint by fishers.

22. The arrangements for fish handling, marketing, and distribution are common throughout the state. The trade is conducted mostly at landing places near to markets, but also at other private landing places and the Project sites. Traders utilize vehicles and iceboxes to move fish to other centers, including inland towns, and to processing facilities. Excess catch is stored in iceboxes. The small number of processors existing prior to the Project has increased. Traders from Brunei regularly travel to Sarawak to buy fish, and there is a growing export trade of fresh chilled premium fish to affluent regional markets including Hong Kong, China; Singapore; Brunei; and Taipei, China.

¹ Vessels that operate within 16 kilometers (km) (10 miles) from the coast, and undertake daily fishing trips.

² Vessels that operate beyond 16 km (10 miles) from the coast, and generally remain at sea for up to ten days.

2. Utilization of Project Facilities

23. Operations at the Project landing sites commenced in 1987. Over the period 1987-1993, throughput of fish was about 2,500 t/yr. From 1994 to 1997, fish throughput increased to 5,000-5,500 t/yr (Appendix 4). These throughput levels are low in comparison with the 32,000 t/yr design capacity of the facilities.¹ The utilization of Belawai, at less than 100 t/yr throughput, and Bintulu, at less than 200 t/yr is particularly low. It must also be recognized that part of the throughput for Kuching is not incremental, but existed prior to the Project and a large part of the throughput of both Kuching and Miri comprises low-value trash fish for making products such as fish paste and fish meal. The Reevaluation Mission estimates the incremental throughput of good quality fish to be about 2,000 t/yr. The majority of the fish landings come from the larger vessels, the original target group of small boat-owning artisanal fishers do not commonly use the facilities, except to load ice, but continue to use other private landing sites.

24. The combined output of the ice plants was highest in 1987 at 8,650 t. This represents an overall utilization of about 35 percent of capacity; however, capacity utilization ranged from 53 percent for the plant at Bintulu to 20 percent for the plant at Belawai (Table 2 of Appendix 4). The auction halls are not used because few fish are landed at the Project sites, and auction systems are not favored by either fishers or traders (para. 49). Through the encouragement of LKIM, some of the auction halls and other buildings, such as the canteens, are being used by fisher associations and private operators for fish processing and sorting. Fisher associations also sell fuel from some of the landing sites.

25. Generally, the main use of the Project sites is for the landing of low-value trash fish and the loading of ice and fuel. Given this weak utilization, the Project could not have contributed very much to the increased output and changes in the sector noted in paras. 21-22. A major reason for the poor utilization is that, with the exception of Mukah, the complexes are sited away from the main town markets where most of the fish continues to be landed. Most of the Project sites are also upstream of the main town markets, and are considered by fishers and traders to be more costly and inconvenient to use than the closer alternative sites. The very large traders have their own landing facilities and value the privacy offered by this arrangement over the use of the public Project facilities. A third reason for low utilization by small fishers is that the landing jetties and wharves are designed for use by relatively large boats.²

3. Research

26. The research vessel has undertaken fishery research work throughout Malaysia but the majority of its activities were reported to be in waters around peninsula Malaysia. The

¹ Although the Appraisal Report does not specifically indicate the design capacity of the centers, they were expected to handle 6,000 t/yr of incremental landings plus the existing landings of fishers using the facilities. Because the amount of fish wasted because of lack of markets was estimated at appraisal to be about 25 percent of the catch, the total catch to be handled by the centers should have been about 24,000 t/yr. The actual capacity of the centers according to the physical designs is 32,000 t/yr.

² The vertical distance between the water and the wharf deck is several meters whereas most small boats require a distance of about a meter. Floating pontoons that would have accommodated tidal changes would have been better for the small fishing boats.

vessel has not achieved the expected improvement in estimates of fishery resource potential. It has been intermittently used for some training of staff and fishers.

C. Financial Performance

1. SAFMA

27. Financially, SAFMA has performed poorly since the start of operations. It has made a loss each year and, at the end of 1997, had accumulated losses of RM83 million, about \$21.6 million (Appendix 5). This compares unfavorably with the investment cost under the Project of \$22.6 million. The assets of SAFMA have yet to be revalued, but available estimates put the market value of the assets at just in excess of the remaining long-term debt of RM12.1 million (about \$3.1 million). This implies that the Government's equity in SAFMA of approximately RM71 million (\$18.4 million) has been exhausted.

28. The main businesses of SAFMA generate operating profits, but the profit margins tend to be small (Tables 3-6, Appendix 5). The overall margin between sales and the cost of the raw materials in the sales has fluctuated between 15 and 40 percent. An exception was the boat repair yard until its closure in 1996. Ice production also has a large profit margin, but ice is a low-value product and makes only a small total contribution to SAFMA's overall profit. In comparison with its small overall margin, SAFMA's overhead is large. Senior management estimates that the company has as many as 112 excess staff. The company does not have the freedom to reduce staff as it is considered to be part of the Government and must conform to the Government's standard practices. It is also noted that the facilities established under the Project often exceed requirements, and are built to a much higher standard and cost than would have been done by private operators. Moreover, other traders and fishers freely use the wharves and jetties at the Kota Kinabalu and Tawau fishery complex facilities without contributing to SAFMA's maintenance or overhead costs. In short, SAFMA was not established with facilities conducive to low-cost operations and has not been free to operate in the same manner as a private entity. As a result of these restrictions, SAFMA's operating costs have been higher than alternative private traders, and it has been facing increasing difficulty in competing in fish processing and trading. Turnover peaked in 1991 at RM19.6 million (then about \$9.1 million) and has decreased since then to reach RM7.6 million (currently about \$1.97 million) in 1997. This level of business activity is far less than that expected at the time of appraisal, and at the time of both Project completion (1991) and postevaluation (January 1993).

2. LKIM

29. Income and expense data show that LKIM has incurred a total deficit on its operations at the five fishery centers of RM4.5 million for the period of 1991 to 1997 (Appendix 6). The reported expenses do not include interest or depreciation attributable to the Project facilities, or a share of the LKIM headquarters' expenses. The accumulated deficit represents a cost of RM0.15/kg of fish landed at the centers over the same period. For comparative purposes, the sale price of the low-value trash fish, a major item landed at some of the centers, was also approximately RM0.15/kg in 1997-1998.

30. The ice plants at each center generally make an operating profit, except in the case of Belawai where the volume of ice sales is very low. The positive operating result for the ice plants suggests that this part of the fishery center operations could be made viable. Ice is sold at less than the market rate, and a higher price, which would improve the viability of the ice plants, ought to be possible.

D. Institutional Impact

31. The main activity of both SAFMA and LKIM in Sarawak is the operation of the Project facilities. However, the Project has not helped either entity to prosper. In the case of SAFMA, the Project facilities were appropriate and well sited, although being more expensive than equivalent private facilities; SAFMA itself was not set up with sufficient freedom to enable it to prosper. The profit opportunity that was to enable SAFMA to achieve financial viability also attracted the private sector, which has been more competitive and taken most of the business. In Sarawak, the facilities were not well located and consequent poor utilization has meant that the Project has become a financial burden for LKIM. Many LKIM staff based at the centers cannot be justified in view of the low throughput. The growth in private sector operations in both states means that SAFMA and LKIM have become generally unnecessary except for the supply of ice that could be taken over by the private sector.

32. The poor commercial performance of SAFMA had an unintended effect of building up the private fish-processing sector. In seeking areas where competition was less intense, SAFMA helped develop the trade in nontraditional fishery products, and by seeking rental income from its underutilized processing and cold storage facilities, SAFMA fostered the growth of the private processing sector. SAFMA also has not restricted the use of the landing facilities, and all fishers or traders can use the wharves and covered fish-handling areas even though SAFMA neither buys the fish nor receives an income from the use of the facilities. While these aspects of SAFMA's operations have been beneficial, the industry has many strong and aggressive private operators and, apart from requiring serviceable landing sites, has outgrown the need for such support from SAFMA.

E. Socioeconomic Impact

33. The major beneficiaries from the Project are traders, fish processors, and owners of medium- to large-sized boats. Overall, however, only the Sabah component had any appreciable impact due to the low utilization of the Sarawak facilities. The Appraisal Report did not select any particular group to specifically benefit from the Project, although, the rationale for the Sarawak subproject rests heavily on the problems faced by small fishers at the time. The traders and processors benefited from the use of the landing, processing, and refrigeration facilities in Sabah, and to a lesser extent from the landing facilities in Sarawak. The medium to large boat owners benefited from the Project's landing and ice, water, and fuel supply facilities. The medium to large boat owners in Sabah also benefited from the boat repair yard and the fish-meal plant that provided a further outlet for their trashfish. There was a smaller impact on small fishers as they tend to use non-Project landing facilities. This is partly because of historic ties to traders or existence of sites close to their homes, and partly because most of the landing facilities are suited to medium- to large-sized boats rather than small boats. Small fishers with

small boats also do not need special facilities for boat repairs, nor do they produce trash fish, and did not benefit from the Project's boat repair yard or fish-meal plant. Small fishers in Sabah, however, did benefit from the early diversification of the industry and the opportunity to harvest other types of fish such as live fish, octopus, and crabs, made possible by SAFMA's trading activities.

34. The small fishers contacted during the reevaluation, including those represented by the fishermen's associations, claimed to be better off now than ten years ago. These were subjective assessments based on the number of fishing days required to achieve an adequate income, the standard of education enjoyed by their children, possessions (motorcycles, television, and other household appliances), and general living conditions. Nevertheless, fishing is not regarded as a desirable vocation and most small fishers are relatively old, the younger generation and their parents finding other employment to be more attractive. The Project's contribution to this general improvement in well-being appears small.

F. Financial and Economic Reevaluation

35. The FIRR's were calculated for the four enterprises established under the Sabah subproject, namely, the two fishery complexes, the boat repair yard, and the fish-meal plant. All enterprises gave negative FIRR's (Appendix 7). The recalculated FIRR's differ markedly from those estimated at appraisal and in the Project Completion Report (PCR) and Project Performance Audit Report (PPAR). At appraisal, FIRR's of 20-27 percent were calculated for the fishery complexes, which included boat repair yards, and the fish-meal plant and 20 percent for the overall Sabah subproject. In both the PCR and PPAR, FIRR's were calculated for the fish-meal plant and a combined package comprising the Kota Kinabalu complex and the boat repair yard. The results for the PCR and PPAR analyses ranged from 14 to 18 percent. The Appraisal Report, PCR, and PPAR results are similar because the PCR and PPAR analyses were done soon after the facilities came into operation, and were based largely on expectations, as was done at appraisal. Reevaluation has shown that SAFMA's level of business and operating margins have been much smaller than expected at appraisal and in the PCR and PPAR analyses.

36. The EIRR's also were calculated at appraisal for the fishery complexes, fish-meal plant, and the Sabah subproject, and in the PCR and PPAR for the fish-meal plant and the combined Kota Kinabalu complex and boat repair yard. These calculations used the same data as the FIRR, with the financial prices of nontraded items adjusted to border price equivalents. The appraisal estimates ranged from 13 to 30 percent for the individual enterprises and 17 percent for the subproject. The PCR and PPAR estimates ranged from 21 to 22 percent. Using this same methodology with the actual and projected financial values available at the time of reevaluation would produce negative EIRR's. However, this approach is no longer appropriate, except in the case of the fish-meal plant. At appraisal, and later at Project completion and postevaluation, SAFMA was expected to handle the majority of the throughput at the complexes. Under such circumstances, SAFMA's income would be a direct measure of the benefits. However, private traders handle most of the throughput of the complexes and SAFMA's financial income does not reflect the full economic worth of the complexes. The wharf at the Tawau complex also generates nonfishery benefits from general cargo operations, also not involving SAFMA. In the case of the boat repair yard, the economic value should be assessed in terms of the additional output that could be generated by reducing the downtime of the fishing boats that otherwise would have to wait longer for repairs. Unfortunately, data has not been maintained on non-SAFMA fish-trading and processing activities, general cargo operations at Tawau, or on waiting times for fishing boats at repair facilities. Nevertheless, on the assumption that all fish for the main town markets passes through the Project facilities and generates a benefit from reduced handling and transport costs, the recalculated EIRR's for the Kota Kinabalu and Tawau fishing complexes were 3 and -4 percent, respectively (Appendix 8). The analysis for Tawau did not include benefits from the non-fishery cargo operations. These non-fishery benefits are not considered to be large enough to produce a major increase in the EIRR, however. The economic analysis for the fish-meal plant yielded a negative EIRR (Appendix 9).

37. Both the recalculated EIRR and FIRR for the Sarawak subproject are negative (Appendix 10). At the time of appraisal, the individual fishery centers were expected to generate EIRR's of 22 to 44 percent, and the overall Sarawak subproject was expected to reach 27 percent. The PCR and PPAR analyses only calculated the subproject EIRR, and the results were 15 and 16 percent, respectively. However, in the same manner as for the Sabah

subproject, with only initial operating information available, the PCR and PPAR estimates were largely based on expectations that were similar to those adopted at appraisal. These expectations did not materialize.

G. Environmental Impact

38. At the time of Project completion and postevaluation, foul odor from the fish-meal plant in Sabah was noted as a minor environmental problem. The fish-meal plant was not in a heavily populated area, and was operating within prescribed environmental parameters; however, when the wind was blowing inland, nearby residents complained about the odor. The problem disappeared with the closure of the plant. A less obvious problem is the absence of any treatment for fish waste and wash water at the fishery centers and complexes, or control over the discharge of wastes from boats berthing alongside the landing wharves. Drains from the processing plants at the centers and complexes run straight to the harbor or river. Fishing vessels also dump wastes into the water alongside the landing wharves. Regulations exist to prevent the discharge of untreated wastes by both fishing boats and the shoreside facilities, but are not enforced. While visible fouling of the water was noted at those sites visited during the reevaluation, data is not available to objectively assess the severity of the problem. Several factors act to limit the problem, however. In Sabah, the landing facilities are well utilized and both fish handling and the fishing boats generate wastes but there is a good flow of seawater around the fishery complexes. In addition, the processing facilities are not heavily utilized and the amount of wastes from them is small. In Sarawak, the landing sites are located along rivers and wastes may not be so readily swept away as they are in Sabah, but the low degree of utilization of the Project facilities means that the problem is relatively minor.

39. Of particular concern to the sector is the impact of the Project on the fishery resource. At the time of Project completion and postevaluation, the current and projected catch in both Sabah and Sarawak was considered to be well below the maximum sustainable yield (MSY) of the resource, namely, 300,000 t/yr. However, the commonly used MSY estimate is an aggregate figure encompassing all species of fish and can be misleading. It can be misleading because, while the total catch may remain below the aggregate MSY figure, catches of specific types of fish may exceed their individual MSY. Anecdotal evidence from fishers indicated that some species of fish might be overfished. The contribution of the Project to any overfishing is not clear. Overfishing appears to be a more probable problem for Sarawak than Sabah. However, in Sarawak, the limited utilization of the Project facilities suggests that the Project contributed very little, if at all to any overfishing. In Sabah, the Project complemented investment in fishing boats, and could well have contributed to increased fishing pressure on some species. However, it is significant that the growth in trading operations in Sabah, including SAFMA's, helped to open up the market for nontraditional types of shrimp and fish, and this would have spread the fishing pressure over a wider range of fish species.

H. Project Sustainability

40. Sustainability of the Project is an issue, although not necessarily a problem. In Sabah, SAFMA does not have a large business and suffers from excessive overhead costs and accumulated losses. SAFMA is unlikely to produce a profit and is not sustainable in its current form. Given the state of industry development, closure of SAFMA should not affect industry

performance. The landing facilities do provide useful services and alternative arrangements for their operation will be necessary. SAFMA's ice and fuel supply operations are also useful, but could be replaced by private operations. In Sarawak, LKIM suffers from annual financial losses that the Government does not want to continue, and the current LKIM operations may not be sustained. However, the Sarawak component contributes so little to the fishing industry that the closure of LKIM's operations would not create any loss that could not be taken up by the private sector. The most important function of the centers is the production of ice, but alternative private suppliers do exist, particularly in Kuching, or could be established.

41. SAFMA's refrigeration equipment and fish-processing and ice-making plants have not been well maintained but are in fair condition, and could be used for generating further benefits under private management. The carrier boats are of little use anymore. In Sarawak, further usefulness of the fishery centers is related to the attractiveness of the sites and the condition of the ice plants. Only the Mukah landing site is in a good location. The sites at Belawai and Miri may soon become more favorable following decisions by the Government to develop the Belawai area for timber industries and to relocate the entrance of the river at Miri. The Kuching and Bintulu sites appear of little use, and a change to other uses should be considered. In any case, a new bridge and causeway over the river at Kuching may prevent fishing boats from proceeding upstream rendering the landing facilities of no use for fishing. At all fishery centers, the ice plants have deteriorated and may not be economically usable for much longer.

I. Assessment of Project Design and Implementation Management

42. With hindsight, several aspects of the Project proved to be based on inappropriate assumptions about the sector, reflecting inadequate sector analysis prior to Project formulation. In Sabah, it was felt that an expansion by private traders and processors to stimulate and accommodate an increased catch could not be relied upon. To compensate for this perceived weakness, a Government corporation, i.e., SAFMA, was established to expand trading and processing activities. Compounding this weak assumption, Government failed to ensure that SAFMA had sufficient freedom to be able to compete on the same basis with private processors and traders, even though Schedule 6 of the Loan Agreement specifically required the Government to give SAFMA adequate capital and operating freedoms. The Government also maintained that SAFMA had a developmental role and, therefore, had to undertake operations and maintain staff and facilities that private operators would not, even though the establishment of SAFMA was founded upon a separation of commercial and noncommercial functions. SAFMA was not financially compensated for this added role, which became one of the reasons for SAFMA's lack of profitability and nonsustainability. The appraisal of the Project considered the assumptions used in analyzing the economic and financial returns to be conservative. Consequently, the sensitivity of the Sabah subproject results to possible reductions in benefits and increases in operating costs were noted at appraisal but not considered likely. Generally, the appraisal considered the Project as relatively risk free despite the Project's reliance upon commercial operations and the risk inherent in these.

43. The Sarawak component also suffered from weak assumptions and a lack of clarity about the target group that was to benefit. The Project rationale is based largely on the problems and potentials of the small fishers. However, the landing facilities constructed under the Project are not suited to use by the small fishers who invariably have small boats. The

assumptions that the existing trader-fisher relationships in Sarawak had to be, and could be, replaced led to the inclusion of auction halls in each of the fishery centers. The auction halls have not been used as the traditional trader-fisher relationships have persisted. The auction halls unnecessarily added to the cost of the Project and the length of the implementation period. An additional weak assumption under the Sarawak component was that fishers would not increase catch but that the incremental output would be derived from a reduction in waste from the existing catch. Largely for this reason, overexploitation of fishing in the coastal waters was not considered a Project risk. The limited available data suggests that waste has not been reduced and that the increased catch in Sarawak has come from increased fishing effort. Both Government fisheries staff and fishers consider the coastal fishery to be fully exploited, if not overexploited.

44. A major weakness in the implementation of the Sarawak component concerned the weak involvement of the major relevant groups in the detailed planning and execution of the fishery centers. Attempts were made to involve all relevant groups in the process. However, fishers and traders, the main intended users of the centers were generally underrepresented. Instead, planning groups became dominated by those responsible for the planning process and construction. Consequently, important criticisms and comments of the fishers and traders about the locations of the centers and size of component facilities were not given sufficient consideration. In some cases, all that the fishers needed was additional supplies of ice. Moreover, the town councils¹ were not adequately involved or bound to the decisions reached. In retrospect, each decision to proceed with the construction of a fishery center and the associated allocation of land by the town council ought to have been associated with a commitment from the town council to close the preexisting town fish-landing site.² Under this arrangement, a new center would be established only if its advantages in terms of public improvements such as reduced pollution or an easing of congestion were sufficient to convince the town authorities to close the previous sites. As it turned out, the preexisting landing sites continued to operate in parallel with the Project fishery centers and neither the fishers nor the traders saw any private advantage in using the new facilities.

III. KEY ISSUES

A. Fisheries Management

45. The fishing industry in both Sabah and Sarawak has grown substantially compared with before the Project. The current industry is highly commercial and dynamic, and has tenacious and innovative participants who continually strive to increase output. Fish landings can dramatically escalate with no apparent change in fleet capacity simply through the use of improved technology, for example, global positioning systems, new net designs, differential echo sounders. The fishery resource is a common property, and active fisheries management and appropriate policies are required to prevent increases in fishing effort reaching the point where they damage the resource. The development of appropriate institutional capacity and policies for fishery management has lagged behind the commercial

¹ In Bintulu, the Bintulu Development Authority.

² These were invariably adjacent to the main town market.

development of the industry, however, and the resource is at risk of future damage. Developments that could enhance fisheries management include the upgrading of information about the resource and its utilization, and change in the basis on which new licenses are issued coupled with the conversion of fishers from hunters to resource managers.

46. The weakness in institutional capacity for fishery management is very much related to the limitations of the available information about the capacity of the resource and its current exploitation. Simply put, the fishery managers do not know enough about the resource to effectively manage it to maximize output. Current management tends to treat the resource as a single item, whereas it is composed of different species of fish that are targeted differently by different types of fishers. Consequently, some species or groups of fish may be relatively overexploited and others underexploited. Any improvement in fishery management will require an improvement in the fishery database and greater delineation of stocks and utilization by species. The weak information base was recognized during Project preparation and a resource survey/training vessel was included as part of the Project to help improve the situation. While resource surveys are useful, a vast amount of information about the resource can be cheaply obtained from the proper monitoring of existing catches. Some of this information is currently collected, but the collected data is not sufficiently accurate or comprehensive. Further improvement in the fishery database would also be possible with more systematic processing of the information that is currently collected.

47. Fishery managers recognize the weakness of the existing database and, partly due to this recognition, the issuance of fishery licenses is being limited. However, fishery managers consider the deepwater areas to still offer potential for increased catch and do still issue deep-sea fishing licenses. In contrast, many fishers believe the deepwater fishery is overfished. It is probable that some deep-sea species of fish are already highly exploited, which would explain the assessment of the fishers, while other species are not and offer potential for increased catch. However, exploitation of such potential would require the issue of restricted licenses rather than the general licenses currently issued.

48. In most countries, including Malaysia, fishery policy considers fishers as hunters. This arrangement puts fishers, operating in the same area, in competition with each other and encourages progressive overcapitalization in bigger and more powerful boats, larger nets and equipment for fishers to improve their chances of catching fish. In a few countries such competitive pressures have led to the collapse of fisheries and eventually the introduction of alternative policies that attempt to convert the fishers to farmers or resource managers. The features of these alternative policies include (i) limiting the number of fishers who have access to the fishery, (ii) granting access to the fishery for periods longer than one year, and in some cases (iii) allocating individual fishers a transferable right to a specific amount of catch. Frequently, under these alternative policies, the fishers are required to pay the government a resource rent in addition to a license fee as recognition of the economic benefit gained from having access to a limited entry fishery. This is not unlike the granting of forestry or mining concessions. The arrangement converts fishers from hunters to resource managers with a vested interest in ensuring that "their" fish are properly managed. By being limited, the access right can, if allowed, acquire a commercial value that can then be used as collateral for credit purposes.

B. Traders and Credit

49. An underlying assumption of the Project was that fishers were exploited by fish traders who offered credit to the fishers; in return, fishers had to sell their catch at the price dictated by the trader. The Project attempted to break this link so that the fishers could achieve financial independence. Such an assumption oversimplified the fisher-trader arrangement and overlooked the value of the credit service to the fishers. It also diverted attention from the root cause of why fishers found it difficult to prosper in the sector and could not, or would not, borrow from the formal sector. The fishing sector is renowned for its risk and volatility, and formal sector lenders, such as banks, are justifiably cautious about lending to fishers. Fishers rarely have suitable land to use as collateral and their vessels are seldom accepted as an alternative form of collateral. Many loans from traders to fishers are also for nonproductive expenditure, such as, consumption during the low production months when the value of the catch cannot generate a sufficient family income. When credit is required, fishers frequently turn to traders who know them, their capacity, and their fishing competence, and are familiar with the nature of the industry. Therefore, to break the link, it will be necessary to establish other means of collateralizing formal sector loans, and to remove the volatility of the industry. These are not likely to be easily achieved, but closing the industry to new entrants and issuing licenses for longer than one year, as discussed in para. 48, could help by providing a basis for reducing volatility and establishing an income-earning right that can be sold or mortgaged.

C. Rationalization of LKIM and SAFMA

50. LKIM and SAFMA's capacity to create further change in the sector by operating the Project facilities has steadily deteriorated. Partly, this is because of Project design and implementation problems, but also it is because the fishing industry has evolved and the functions originally envisaged for both LKIM and SAFMA are no longer needed. Both SAFMA and LKIM's operation of the Project facilities represent a significant and continuing drain on scarce public sector resources and the Government's divestment of its investment in these entities and/or the Project facilities would be appropriate. Given the weak financial state of SAFMA, its closure and the sale or lease of the Project sites to the private sector may be the best option. An alternative would be the full privatization of SAFMA. LKIM is a Government entity with many roles, and its closure may not be appropriate; however, cessation of LKIM's operation of the Project facilities and the sale or lease of those facilities to private operators would be. Some of the Sarawak sites may be better used in nonfishery activities. The need to consider privatization of the SAFMA facilities was raised in the PPAR for the Project.

IV. CONCLUSIONS

A. Overall Assessment

51. The Project was postevaluated in 1992. At that stage, operations at most of the Project facilities had only recently commenced. Although the initial throughput of the Project facilities was small, the indications were that operations would increase significantly, and it was expected that the Project would be generally successful in achieving its objectives. This reevaluation, done in 1998 and based on seven years of operating experience, shows that the

earlier expectations have not been met. In Sabah, SAFMA was expected to operate the Project facilities profitably and fill a definite gap in the fish-trading and processing subsector. However, such a gap may never have existed. SAFMA's business peaked in 1991 at a very early stage and at a level much below that expected, and has steadily decreased ever since. SAFMA has accumulated large losses and much of the Project's facilities are underutilized. There has been progress in the sector within Sabah, however, and the landing, processing, and trade of fishery products have increased. Some of the Project facilities have contributed to this increase, particularly the landing sites at Kota Kinabalu and Tawau, which are freely and regularly used by fishers and traders, and the ice plants. The Project also contributed through SAFMA's pioneering the trade in several new products and allowing its processing and refrigeration facilities to be used by private processor-traders during their start-up periods. Nevertheless, the facilities and beneficial supports in Sabah could have been provided at a lower overall cost. The financial and economic analyses for the Sabah subproject show weak results. In Sarawak, most fishery centers were poorly located in relation to alternative landing sites and utilization has been low. The major contribution of the Sarawak fishery centers has been the supply of ice and as a landing place for low-value trash fish. The poor utilization of the facilities, coupled with high operating costs, is largely responsible for all the recalculated EIRRs and FIRRs for this subproject to be negative.

52. Overall, the Project's contribution to the observable increases in the fisheries output in Sabah has been limited, and in Sarawak it has been very small. Except for the ice plants and the landing jetties in Sabah, the Project is of little importance to the ongoing or future output of the sector. In view of the low achievements so far of the major parts of the Project, and their weak relevance to future sector operations, the rating of the Project has been changed to unsuccessful.

B. Lessons Learned

53. The Project has shown the importance of clarity in defining project objectives, expected outcomes, and the target group to be most benefited by each investment. Lack of clarity in the Project's planning documents led to confusion about who the target group was and the consequent scale of some subcomponents, and the role of SAFMA; and contributed to the selection of inappropriate sites for fishery centers in Sarawak. In this regard, the Bank's current procedure of using project frameworks that link outputs to project purposes and goals, detail the assumptions behind those links, and establish quantifiable indicators to measure achievements is supported by the Project experience.

54. The Project experience shows the importance of not only involving all those who are expected to use or be affected by the investment in the planning and design stages, but to do so in appropriate ways. For example, in Sarawak, binding commitments of support from the town authorities in the form of agreements to close preexisting alternative landing sites were not obtained, and as a result, utilization of the Project facilities was low. Traders and fishers, as the main users of these types of facilities were also not given an adequate voice in relation to those responsible for technical design and construction.

55. The poor locations of the Sarawak fishery centers highlight the need to avoid hasty decisions. In projects where the location of facilities is crucial, it would be desirable to complete site selection prior to appraisal.

56. The strength and intricacies of traditional trading linkages such as exist for trader-fishermen should not be underestimated. It is unlikely that these linkages can be readily replaced by measures such as the auction systems proposed under the Project. The persistence of these linkages suggests that there may be large benefits to both sides not recognized by project planners.

57. The government, in the form of a corporation, authority, or agency, is a high cost operator without the same freedoms in staff management and investment/divestment as private operators, and is not suited to commercial operations. Where government corporations are established for developmental purposes (such as SAFMA), periodic review of operations at predetermined times with the purpose of assessing whether the business continues to be viable is warranted. Quantitative indicators to enable the achievements to be assessed should be established at the planning stage and supported by a firm plan for their monitoring. For projects that support government-owned commercial operations, the design of loan covenants should recognize the difficulty that the government has in avoiding completely the imposition of development roles and government regulations on such operations.

58. The importance of detailed and rigorous sector analysis prior to project formulation is shown by the weak design assumptions concerning, for example, fish trading in Sabah, the traditional fisher-trader linkages, and fish wastage in Sarawak.

59. Rather than providing commercial infrastructure such as landing jetties, processing facilities, and ice plants, and engaging in commercial operations, the Government might better assist fisheries development by focusing on the creation of an environment that would encourage private sector operations. Important elements of such an environment would be appropriate policy and regulatory arrangements as well as basic supportive public infrastructure, such as roads, breakwaters, and navigation facilities.

60. Postevaluation was done within 12 months of Project completion, and there was little more information available than at the time the Project Completion Report was prepared. The failure of the postevaluation to correctly identify trends highlights the importance of having several years operating results available for postevaluation, and supports the current arrangement of scheduling postevaluation studies about three years after project completion.

C. Follow-up Actions

61. As part of a move away from operating commercial infrastructure, the Government should divest itself of its investment in SAFMA and the Sarawak facilities operated by LKIM. To increase its emphasis on fisheries management, the Government should upgrade the information base for the sector and review the policies governing the issue of fishing licenses. The parallel introduction of arrangements to change fishers from hunters to resource managers would also be beneficial.