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CREDIT AS A TOOL FOR COMMUNITY-BASED FISHERIES MANAGEMENT WITH PARTICULAR REFERENCE TO SOUTH-EAST ASIA

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ABSTRACT

The availability of credit can act as an incentive for individuals and communities to take or accept fisheries management decisions. To reduce the cost of channelling credit to artisanal fishermen, fishermen's organizations have often been involved as conduits or in an advisory capacity. In the past, credit has been effective in introducing technologies needed to develop both artisanal and commercial fisheries. Where projects have been successful, the role of their organizations in making credit available to their members has strengthened these organizations. The organizations represent members' interests which have increasingly centred on fishery management measures to curb resource depletion through overfishing by large commercial trawlers. New technologies such as fish aggregating devices and artificial reefs have proven effective in increasing incomes of artisanal fishermen. Their initial cost and subsequent productivity make them logical candidates for financing under credit programs provided access to their benefits can be restricted and their number and placement controlled. Community organizations are increasingly seen as the best and least cost means of managing these and other in-shore fisheries resources. Where fisheries are over-exploited and where governments and local organizations seek to channel efforts into other activities, availability of credit can be a strong incentive for encouraging fishermen and their families engaging in other activities which put less pressure on overstressed fish stocks. Credit can take the form of fishing gear which specifically targets less fished species. It can also encourage non-fishing enterprises such as aquaculture, gathering seaweed, tourism and sport-fishing services, and other non-fishing small business located in fishing communities. For credit to be effective as a fishery management tool, government will have to help enforce exclusive use rights to benefits from investments it has financed and to stop free entry to fishing, which in many countries has made it the employer of last resort.

1. Role of Credit in Fishery Development Programmes

Credit has shown itself to be a powerful tool in development programmes to encourage people to enter into new profitable activities or to expand their efforts in activities which they are already engaged in on a small scale. In agriculture, farmer decisions concerning the effort to dedicate to one crop rather than another are frequently influenced by whether or not credit is available to finance production costs. Governments and private

processors throughout the world have successfully introduced new crops through combinations of guaranteed markets and credit availability. Farmers have frequently been encouraged to grow crops with which they were previously totally unfamiliar or which they had not grown commercially by effective packages of extension, credit, and market.

Expansion of commercial fisheries, especially for prawns fished for the export market, has been dramatic since the 1960s, especially in South East Asian fisheries. This expansion has occurred in response to the availability of technology for catching, processing and transportation, favourable market conditions in developing countries, and large amounts of finance for commercial trawling, much of it at subsidized interest rates. Most of the participants in this new activity did not come from the ranks of artisanal fisheries, but from urban-based entrepreneurs who choose to engage in prawn-fishing because of its inherent profitability, the availability of subsidized credit and other incentives provided by government and international lending agencies. The considerable infrastructure required by commercial fisheries was financed in many countries by international loans and grants.

The impact of these commercial fisheries on the traditional artisanal fishing sector was not immediately recognized. Similar forces were also at work promoting the expansion of artisanal fisheries and their transformation from largely subsistence production to a more commercial orientation focusing on supplying the increasing demand for fish for domestic consumption. One of the elements contributing to this expansion and commercialization of artisanal fisheries has been availability of credit. The principal element financed by formal credit programmes or revolving funds of fisheries development projets have been for productive assets: boats, engines and gear; however, the flexibility of informal lending in providing for advances for crew and to cover the subsistence requirements of fishermen and their families has been largely absent. The artisanal subsector has also received subsidies, though to a lesser extent than the large scale trawl industry, which in many countries benefits even today from diesel fuel subsidies not shared by the artisanal fishermen using petrol-powered outboard motors or unpowered craft.

The following sections focus on the role credit can have in fishery development and management programmes in over-exploited, fully-exploited and over-exploited fisheries. The focus is principally on artisanal fisheries but also notes the impact credit programmes targeted to large scale commercial fisheries have had and can have on artisanal fisheries.

2. Under-exploited Resource

In an under-utilized fishery, the goal clearly is to develop the production of the resource. Even where industrial fishermen and artisanal fishermen are fishing different species and are allocated different fishing grounds, the potential impact of industrial fishing on the catch in artisanal fishing needs to be borne in mind. The importance of these impacts is better understood today than it was when industrial fishing was introduced to South East Asia; by-catches of trawlers targeting prawns included large numbers of fish of species being sought by artisanal fishermen. Future conflicts can be minimized by taking distributional impacts into account at an early stage of development of a fishery.

Development of industrial, export-oriented fisheries normally requires considerable investment in port infrastructure; since most of the cost of this infrastructure is not recovered

from the industrial fishing subsector it therefore constitutes a subsidy to the subsector. While much less demanding in terms of infrastructure, commercial artisanal fishing can benefit from market expansion for its products by such investments as all-weather roads from fishing villages to populous interior areas, electric power (for making ice, etc.), availability of appropriate transport (pick-up trucks, refrigerated trucks, etc.), fuel depots, cold-storage, etc. Those marketing and support activities which can be carried out profitably as cooperative or private businesses could be encouraged to develop by the availability of credit on an equal footing with similar credit facilities made available to export-oriented enterprises. Governments can help commercial, artisanal fisheries develop by encouraging the expansion of banking services to reach fishing villages and lending to local businessmen engaged in fishing support activities. Given loan size and the clientele initially served, this can be accomplished without putting bank branches in every village. Local fishermen's cooperatives and other organizations which are already actively contributing to support members' fishing activities can be strengthened by their use as channels for credit or in an advisory capacity for borrower selection and in local collection, particularly through marketing off-sets.

Credit to fishermen in an expanding fishery should focus on increasing family incomes. In such a fishery, fishermen will recognize which species are the most profitable under the most commonly used technology. They are also likely to aspire to improvements on existing technology; fisheries experts are likely to know of other exotic technologies which, if introduced, have a good probability of being profitable. If bank appraisal of these improvements indicates that they are profitable, they would be logical candidates for inclusion in a fisheries lending programme. (Exotic technologies require an exhaustive, on-site testing by fishermen prior to inclusion in credit programmes; experimentation in new technologies, new fish products, etc. needs to be encouraged, but by grants not loans.) Individual borrower selection requires that borrowers meet other loan criteria including equity contribution, experience, character, etc. New entrants to fishing should also be encouraged where adequate guarantees of loan repayment can be obtained; part-time fishermen without adequate boats and gear and experienced crewmembers should receive consideration by any lending programme. Even in an expanding artisanal fishing subsector, it is likely that within the families of fishermen, some members will probably engage in other profitable non-fishing activities as part of the family survival strategy; credit programmes should be flexible enough from an early stage to support a broad range of fishing and non-fishing activities.

3. Fully-Exploited and Over-Exploited Fisheries

As a fishery approaches realization of its full economic potential, fishermen and the individuals and institutions financing their operations need to look for alternatives to stabilize fishing effort, reduce costs and allow exploitation of less sought after species which nonetheless are profitable. Except for the well-documented case of Japan where for historical reasons community-based fisheries management goes back to feudal times, the need for community involvement in fisheries management often does not become apparent until the fishery is already over-exploited with yields declining, over-capitalization of the industry, excessive fishing effort and dissipation of rents from the resource. This is not to say that traditions surrounding proper operation of fisheries (closed seasons, area restrictions, protection for under-size juveniles, etc.) did not exist in artisanal fisheries communities in the region in the past; however, these traditional forms of management were largely ignored

with the advent and promotion of industrial fisheries in recent decades. In many areas, an understanding of the need to manage fisheries resources only came about as a result of pressure and in some cases direct action on the part of affected communities of artisanal fishermen. The 200 mile Exclusive Economic Zones (EEZs) increased the probability of success of national fisheries management programmes or of programmes agreed jointly by a few nations sharing the same fishery; they also enhanced the potential usefulness of community-based fishery management programmes.

As yields decline, there is a need to channel credit towards improved technologies which increase efficiency and lower costs. Many artisanal fisheries projects have included bringing in new gear and techniques developed in other parts of the world which increase yield sufficiently to lower unit costs despite the need to invest in new technology. Because the high cost of expensive gear could only be recovered over a period of time, the availability of credit, normally through fishermen's organizations, has been instrumental in making it possible for the majority of fishermen in some communities to adopt new technologies. Most gears introduced by projects show some consciousness of the need to maintain the fishery resource, such as nets of appropriate mesh size, etc.; in many places due to the lack of domestic production or its high cost the inputs are provided physically rather than funds to purchase them, thus guaranteeing that whatever decision has been made in the selection of gear supported by the project in fact is what the fishermen actually end up using and thus contributing to successful fishery management.

Where major species are fully or over-exploited, the first step is to remove subsidies and incentives which have brought about an excessive exploitation of the resource. Government subsidies, special lines of credit at subsidized interest, freely provided infrastructure, etc,. geared to over-fished species should be eliminated immediately, particularly to the industrial fishing subsector which in most countries has been the major beneficiary. Credit should be made available for conversion of vessels for other types of fishing and fitting them out with appropriate gear. Artisanal fishermen should also benefit from credit programmes focusing on less commonly fished species; such programmes may increase the profitability of targeting these species sufficiently to encourage fishermen to make use of these resources. If channelled through fishermen's organizations, they can help strengthen these organizations and increase their ability to turn fishermen's understanding of fishery management problems into consensus and providing moral authority for enforcing decisions on fishery management. These organizations may then be in a position to represent the interests of artisanal fisheries with government and in public fora where industrial interests have tended to dominate in the past as well as to institute fishery management programmes in their own areas.

Credit for extending the range of fishing effort of artisanal fishermen, particularly for larger boats and outboard motors has been an element of many fishing projects, initially to take advantage of available stocks and subsequently to preserve fishermen's incomes in the face of declining yields. Unfortunately, many of these efforts coincided with the oil price increases in the years following 1973; these increases were passed on disproportionately to gasoline (used by artisanal fishermen) compared with diesel (used by industrial fishermen). While most credit programmes have provided credit for the purchase of larger boats and motors, many have not provided working capital loans for fuel, salary advances to crew and emergency loans, which fish dealers normally do provide to their customers. Provision of

loans of this type appear to be related to better overall loan recovery by informal providers of credit than by formal lending institutions.

Conflicts between industrial enterprises and artisanal fishermen are inevitable where both fish the same resource, either by targeting the same species or where industrial by-catches reduce yield of fish species targeted by artisanal fishermen. These conflicts are often made worse when industrial fishermen fail to respect limits on in-shore fishing grounds reserved for artisanal fishermen. Given increased fuel prices favouring reduced travel time and the generally higher productivity of in-shore fisheries, there are strong incentives for violations, particularly where enforcement is lax and penalties low and infrequently assessed. As artisanal fisheries expand their area of operation through motorization, often fostered by formal loan programmes or informal credit sources, conflicts between them and industrial fleets and among artisanal fishermen themselves have increased and have occasionally turned violent.

4. Fish Aggregating Devices and Artificial Reefs

There is still considerable debate concerning whether or not fish aggregating devices (FADs) and artificial reefs (ARs) increase total fisheries resources or simply redistribute them spatially. In some cases, ARs at least do appear to increase total resources of some targeted species by providing habitats for species such as grouper. Both FADs and ARs increase profitability of fishing in their vicinity by reducing time en route to fishing grounds and search-time and productivity of time spent fishing. Recreational fishing and diving also increases around artificial reefs and transporting and assisting amateur fishermen in other ways may provide additional incomes to artisanal fishermen. In some instances, both FADs and ARs have the potential to reduce conflicts between industrial and artisanal fishermen. Because of the rather substantial initial investment in some types of FADs and ARs, contribution to increased productivity and a relatively long average productive lifespan for both, make these investments potentially susceptible to finance through credit. Quasi-property rights which have developed or are evolving around FADs and ARs are making lending for such devices more attractive since there is a strong presumption that fishing communities responsible for their construction are able to collect most or all of the benefits derived from them.

Fish aggregating devices have long been used in South East Asian fisheries, rumpons being reported in Indonesia in the early years of this century. Benefit/cost ratios of FADs are reported to be 1.76 for payaos and of 1.51 for ARs made of discarded tricycles; 87% of the fishermen in one survey were favourable to the installation of payaos. With costs of these two types of FADs averaging US$4,000 and US$2,500 respectively, such investments could profitably be financed by credit if all benefits could be internalized by fishermen responsible for paying back the loans. Their use in Jakarta Bay was apparently paid for by Government, but fishermen using them were financing vessels, engines and gear, as well as operating costs, and paying their loans from the sale of fish caught around these devices.

In the Philippines, FADs financed and constructed by industrial purse-seiners and used jointly by them and artisanal fishermen (at no cost) are an example of the way these devices can contribute to reduction of tensions between the two types of fisheries. Purse seiners fish the surface for juveniles while artisanal fishermen fish at depths of 30 meters for larger

adults of the same species. Both types of fishermen operate around the same FADs with no overt conflicts. Substantially increased monthly incomes (around US$200) for small fishermen are reported.

Construction of ARs is one method of increasing artisanal production which increases the productivity of artisanal fisheries and at the same time is self-policing in keeping trawlers from fishing neighbouring waters due to the danger of ruining trawling gear.

Because the cost of constructing, placing and maintaining FADs and ARs is substantial, fishermen would like to exercise property rights or fishing access rights to the greatest degree possible. Fishermen in the Java Sea recognize the right of the owners of FADs to part of the catch of pelagic fish. In Japan, community control over fisheries resources is particularly well developed. Exclusive common rights of cooperatives exist to most coastal areas. As a result, Japanese fishing cooperatives have been able to establish and enforce their own regulations as to mesh sizes of nets, closed areas and closed seasons and to exploit algae and mollusc growing on FADs and ARs on an exclusive basis and to limit fishing around them. They also have exclusive rights to aquaculture, set nets, etc., as long as these rights are exercised. This ability to exercise control over access to the marine resources in their areas, even to the extent of excluding other commercial fishermen who are not members of their cooperatives and even sports fishermen, leads both to higher profitability than would be in the case of open access and the ability to manage the resources within their zones, although conservation tends to focus exclusively on commercially important species.

To the extent that FADs and ARs increase the profitability of artisanal fisheries, they should increase the willingness of institutional lenders to make loans to fishermen benefitting from them for buying boats, engines and gear. Even where such ARs are provided by government agencies, communities must be given the power to limit access to members of their own communities and eventually to restrict access to include only certain members of the community; continued free entry by all would eventually dissipate higher rents derived from the devices as a result of excess fishing effort. Giving community-based fishermen's organizations a role in helping fishermen gain access to credit, as is done in many countries in the region, can strengthen their standing in the community; the organization's ability to enforce community fishery management decisions would be increased by the threat of withholding credit or impeding the access to credit by offending fishermen. In Japan, for example, fishermen are given low interest loans in exchange for their participation in fishery management programmes.

5. Credit Financed Alternatives to Fishing

Shell-fishing, Seaweed Gathering and Aquaculture

Pressure on ocean-based fishing is often excessive because open-entry to fishing often makes it the profession of last resort for people without other employment alternatives. Thus, availability for credit for non-fishing activities can alleviate part of this pressure on fisheries. Shell-fishing and seaweed-gathering have been fostered in some countries through provision of credit. Aquaculture can also be a productive enterprise where rights to the exclusive use of parts of estuaries or property are given; once these rights have been

established, institutional credit may be possible if conditions of project feasibility and borrower credit-worthiness satisfy lending institutions.

Catering for Tourism and Pleasure Fishing

With sufficient funding, many small commercial fishing boats can be upgraded and provided with the safety equipment called for by marine transport regulations for carrying passengers; carrying tourists and sports fishermen or pleasure divers, all of whom place less of a strain on exploited fisheries than does commercial fishing, even when done by artisanal fishermen. In many areas of South East Asia, the tourist trade can provide fishermen with higher incomes than commercial fishing. Finance and credit for such transformation should be considered as not only do such operations provide at least part-time engagement in non-fishing activities, but also can help to reduce overall pressure on the fisheries.