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EXTENDING FISHERIES EXTENSION

Extending fisheries extension: Notes from a consultation in Medan

by Rathin Roy

Senior extension officials from the Bay of Bengal region met recently in Medan, Indonesia. For three days they locked horns, traded ideas, grappled with concepts. Confusion preceded clarity. Here's a report.

"I was able to go through every aspect of fisheries extension, think about it and share experiences with my colleagues from other countries," said one participant, and that, in a sentence, is what happened at a consultation on fisheries extension held at Medan, Indonesia in January this year. But, to begin at the beginning, we have to go back to January 1989; when at BOBP's Advisory Committee Meeting in Penang, Malaysia, member countries proposed that extension approaches used in the region in fisheries, and the experience of such approaches, be discussed at a regional consultation to enable learning and new directions and approaches.

Such concern is understandable in a region where small-scale fisherfolk not only form a fairly sizeable population but also bring in the bulk of fish catches, which in turn provides for the table and earns valuable foreign exchange. For fisherfblk, fisheries extension services are often the only link to government agencies dealing with fisheries. And, given the remoteness of some fisherfolk habitats, often the only link to all of government! Time was when extension services spread information and new technologies. Today governments look to extension services to do far more — manage subsidy schemes to promote technology absorption, organise welfare schemes such as insurance coverage and income stabilisation schemes, provide credit and even undertake community development that concerns housing, water supply, health and education. All of which are far removed from fisheries!

The consultation in Medan, Indonesia brought together, over a 3-day period, senior staff concerned with fisheries extension and policy from the seven BOBP member countries and representatives from donor agencies such as SIDA and DANIDA, FAQ and BOBP. Two resource persons — Bert Huizinga, Senior Community Involvement and Rural Extension Consultant of IWACO B.V., Rotterdam and Ron Maine, Senior Extension & Training Officer, FAO and Chief Technical Adviser, Extension Training for Fisherfolk Project, Sri Lanka — were invited to mediate and facilitate the discussions.

The consultation began. on a formal note, most meetings do where participants see themselves "representing" their countries, governments and agencies. Each country presented a review paper on fisheries extension focussing on experiences and, hopefully, leading to issues and problems. The review papers quickly gave the participants an overview of the region's experience.

The experience of the region

The central understanding that grew out of the country paper presentations was the staggering variety in the region. Speaking of size we have Maldives with a population of just over 200,000 and India with her 800-odd million. Smallness and bigness seem to have just as serious logistic problems Maldives has 200 inhabited islands that lie scattered over tens of thousands of square kilometres while Indonesia spans three time zones. Every conceivable type of tropical fishery eco-system is represented in variations of impcrtance. Superimposed on this geographic and eco-climatic variety is the socio-cultural variations of the fisherfolk. It is natural that such diversity should produce a variety of extension responses.

In India extension is the responsibility of each state and at the field level is implemented by fisheries officers who often have to do several other tasks in addition to extension. Research and development to promote fisheries is a federal government activity undertaken at several national institutions. In Bangladesh the emphasis has been on freshwater fisheries and aquaculture, reflecting the demand of the population. Extension is fresh water and aquaculture oriented and at the field level is in the hands of fisheries officers who report to and get funded by sub-district level local government bodies while they are technically supported by the central department fisheries. Extension is also provided through fish seed farms and through a fisheries development corporation and even banks and NGOs. In Sri Lanka the government is in the process of restructuring and evolving an extension service to fit a new decentralised governance and also to answer the changed needs of fisherfolk. There still is a problem of extension staff having to do other (sometimes contradictory) tasks. In the South Asian region, given the circumstances, the countries are confronted with problems of fisherfolk development and this has led to such needs being added to the mandate of fisheries extension services.

Maldives is just evolving an extension service to cater to the needs of its

thriving fisherfolk communities and faces severe manpower shortages and very difficult logistics on the way.

In the south east Asian side of the region, Indonesia, having developed a solid fisheries extension service based on locating technically trained staff at the field level, changed track a few years ago and for reasons of management efficiency and manpower shortages switched to a universal training and visit system which is separate from the Department of Fisheries and handles the extension efforts of many departments with technical support from the departments concerned. Malaysia also uses the T & V approach but has restricted it to only the fisheries service and has modified it to reflect its fisherfolk's needs and the constraints faced by the agency. They too face the problem of extension staff having to do other tasks that not only distract from extension but are often contradictory to it. Thailand with its rapidly developing and entrepreneurial fisheries is highly focussed towards technical innovations which are the main needs of the fisherfolk. Their extension service which operated out of research organisations is now slowly moving into the district and province level fishery organisations to provide comprehensive and integrated development services.

Across the region are some common concerns like shortages of trained manpower, lack of sufficient equipment, transport and funds, need for training to cope with comprehensive development and problems with making credit available to fisherfolk.

A commonality out of the variety was the concern and commitment of the countries in wanting to develop their fisherfolk and fisheries and in wanting to address the needs of fisherfolk. And this was reflected in several countries where a process of change and restructuring had begun.

While the country papers gave everyone a good understanding of the context within which fisheries extension

Above: Key words and concepts on extension stuck on to the blackboard are being grouped into four clusters. Below: One of the consultation's four groups discusses the poster-chart it will present to the other groups.

has to function, the learning from the experience did not surface as well as it had been expected to. The problem was partly that the feeling of the participants that they were "representing" their organisations and countries inhibited them to come out and speak as extension officers who had gathered to learn.

Getting down to Extension

Since the very purpose of the Consultation was to share experiences and discuss future trends and directions, the resource persons at this stage of the meeting decided to intervene and facilitate discussion.

It was explained that from then on we were all a group of extension officers coming together to learn, rather than representatives of our countries and agencies!

Country name cards were removed!

Delegations broke up and seating arranged at random!

Each participant was given 3 cards to write down what he or she would like to see discussed at the meeting – not what the country would like, not what should be discussed, but what he or she, personally, would like discussed!

The cards were collected after 10 minutes and sorted out into clusters by the resource persons and displayed on a large bulletin board.

The subjects fell into 4 broad clusters

(a) objectives of extension

(b) extension project design & evaluation

(c) methodology and approaches of extension

(d) linkages, NGOs and subcontracting for extension.

At the end of the day, we had shared information on our experiences and broadly determined what we wanted to discuss during the consultation. The question was how to go about the discussion and within what sort of framework.

The resource persons painted out that before any framework could be evolved to guide the discussion there was a need to agree on what extension was, since extension seems to mean many things to many people.

A definition was proposed for discussion

Extension is the collective noun for all organised communication efforts by

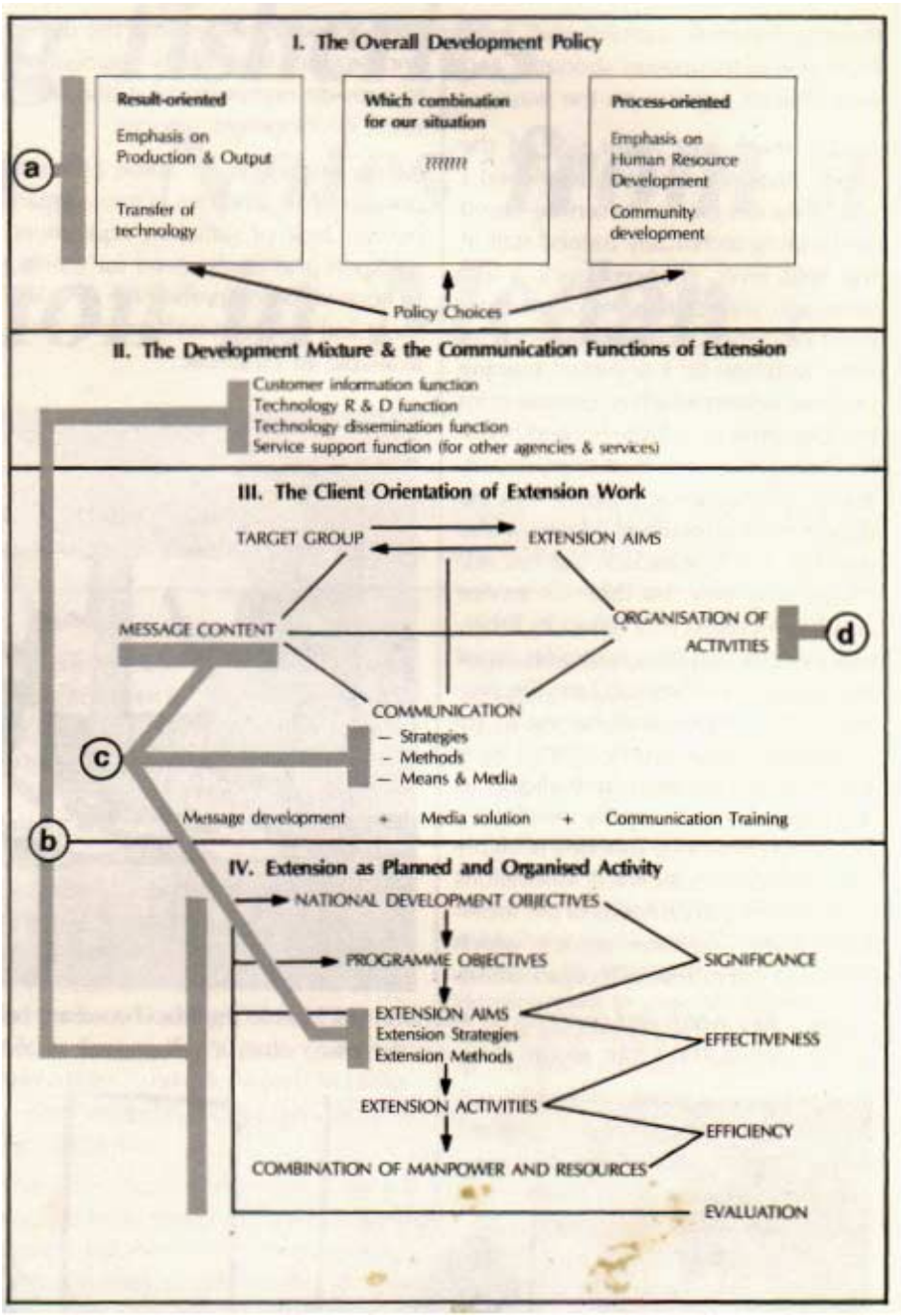


Figure 1: Thinking through extension: This figure illustrates a logical framework for extension which the consultation arrived at after initial brainstorming among participants. The shaded parts (a), (b), (c), (d) refer to the four broad clusters selected by participants for discussion.

which an individual or agency tries to bring about **changes in the knowledge, attitudes, skills and/or behaviour of a client population, in order to reach one or more objectives that have** been **established within the framework of an overall development policy.**

Out of this proposed definition and a discussion of key concepts, the resource persons suggested and discussed a logical framework which could be used to guide the discussion (see Figure 1). What was intriguing was that the classification of subjects for discussion proposed by the participants-*before the framework was evolved* seemed to fit nicely into the framework with some changes in priority (see shaded additions to Figure 1).

Things were falling into place. The meeting suggested that the participants randomly group themselves into four smaller groups and each group discuss and document each of the four clusters of subjects. The proposal was that after discussion the four groups would come together and share and discuss the findings in a plenary session.

It was quite clear that while there would be sharing and discussions, the meeting was not trying to move to

wards any consensus or agreement. If any were arrived at, well and good, but no consensus efforts wold be made – a very sane decision considering the fact that given the variety it would have been extraordinary if all had agreed to any one approach!

The objectives of fisheries extension

The first set of ideas discussed in the group sessions related to the objectives. The staid and formal atmosphere of the country paper presentations dissolved into animated and heated discussion – at last, extension had arrived. The chemistry of the groups was moving towards a person-to-person dialogue, with experience highlighting the directions of discussion. After the discussions each group described with posters the process they had been through and the conclusions they had reached.

There were quite a few surprises – and out of them emerged the key issues of debate. With a wide diversity of conditions and needs one had expected a variety of different, if not conflicting, objectives – but what came out was a variety which had unifying threads weaving a coherence. All the groups, with differing priorities and emphasis, strongly felt that fisheries extension *could not* just worry about results and in terms of production and output of fish but had to also concern itself with developing human resources, i.e., fisherfolk. And the question that came to everyone s mind was, is it possible to merge the two boxes of the framework into the middle way that did both. Opinions were strong; some felt that technology development would lead to higher production, thence to income increases and eventually to people development. Others felt that the process of developing people would need technology and production but a focus on these would reduce the human resource development. Out of the debate emerged something close to a consensus: it was felt that a merger of result orientation and human process orientation was possible by focussing on results in terms of fisheries production and output (which governments tend to prefer!) *provided* the process of achieving this was *qualified* (Figure 2).

Fisheries development should be

- sustainable in time
- use appropriate technology
- generate incomes
- try to add value locally
- move towards equitable development

and, should involve fisherfolk in all aspects.

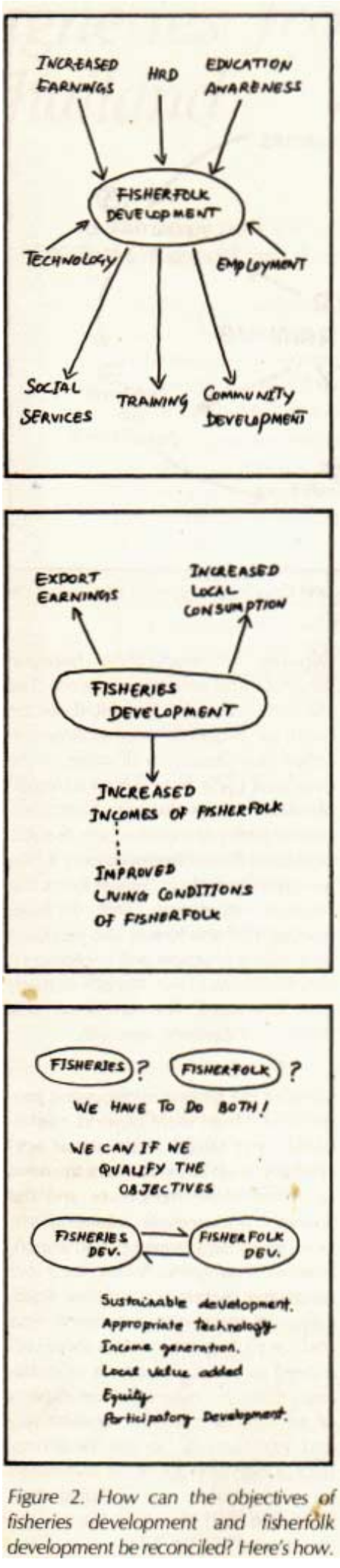


Figure 2. How can the objectives of fisheries development and fisherfolk development be reconciled? Here's how.

Qualifications such as these would ensure that fisheries development also caused fisherfolk development. Also, such qualifiers would automatically limit and direct the production orientation into a more humane approach.

However, it was obvious that this kind of coming together, to evolve extension as if people mattered, was easier said than done. The problem was that the realities and needs of policy-makers who set objectives for fisheries departments and therefore of extension services and of fisherfolk in their villages differ considerably. Worse, each party often has no real understanding of the other. So how can we move towards the proposed integration of objectives? This raised the role of the extension officers as the go-betweens, mediators, whose responsibility it was to ensure that each party, the policy makers above them and the fisherfolk with whom they worked, understood the needs, concerns and realities of the other, and through such mediation to ensure that the policy dictates and objectives are suitably interpreted and *qualified* to better address the reality on the beach! The first session showed not only an agreement on the objectives of fisheries extension but pointed out the role and responsibility of extension services in enabling a merger that developed both fisheries and fisherfolk.

Some new areas to be addressed by extension services emerged out of the discussion of the qualifiers of fisheries development. Given the scarcity of fishery resources, partly on account of overfishing and partly on account of deterioration of resources due to adverse environmental impact, issues such as management of resources arid environmental protection for which fisherfolk participation is essential would require extension services to enable fisherfolk to do these complex and difficult tasks. Communication methods, organizational and institutional mechanisms to address such needs, and movement into technically complex areas were identified as new responsibilities of the fisheries extension services.

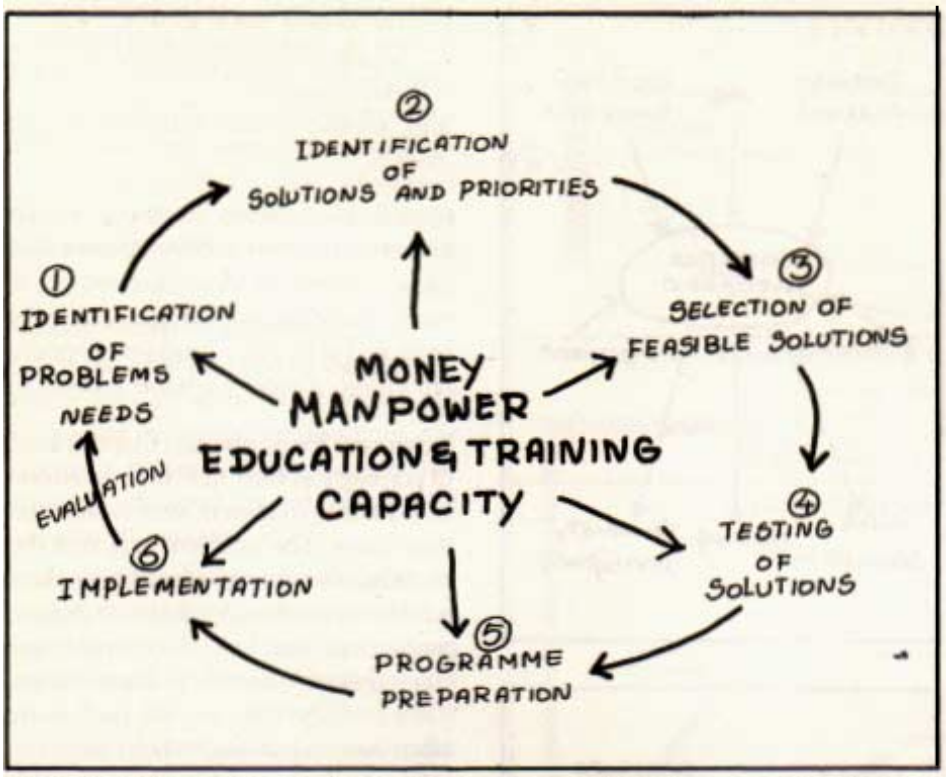


Figure 3 : One of the consultation groups used this chart to present its findings on extension programme design and evaluation.

The "How" of Extension

It is one thing to set objectives, quite another to design programmes that lead to the objectives. The task given to the four groups of session II was to design programming and evaluation methods to achieve the objectives that had been set. The variety of the people involved in each group, their different backgrounds and experiences, and the limited time available made it impossible to take this discussion up as a simulation exercise for a particular or even hypothetical fishery and fisherfolk. So the discussions were more methodological in nature. Interestingly, the experiences of individuals and their learning surfaced and the unity of ideas achieved in the session on objectives was replaced with more diversity, as expected.

The process of designing an extension system was clearly brought out and emphasized. (See Figure 3, which was used by one of the groups in explaining their work). The advantage of such thinking through is that it begins with the assessment of fisherfolk needs and conditions, and goes through a set of clear stages for implementation and evaluation, which in time affects the programme through feedback. The needs assessment was identified by the participants as a key activity not only for identifying the needs and prioritizing them but as a process to encourage two-way communication between fisherfolk and extension officers. The discussion also clearly pointed out the need for fisherfolk participation and active involvement in all stages of the extension cycle from design to implementation to evaluation. Communication and participation are feasible with large fisherfolk groups only if they are organized into collective forms that facilitate interaction and decision-making. Collectivity was also proposed as a means of action and implementation to gain from the strength of many and overcome the problems that individuals cannot cope with.

Some of the groups in discussing programme design went beyond methodology and talked about actual activities and even raised issues of the need to enhance the manpower and the financial resources of extension services, given the complexity and importance of their tasks. Asking for more funds and manpower requires justification in these resource-scarce days and the participants felt that there was a need to develop methods of evaluation to really understand the impacts of an extension service, qualitatively and quantitatively, so that the economics of extension are better understood by policy-makers, in deciding their allocation and the "returns on the investment".

The Methods of Extension

In evolving a framework for discussion Bert Huizinga had said that extension was only one aspect of fisheries and fisherfolk development which inter-alia includes technology, credit, R & D, community development; but it was the crucial aspect as it could be considered as "the link in the chain of development or the cement that holds the building blocks of development together".

This 'linking' cement aspect highlights the communicative or knowledge transfer aspect of extension and particularly emphasizes the fact that in the final analysis extension is achieved by people – not papers, not technology, not money, but by people who handle all three and more. With this in mind the next set of discussions moved deeper into programme design by specifically looking at the methods and approaches of extension.

Extension in the traditional sense, the participants pointed out, dealt with knowledge transfer, particularly of technologies. However, given the wider, more integrated context of extension, it would now have to deal with general awareness-building and education. And, given the changing nature of the needs and concerns, fisherfolk would have to build up their problem-solving capacity. As already pointed out, enabling and strengthening collective action for implementation of activities and problem-solving will play increasingly more important roles in extension, especially with the added responsibility of resource management and environmental protection. How should extension services do these? Learning while enabling learning, or participatory research used in needs assessment and in opportunity searches for solutions not only build awareness and skills but encourage communication and interaction between fisherfolk and extension staff. What communities seem to need are forums for discussion and action to address their needs. This kind of activity requires of extension staff learning, teaching and mobilizing skills that they rarely have and this training need was highlighted as an important task facing agencies. With shortages of extension staff and the remote and scattered locations of fisherfolk habitats, extension services,

(Continued on page 16)

Extension vignettes from Ranong Province, Thailand

Photo feature by S R

We offer a peek into a fascinating array of extension activities in 20-odd fishing villages in a province of southern Thailand.

Rows of oyster-embedded cement poles stretch away into the horizon; a woman fish farmer atop a bridge surveys a flourishing oyster farm on the canal below; government nurses dispense medicines as women in a remote fishing village wait with babes in arms; shrimp under culture leap out of their cages to grab at feed sprinkled by an assistant.

These are glimpses into an extension project in Ranong province, Thailand. The fisheries department, with some support from BOBP, is trying out a model for an integrated extension service that seeks to demonstrate how to improve the living standards of poor fisherfolk not merely in Ranong, but in other coastal provinces as well.

A few words about the geography of the place. Ranong province is something of a tropical paradise — the splendour of hill, valley and forest captivates the eye. It has four administrative districts — Kraburi, La-oon, Muang and Kapur. The two southern districts face the Andaman Sea. The northern districts abut the Kraburi nver which flows between Myanmar and Thailand. Many of the fishing villages of Ranong province are accessible only by boat. Fisherfolk homes dot the beach. Standing on stilts, and framed by dense coconut plantations, the homes have an engaging picture-post-card prettiness.

The extension model being tried out in Ranong is "integrated" because it encompasses a whole range of activities. Specifically, the project is trying out the culture of oyster, grouper, seabass, mussel, shrimp; the efficacy of crab fattening, crab traps and squid traps; the manufacture of shrimp paste, fish sauce and handicraft products by women; improved fish drying practices by women; a better infrastructure for health care and non-formal education; and a more effective credit system. The project touches more than 20 fishing villages. There's a heavy emphasis on training courses, study tours and workshops (something is on every week).

Says project team leader Sanchai Tandavanitj, "From this pilot project we hope to learn more about the problems, needs and aspirations of fisherfolk, and how we can address them. We hope to find out what activities can raise the incomes of our target groups. We also hope to find out how such activities can be effectively implemented with active participation by target groups."

Besides the team leader, the project staff includes an aquaculturist and a couple of sociologists plus some technicians and support staff. The services of the fisheries department's "stations" in Phuket, Surat Thani and elsewhere are tapped whenever necessary.

The project is obviously ambitious in scope, and attempts learning-by- doing simultaneously on many fronts and locations. In fact it wotild take a few weeks just to go round all project activities. Is the project attempting too much? Says Hanne Kristensen, BOBP sociologist (Associate Professional Officer), "To succeed in extension, you must first build up knowledge to a degree .... The many activities of the Ranong sub-project are doing that."

The pages that follow describe in words and pictures three of Ranong's pilot activities.

<<

OYSTER CULTURE PROSPECTS AND PROBLEMS

Oyster culture is a lucrative business in several provinces of Thailand, including Ranong's eastern neighbour Surat Thani. The project therefore took up oyster culture in Ranong, as a technology of promise for raising fisherfolk incomes. Ten sites were identified, a study tour to Surat Thani was spqnsored for 40 fisherfolk, 25 of them were given a training course. They were then divided into two groups; materials and spat were offered for initial start-up trials. Project activities are now on in about half a dozen villages.

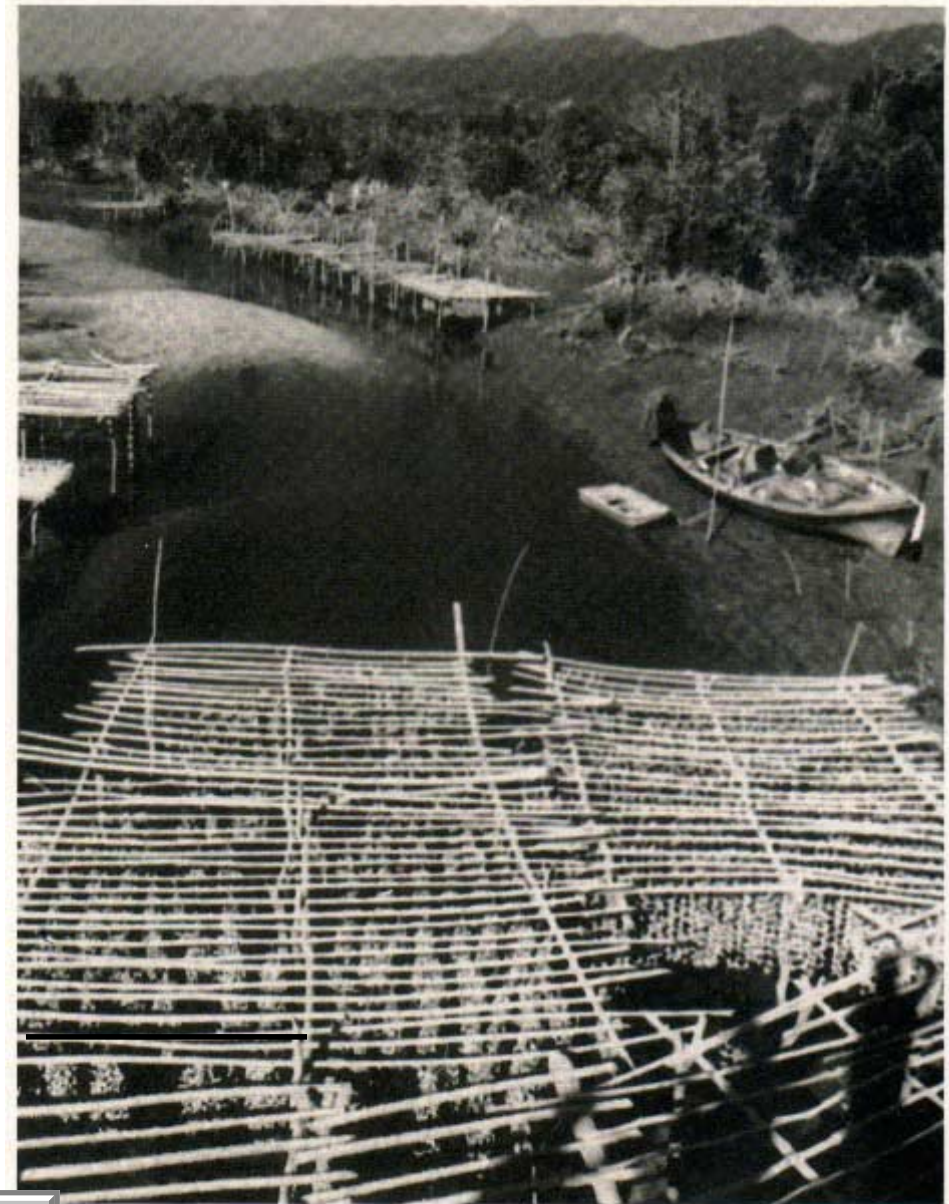
Spat collection has been the main problem in oyster culture. The project has obtained natural spat from Phang Nga and Surat Thani provinces; but these suffer both from the stress of transport and the salinity drops caused by rainfall in Ranong. Hatchery-produced spat is got from the Prachuab Khirikan province, but this grows slower than spat obtained from natural sources.

The best spat for oyster culture is that obtained locally. There are at present four spat sources in Ranong. At two villages, rafts have been set up for spat collection. At two other villages, spat are collected from rocks and mangrove roots. Supplies from these sources however, are not sufficient, and the project has to supplement spat supply from outside sources. Project aquaculturist Suparp Pripanapong hopes to get some ideas during a BOBP-sponsored study tour of oyster culture in Malaysia.

Oyster culture is looking up, however; it has certainly generated interest, and the number of farms is on the rise. The oyster farms of Kao Nang Hang in Muang district are an impressive sight, particularly at dusk —silhouetted in the dark blue sea against an orange sky, with grey mountains in the background. There are rows of concrete poles, each 15 cm in diameter and 40 cm in length, which are mounted on bamboo stakes in the muddy bottom. Each pole holds about 20 oysters.

Says oyster farmer Ranong Pumard, 31, "I used to be a longline fisherman capturing catfish. Now I concentrate on

Small-scale culture: Oysters at Ban Sam Nak grow on "strings" hung from mangrove poles. Right: Oyster culture is expanding at Kao *Nang Hang.*



Map of Ranong province, showing project locations referred to on these **pages.**

oyster culture. I was one of the first 10 farmers trained by the Ranong project. I have installed about a thousand poles. I don't spend anything on feed — the oyster finds its own feed. The main problem I face is interference from push-net fishermen who disturb the cement poles.... I harvest about five times a year, and make about baht **4,500.'**

An encouraging facet of oyster culture is the small-scale operation at Ban Sam Nak in Muang Kluang subdivision, Kapur district. Small oyster (Saccostrea sp.) is cultivated in a canal under a bridge by the "hanging" method. You see scores of mangrove pole racks spread across the canal; thousands of strings with oyster spat cemented on to them hang from the mangrove poles.

Says project aquacultunst Suparp, "The fisherfolk took to Saccostrea by themselves three years ago, and a 20-member group practises it here. Spat is available locally; group members collect it themselves from mangrove roots. We give technical advice, but no support in cash or kind. Average annual production is about 80,000 to 100,000 strings, with 36 pieces of oyster on each string. Wholesalers buy the oyster for anything between baht 2.50 and baht 4.50 per string." Ms Vira In-ton 47, energetic leader of the group, recently sold 1,300 strings for baht 6,500.

"Saccostrea can be cultured year-round, but the best season is November to March. Each culture crop takes about three months. For Saccostrea culture to succeed, spat should be available locally, the sea bottom should be soft or muddy, there should be no strong winds and waves, water salinity should be between 10 and 35 ppt, and the oyster should not be exposed (which occurs during low tide) for more than six hours during the day."

Big oyster too (Crassostrea) is cultured on trays at Ban Sam Nak; in fact it was started here during August 1989 at the project's initiative. A group of 10 farmers has been provided with 14,000 spat. Some 2,000 oysters have been cultured during the past eight months and have been sold at baht five a piece.

It is hoped that the project's varied experiences with oyster culture, both positive and negatiw, will provide some directions for the future.

Culture at Ban Hindard (below). Bottom: Project oysters sell well at a highway shop in Kapur district.

UNIQUE CULTURE COMPLEX AT KOR KLANG

It's blazing hot as we proceed in our long-tail engine boat to Kor Klang in Kapur district, located in the middle of Kapur Bay. "In this small village, mussel, finfish, and shrimp are cultured in close proximity," says BOBP's Hanne Kristensen. "Oyster spat are cultured too – for outgrowth in other locations".

Aquaculturist Suparp Pripanapong describes the project's efforts at Kor Klang. "We've had bad luck with shrimp cage culture. We promoted it through a vigorous information package of video films, a training course and a study tour.... But when fisherfolk took to culture, shrimp prices fell steeply – from more than 200 baht to bhat 90 per kilo, a figure below production cost. Many farmers lost money." The Prime Minister of Thailand, in a dramatic gesture of support for shrimp farmers, bought shrimp from the market at baht 100/kilo. Subsequently, the prices rose, and culture operations were resumed.

Fish cage culture was started in Kor Klang by a fisherman from Phang Nga (the province where an earlier BOBP project recorded spectacular success). But the fish were soon attacked by skin disease and the dreaded air bladder syndrome. (Fish cannot control air in the bladder on account of infection.)

Antibiotics, such as tetracycline and furazon, are used to combat the diseases. A medicine fund has also been set up to help fish farmers cope with the disease and its aftermath. "If you respond quickly to the air bladder syndrome, it can be cured," says Suparp. "So it's necessary to monitor culture operations regularly. Our role in fish cage culture has been to help combat disease, not to introduce the culture technique – it is well-known."

We land at Kor Klang – it's a cluster of about 35 huts on stilts. In front and all around, is what must be regarded as a unique culture complex. Fish is cultured in net-cages, mussel on bamboo poles, shrimp in cages, oyster spat is collected on old automobile tyres. We talk to fisherfolk here to get a feel for how they are faring and how they perceive the future.

Mr Haag Chid-ure, 49, is a fisherman trying out cage culture of shrimp and finfish and mussel culture at the project's behest. He operates one shrimp cage and five grouper cages. The project gave him 10,000 shrimp fry last year from the Phang Nga brackishwater fisheries station. "I don't get trash fish every day. So I can't feed the shrimp every day, and the growth rate is very slow. (We watch a shrimp feeding operation. The shrimp leap up to attack the feed – a few are so acrobatic that they end up on land.) Harvesting is done every four months. There are no poachers around – Chid-ure lives close by.

Talking about fish (grouper) culture, Chid-ure says, "I collect fry from the wild near mangrove areas, harvest intermittently, and sell the cultured grouper to middlemen from Bangkok and Phang Nga. They buy fish that

Fish cage culture (below) and mussel spat collection (right).

weighs 1.4 kilo or above at baht 150 - 160. They do not buy fish of lower weight. Grouper culture used to be profitable — it used to sell at baht 300-400 for 1.3 kg size. This year, unlike last year, the fish have not been attacked by disease, but by low prices."

As for mussel culture, the Ranong project wants to spread spat in the area. Broodstock was given to Mr Chid-ure to harvest spat. He started operations in August 1989. There was no spatfall till late January 1990, but a six-month waiting time is considered reasonable.

Talking about oyster spat collection, Mr Suparp says "We collect spat on three or four tyres tied together by nylon string." Trials have been going on for about a year now. About 1,000 pieces of oyster spat have been collected so far at Kor Klang, for outgrowth elsewhere in the province.

Another Kor Klang fisherman, Mr Sa Padunchart, 38, says he has been culturing grouper for three years now. He harvests intermittently and sells to middlemen from Phang Nga. "I am growing some rubber trees too", says Mr Padunchart, "but haven't started making money from them yet. Fish culture is a short-term investment, and I hope to make money on it quicker:'

Fish farmers Chidure (right) and Sa Padunchart.

Shrimp cage culture (above) and oyster spat collection (below).

IMPR HEALTH AT KOR

One of the strategies of the Ranong project is to stimulate and catalyze co-operation with various government departments responsible for the social infrastructure. Kor Sin Hai in Muang district is a village that exemplifies such co-operation.

The Ranong project has conducted training courses for Kor Sin Hai womenfolk on cooking and nutrition, knitting and needlecraft, and on food processing (improving the quality of processed shrimp paste, dried fish and salted fish) with help from the fish technology division of the fisheries department and the non-formal education centre. But the foremost service rendered is through the health department. The project boat picks up government nurses from the Pak Nam health centre, which is more than an hour away, and brings them to Kor Sin Hai.

A remote fishing village nearly two hours away by boat from Ranong town, Kor Sin Hai has a population of about 600, almost all of whom are Muslims. Fish catches have been declining over the years, but this charming village has an upbeat mood. "I

Project staff (below) proceed to Pak Nam to pick up government nurses and take them to Kor Sin Hal (right) to treat waiting women and children.

1 Ranong Province, Thailand

OVING SERVICES SIN HAI

won't live anywhere else," asserts Yarama Takrut, a comely 34, who was born and bred in Kor Sin Hai.

An affectionate rapport is evident between the nurses and Kor Sin Hai womenfolk. The infants are examined first, and are weighed with equipment provided by UNICEF. Injections are administered whenever necessary, medicines are handed over to the women, some pamphlets distributed, a do's- and-dont's talk given.

Says project sociologist Ratsuvon Pidpayon, "The medical ailments of the womenfolk and the children include skin sores, lice infection, gastric ulcers, intestinal infection, sometimes malaria. Our work can be described as primary and preventive health care, and education in health and sanitation". A government-run malaria prevention scheme is to be extended to Kor Sin Hai. So also are family planning services.

The Ranong project's work in Kor Sin Hai is an example of a simple and effective way of helping target populations — by extending government services to them. The bright-smiling nurses have a spring in their step as they leave the village — they are pleased with the day's job.

"Our savings built this kiosk" : A success story from Indonesia

It's a modest-looking shop that bears the legend "kiosk" in Indonesian. But it means a great deal to the small group of fisherfolk who operate it, and the many fisherfolk of this village (Pulau Kampai, Langkat district, north Sumatra, Indonesia) who patronize it. It's also a small symbol of achievement for the fisheries service of north Sumatra, for Bina Swadaya, a local training organization, and for the BOBP, which are together trying to encourage entrepreneurial initiatives among fisherfolk.

The kiosk does fairly brisk business selling fishing and farming essentials -- fertilizer, pesticides, fishing gear. Most of the goods are bought from co-operative stores and shops of neighbouring Pangkalan Susu village and transported by boat to Pulau Kampai. A young school-educated girl attends to customers at the kiosk.

The kiosk came up in December 1989 at very low cost — using voluntary labour and scrap materials. But an investment of Rs. 300,000 was made in stocking the kiosk. Profit during the first month was Rs. 30,000. Group participants are quite firm that initial profits will be ploughed back into the savings, not divided among group members.

Says Mr Soepardjo, 47, head of the 20-member fishermen's group. "The transport cost of some of our materials pushes up their prices for customers. We are thinking of ways to bring prices down."

The group members meet once a month at a local restaurant or at a member's house, and discuss savings, money matters, administrative steps, recent developments. Says group secretary Amir Husain, 33, "Initially members agreed on a minimum saving of Rs. 500 per month. This was later raised to Rs. 1,000 per month. To join the group, you have to pay an admission fee of Rs. 10,000."

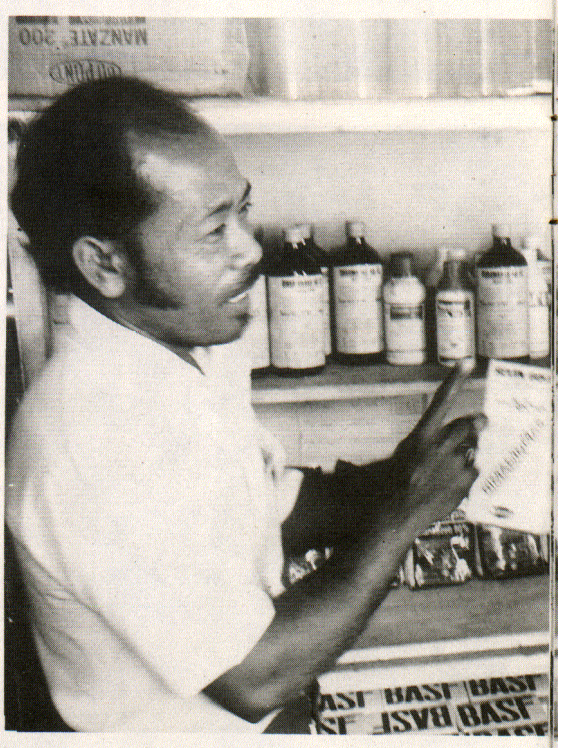
The kiosk apart, the savings have been used occasionally — thrice till January, 1990 — to disburse loans. "We lend money on the basis of trust," says Husain. "No questions about what the loan is for." Recently the group loaned Rs. 30,000 to a member for starting a business; it got back Rs. 35,000.

Group members are unanimous that the training they receive from the fisheries and extension service staff is extremely useful. Proof of the usefulness lies in the increasingly specific demands for further training — in technical matters and in matters concerning enterprise management. Project staff will in fact have to work overtime to meet the demands! Says Amir Husain : "We had lots of ideas but didn't know how to use them. The training showed us how." Husain gives a graphic example. "Imagine a big cooking pot. All our opinions went in to be cooked. What we rejected came out as smoke. What remained became an acceptable dish". The kiosk was one such dish.

"The idea of a kiosk never occurred to me", says BOBP's sociologist Philip Townsley (associate professional officer). "I hope it's the first of many innovative small enterprises that fisherfolk here will think of, set up and manage." However, "small entrepreneurship is not new to Pulau Kampai," Townsley points out. "The village used to export pepper, and was in fact known as a pepper port till end of the 19th century, when a deadly virus wiped out the pepper crop." Today the village grows paddy, also plantation crops such as clove, cocoa, and coconut, and sweet oranges besides. The 500-odd fishermen of Pulau Kampai (total population : about 3,000) use a variety of gear to capture shrimp. Shrimp culture is also practised.

Besides Pulau Kampai, the BOBP-supported extension project is also active in two other villages of Langkat district, promoting self-reliance through group action and small enterprise formation.

— S.R.M.



Inside Pulau Kampai. Left : The kiosk set up by the fishermen's group. Below left : The kiosk caters to farmers and fishermen. The group head (left) talks to a customer. Below : Some members of the fishermen's group with visiting BOBP staff. Above : Fish landing centre at Pulau Kampai.

Extending fisheries extension: notes from a consultation in Medan

(Continued from page 6)

the participants felt, would have to use mass media like radio and video to get their messages in. The need for media development, for development of materials, the use of mass media, the use of traditional media and even group media were seen as areas which deserve to be looked at.

To support fisheries and fisherfolk needs varied skills and expertise, and the question that came up was how best to organise extension services to make these available where and when they are required. This is a concern already faced and several models such as the T & V system have been grappling with it. The choice seems to reduce to a few options:

(a) have multi-purpose experts who combine several skills and expertise and can offer them all. This is not a very feasible option since the expertise varies and sometimes the tasks are contradictory;

(b) have many people from different areas of expertise at the field level – this turns out to be expensive and often inefficient; or

(c) have a more generally trained field staff backed up by subject matter specialists on call.

The idea of multi-purpose workers raised some strong opinions. Today many fishery agencies use such an approach which results in awkward situations like an extension officer trying to help the community with welfare measures on one day and enforcing fishery laws and licensing laws the next. Contradictory roles that affect the credibility of the staff. Alternate ways of strengthening extension and amplifying its impact by using fisherfolk as link workers or contact fishermen were discussed and considered worthy of experimentation.

Time-tested concepts like demonstrating technologies in the field by fisherfolk, were suggested. In addition, the concept of a test exercise, or research in the field through participation was proposed particularly in location-specific technologies like aquaculture. This in addition to other problems requires people to commit themselves to open-ended efforts that may not yield beneficial results.

The session generated, groupwise, checklists of methods and approaches, ideas that need further study, constraints that need to be looked into and overcome, and suggestions of future directions which the participants felt were very useful as everyone of them now had a shelf of ideas to pick from in their own tasks.

Linkages and Cooperation

As the discussions evolved, it became quite clear that extension, or fisheries and fisherfolk development could not possibly be accomplished by any one organisation, and while the fishery department or agency could play the key role or coordinating role there would be a need for more and more co-operation and linkages with other agencies to provide fisherfolk with the tools and support needed for overall and comprehensive development. In the last session this was taken up for discussion. The issues raised and discussed not only dealt with present-day cooperation such as the link between extension services, research organisations and fisherfolk or the linkages between financing and banking agencies and fishery agencies but also the need to involve and co-operate with NGOs and other government agencies. In fact, seemingly radical ideas such as subcontracting of aspects of extension work to private agencies were put forward, similar to what many government agencies do to get roads and schools built. It was felt that this may be a very efficient method of providing services to fisherfolk, and needs to be looked at carefully.

Cooperation and linkages between agencies depend considerably on the people concerned, the agendas and objectives of the concerned parties and also on the very culture of management of the organisations. The participants raised these concerns and emphasized the need to evolve institutional and other mechanisms to achieve a collectivity of sorts in the supply side of extension.

Where do we go from here?

Before we knew it, it was time to end the consultation. We had agreed that we would not worry about reaching a consensus or putting up recommendations. But what had been achieved? The participants in evaluating the meeting agreed that it had been a very positive experience for them. More important than identifying or learning about this or that approach, they had had a chance to think through their work and responsibilities and share it with others. Most parlicipants felt that they would have liked more time for discussion. Almost all agreed (a consensus?!) that the Consultation was a little abstract and removed from the ground level reality. They also agreed that a regional consultation could not but suffer from such a weakness. So they came up with a recommendation that using the learning from the consultation interested countries could continue the discussions at a level closer to the ground. This would enable the ideas generated to be put to test. A recommendation like this made particular sense coming as it did from countries wherein the governments were in the pttcess of evolving or changing (restructuring) extension services. And this process has begun with possible activities being discussed in at least two countries.

The participants were particularly pleased with the, methodological approach of the consultation and were happy and grateful to the two resource persons, Mr. Ron Maine and Mr. Bert Huizinga and their chairperson Mr. Tan Cheng Kiat, a leading fishery extension person from Malaysia, for putting their preaching into practice by enabling a truly participatory meething.

Mr. Hasen Didi of the Maldives capped the meeting in the evaluation session by answering the question, "Where do we go from here?" with "We go home"!! And, that's where the solution (and the problems) lie. If the participants returning have occasion to reflect on their discussions and learning at the meeting, we shall have succeeded. If they use if for follow-up action for the betterment and development of fisheries extension, we would have achieved more than we ever expected.

Take an ice box aboard your Nava and get top prices for your seerfish

By Ivor Clucas

A one-year experiment with seven prototype insulated ice boxes aboard motorized Navas of Kakinada. Andhra Pradesh, has shown that the use of ice gets Navas higher prices for the seerfish they land. The state government is now promoting the use of ice boxes by motorized navas in Kakinada.

Life is full of uncertainties for those who own and operate the motorised navas of Kakinada, Andhra Pradesh. One fishing trip might yield a bumper harvest of over 800 kg of fish worth Rs.10,000; the next trip may yield only Rs.250 or nothing at all. In fact, zero catch trips are common. Sometimes the fishermen cannot go to sea because of bad weather; at other times they lose their nets at sea; they may even lose their lives. Under these circumstances, fishermen are unlikely to take additional risks unless they are convinced of substantial benefits.

One fact, however, was convincingly demonstrated by BOBP over the last year. If the fishermen land their fish in fresh condition they will get top prices from the fish traders in Kakinada.

Quality - consdous traders

These fishermen use large mesh drift gill nets for night fishing over depths of around 20 fathoms. The majority of their catch (over 60% by weight) are Spanish Mackerel or King Mackerel, locally known as seerfish *(Scomberomorus spp)* The fish they catch normally weigh between 5 and 10 kg each and command high prices on the urban retail fresh fish markets, particularly in Madras. Kakinada traders who send these fish in ice by train to Madras are very quality conscious, and this is reflected in the prices they pay on the beach to the fishermen.

Until recently, the nava fishermen reckoned to sell about 50% of their seerfish to "export" traders at top prices; the other 50% thatfetched lower prices was suitable only for immediate sale at the local fresh fish market or for salting and drying.

As reported in the December 1988 *Bay of Bengal News,* BOBP has been promoting the use of ice at sea among the motorised navas in Kakinada. The aim is to enable preservation of seerfish in top condition, so that they command top prices. Result: higher income for boat owners and crews.

Fishermen loading their Nava with an ice box — a practice the fisheries department is encouraging.

Madhu

Left: Ivor Clucas discusses the ice-box-on-Nava experiment with officials at the Fisheries Training Institute, Kakinada. Centre: This extension jeep carried an ice box from village to village. Right: A demonstration is on at Pagadalapeta.

There are presently around 250 motorised navas based at Kakinada (the number has more than doubled in the last year). Another 100 are found on other parts of the Andhra coast. Each boat employs a crew of between 5 and 7, depending on the size of the boat and the number of nets carried. The crew members take a share of the proceeds from the fish sales. So iced fish can generate higher incomes for nearly 2,500 fishermen in Andhra Pradesh.

Over the last year or so, seven prototype insulated ice boxes have been made. These have been loaned for long-term assessment to a number of navas in the fleet, ice being provided, from project funds. In return, the box users have provided invaluable information on a daily basis; about their fishing operations, the amount and value of fish caught, and the extra costs involved in using ice. From this information it has been possible to evaluate the effectiveness of various box designs and the economic advantages for these fishermen of using ice at sea. A final version of the box is now in commercial production.

The study has revealed that over 80% of the fishermen's income comes from just one variety of fish - seerfish. By preserving the seerfish on ice the fishermen increase their profits by between 15% and 20% and can pay back the cost of an ice box in one to two years. In a good fishing season, they can recover the cost in much less than one year. Traders also benefit to the extent of a 10% increase in prices realised on distant urban markets. Thus, the technical and financial viability of using ice on board the Kakinada motorised navas was demonstrated beyond doubt. To get this message off to more people in Kakinada, a series of extension meetings and demonstrations was held during February 1990 in six villages in and around Kakinada where many nava owners and fishermen live. The events were publicised by word of mouth, also by handbills and posters.

A handbill about the ice box demonstration at Pagada!apeta vies for attention with a film poster. (This fisherman is reading the handbill.)

These drew large crowds. A press conference prior to the programme, which generated good coverage in local newspapers, also helped. Some 350 nava owners and fishermen attended the sessions along with many hundred children, tomorrow's fisherfolk.

The village temple was usually the venue. A prominent fisheries personality opened and addressed each meeting, and the state Fisheries Training Institute conducted the technical sessions – a prime example of co-operation between international organizations, state and local bodies; also an effective formula for extension work and technology promotion.

Each session consisted of talks and discussions about the technical and financial advantages of using ice, such as: You can stay at sea for 2 or 3 days and still sell your fish fresh; you can sell today's fish tomorrow if you're too late for today's market; you can keep fish for a day or two if a glut depresses prices; you can get top prices for top quality, and thus better rewards for your effort.

The ice box design was discussed and its use demonstrated. Where possible a village member who had been loaned a box by BOBP during the trial was also given the opportunity to relate his experiences. All the participants had a chance to see the ice boxes. Very lively discussions followed. Then questions to clear any doubts.

Inspector of Fisheries S B Sarma explains what the ice box can do. (Photographs: S. Jayaraj)

The sessions were rounded off with the BOBP video film "Use of ice aboard fishing boats of Andhra Pradesh" with a local language commentary. This, of course, generated much excitement, specially among the children and the youth. Unused to seeing TV, let alone images of familiar places and faces, they were quite taken up with the film.

The Andhra Pradesh Directorate of Fisheries has launched a 33% subsidy scheme for buying boxes to coincide with the start of the extension programme. Reactions so far indicate that "Iced at sea" seerfish from Kakinada have a bright future!

The Directorate of Fisheries plans to extend the message of ice to other districts of Andhra Pradesh later this year.

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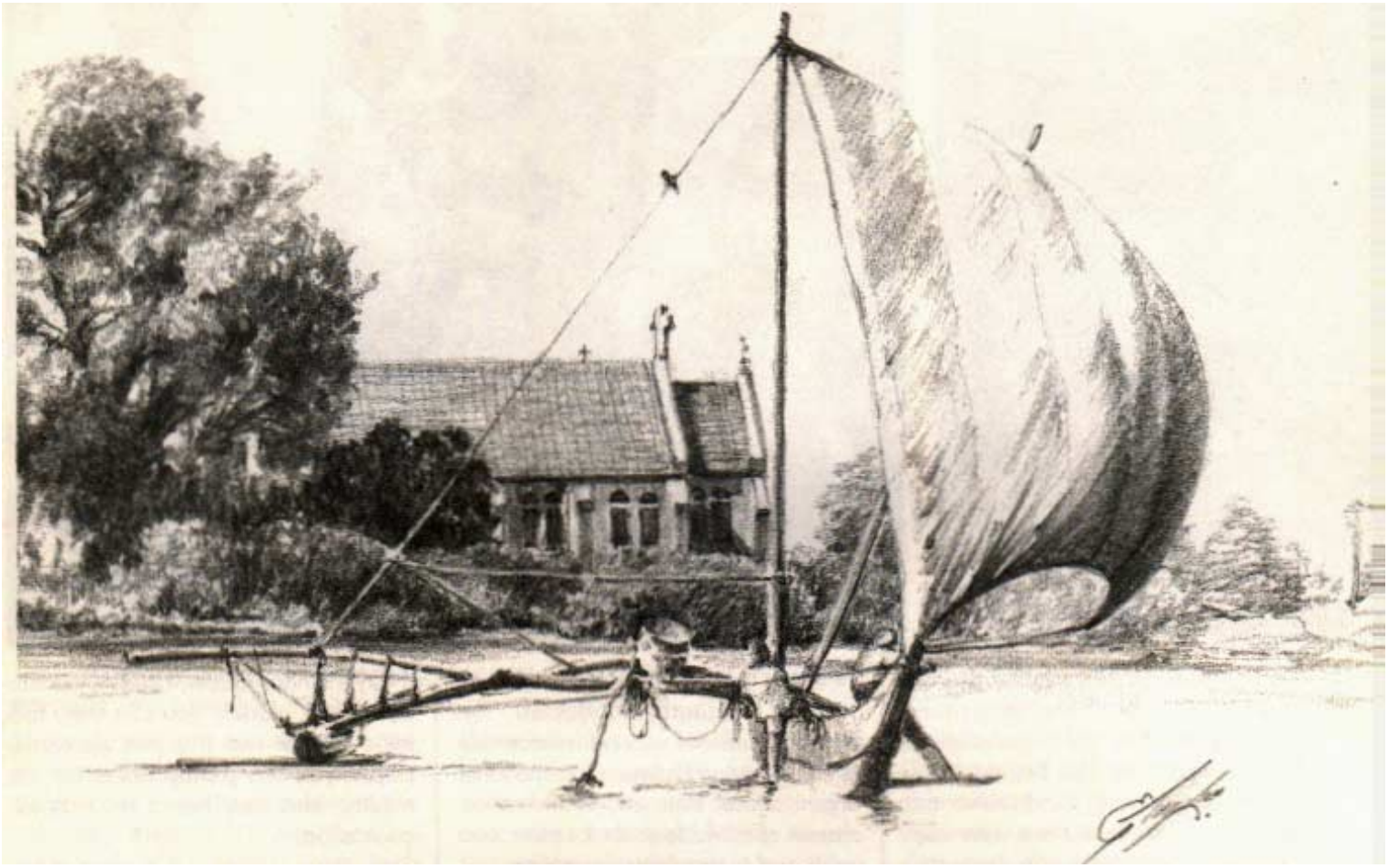


OUTRIGGER CANOES:
Monohulls or multihulls?

by Oyvind Guibrandsen

Tracing the fascinating history of outrigger canoes, the "world's fastest sailing craft", the author discusses the relative merits of mono-hull and multi-hull canoes.

How did man first venture out on the sea? Did he sit straddled across a floating log and paddle with a stick? Perhaps with improved stone axes and the use of fire, the log could be hollowed out – thus creating the dugout canoe now found all over the world. Then an ingenious idea burst on the scene thousands of years ago, probably in Indonesia. By lashing an outrigger on the side, stability could be greatly improved (Fig.1).The increased stability could be utilized to carry a sail, making possible travel over great distances. (Fig.2) The use of the outrigger canoe spread from Indonesiato Sri Lanka, and further to the east coast of Africa and to Madagascar. The people of Madagascar speak a language that has its roots in Indonesia; the double sprit sail used on outrigger canoes in Madagascar is identical to the one used in Sri Lanka. (Fig.3) Migration also spread towards the east, to the Philippines and the Pacific islands. All this happened a long time ago, hut still the name for a canoe is very similar: "Wanka" or "banka" in Indonesia and the Philippines, and "Waa" or "Vaka" in Hawaii and Tahiti. The word for outrigger is "sama" in Sanskrit and "ama" in Polynesia.

The double outrigger canoe is dominant in Indonesia and the Philippines (Fig.4), while in the Pacific islands, Sri Lanka and Madagascar single outriggers are used. We do not know why there is a preference for one type or the other, but when looking at the geographical distribution, single outrigger canoes are generally used in areas with rougher wave and wind conditions. When fishing, the single outrigger canoe has the advantage of keeping one side without obstructions for hauling and setting nets.

The outrigger canoe became the world's fastest sailing craft. The single outrigger canoe in general kept the,

outrigger to windward, using the weight of the outrigger as a balance against the wind pressure (Fig.5) To keep the outrigger to windward means that one cannot have a bow and a stern as in a conventional craft. What is the bow on one tack becomes the stern on the other tack. The double outrigger canoe (trimaran) uses the buoyancy of the outrigger to resist the pressure of the wind on the sail. The outrigger therefore must be buoyant and is mostly made from bamboo or light wood.

The name "catamaran" commonly used for a double canoe derives from the word "kattumaram" which means "logs tied together". However, the traditional "kattumaram" is a raft and not a double canoe.

Probably the name "catamaran" originates from a Britisher, who about 200 years ago, on his return to Britain after having worked in Madras, built one of the first twin hull craft known in Europe.

The catamaran was previously used by the Polynesians to carry heavy loads of people and food, on the long migrations between the Pacific islands, but today it is almost non-existent as a traditional craft. The complete dominance of the traditional outrigger canoes shows that for day fishing they are more suitable than the catamaran.

The advantages and disadvantages of monohulls and multihulls are best illustrated with an example. A very common craft utilized in Sri Lanka's inshore fishery is the 5.4m (18 ft) FRP boat, costing about US $ 1,000. The average load carried by this craft is a crew of 2 men and 250 kg of gillnets which gives a total load of 400.kg. The hull weighs 300 kg, so the total displacement is 700 kg. The most common engine is a 7 hp kerosene outboard engine. WHAT ALTERNATIVE MULTIHULL COULD WE ENVISAGE CARRYING THE SAME LOAD AT THE SAME COST? Calculations will show that to keep costs the same, we will end up with a single outrigger canoe and a catamaran of the dimensions given in Fig.6.

Let us now compare the various craft along the following criteria:

SPEED AND FUEL CONSUMPTION

Fig.7 gives approximate speed-power curves for the various hulls. At speeds below *4* knots, the 5.4 m (18 ft) monohull will be quite efficient. What is more important is the *speed in relation to the length of the boat* (or actually the square rock of the waterline length). A ship of 100 m (330 ft) length, with a speed of 18 knots does not actually, in relation to the length, travel any faster than the 5.4 m boat at 4 knots speed. This is why practically all of the world's cargo ships are monohulls. As we increase the speed in relation to the length, however the wave resistance caused by pushing the boat through the water increases dramatically. What can be done to reduce the wave resistance? First of all we can make the boat longer, but this is not enough. The bow must be made sharper to further reduce the wave resistance. A sharper bow will require a reduced beam and we end up with a long and narrow boat – a canoe.

This narrow beam would make a very unstable and unsafe boat, so the logical step is to add an outrigger. The 7.0m (23ft) outrigger canOe would require much less power than the monohull at speeds above 4 knots. Tests have been carried out in Sri Lanka with a 5.4m (18 ft) boat and an 8m (26.2 ft) outrigger canoe. With the same load of 400 kg and the same 7 hp kerosene outboard engine, the outrigger canoe had, at 6 knots speed, a saving of *400%* in fuel consumption, compared with the monohull. The speed at full throttle increased from 6.2 knots for the monohull to 7.8 knots for the outrigger canoe.

The speed of the catamaran will be lower than that of the outrigger canoe because the outrigger canoe is longer and there is less interference with waves between the main hull and the outrigger. The outboard motor works

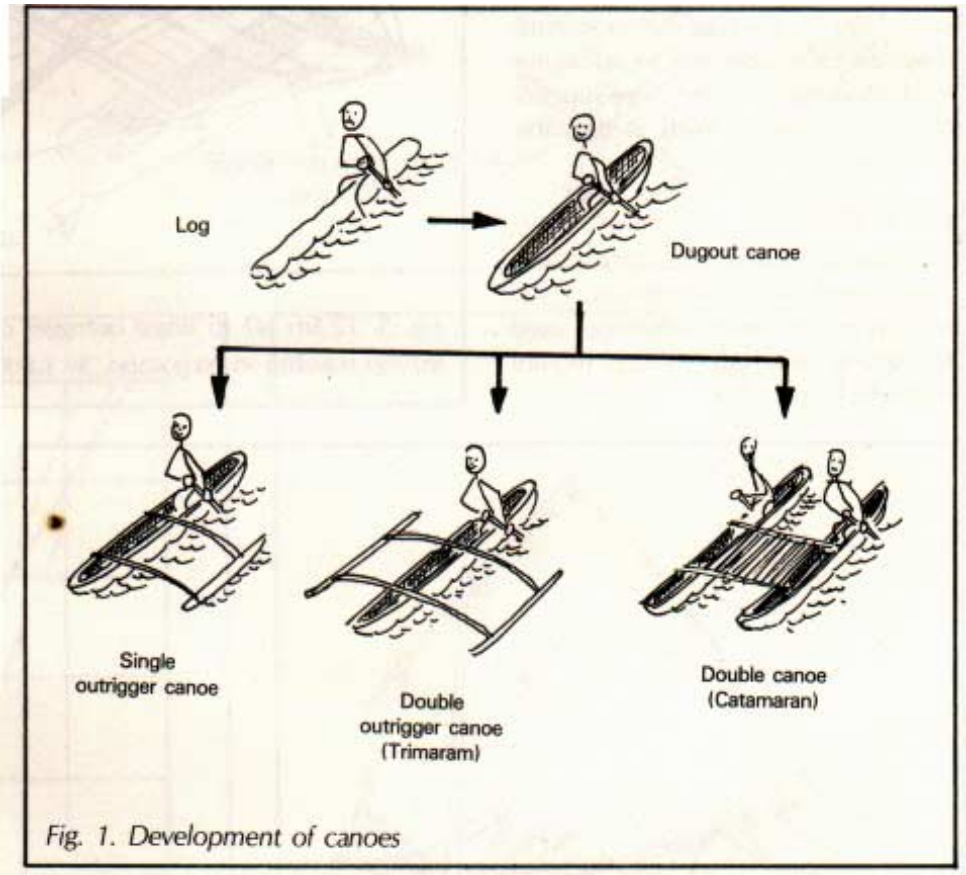


Fig. 1. Development of canoes

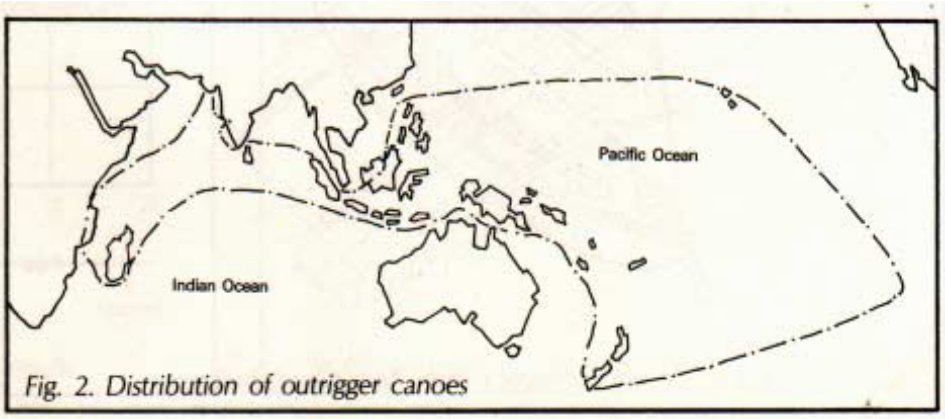


Fig. 2. Distribution of outrigger canoes

better behind the transom of the single outrigger canoe than in the turbulent water between the two hulls of the catamaran. At a speed of 14-16 knots the dynamic lift from the water pressure under the bottom of the boat starts to be important. We are into the so-called "planing range" and the monohull starts to gain again because of the wider flat bottom, well suited to creating lift that will raise the hull and reduce wave-making resistance. The 5.4m (18 ft) boat with a 25 hp outboard engine will probably be than the 7 m (23 ft) outrigger canoe using the same engine. Multihulls therefore are mainly useful in the "semi-displacement range," between what is called "displacement speed" and "planing speed".

LOAD CARRYING

Although the outrigger canoe and catamaran shown in Fig.6 can carry the same 400 kg load as the monohull, they are more sensitive to additional load. Monohulls are therefore superior for carrying heavy loads at displacement speeds.

DECK AREA

The main utilization of a catamaran is where deck area is important. Catamarans are therefore sometimes used for fishing with traps which require large deck space.

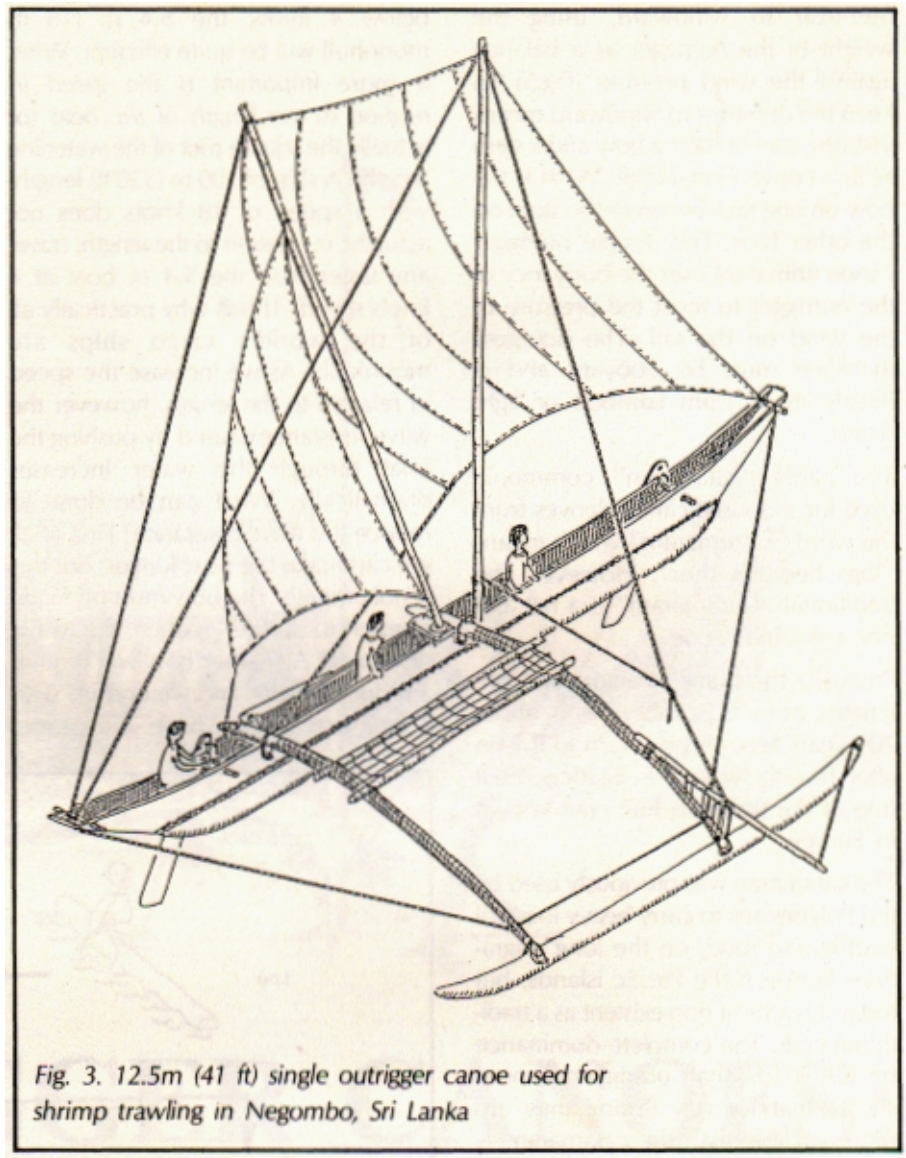


Fig. 3. 12.5m (41 ft) single outrigger canoe used for shrimp trawling in Negombo, Sri Lanka

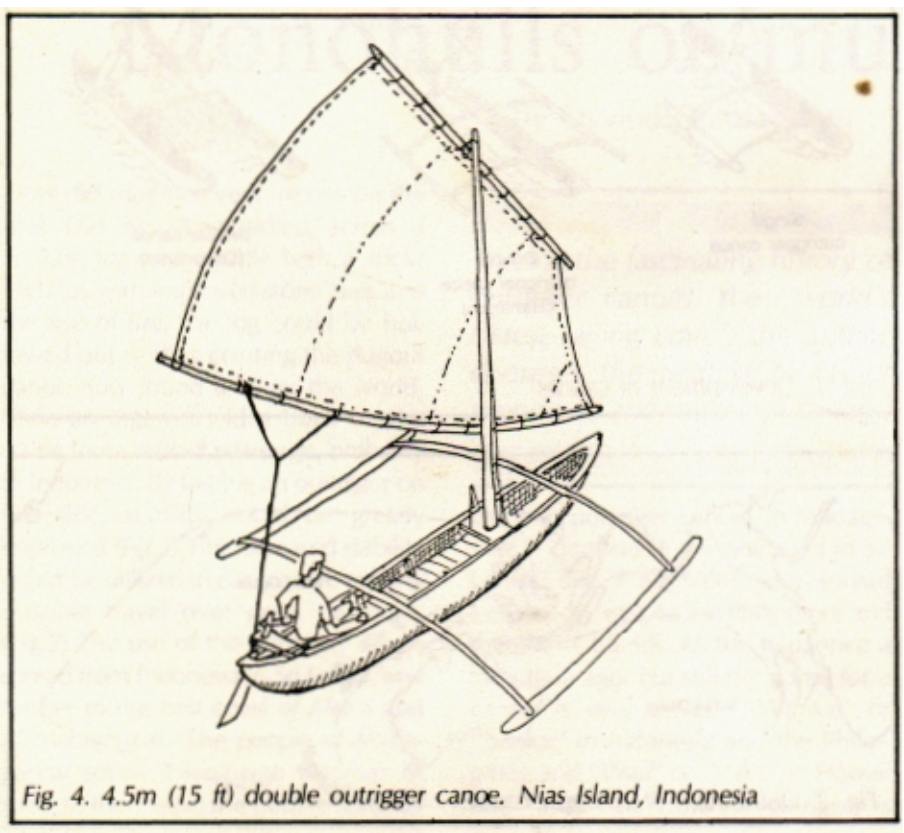


Fig. 4. 4.5m (15 ft) double outrigger canoe. Nias Island, Indonesia

ROLLING MOTION

Multihulls have a much greater damping of the rolling motion than monohulls, and with a smaller rolling angle they are generally more comfortable for the crew. Fishermen used to an outrigger canoe are often reluctant to change to a monohull for this reason.

STABILITY

Multihulls have higher initial stability than monohulls, and this permits the use of a large sail area and thereby high speed under sail. Should the cost of fuel increase and sail be used more in the future, outrigger craft and catamarans will gain a great deal in popularity.

With the big advantage in fuel consumption in the speed range of 5-15 knots, there is reason to maintain the concept of the outrigger canoe for fishing in the size range of 6-10 m (20-33 ft). The problem of continuiqg

this long tradition is mainly related to finding a substitute for the main hull made from a single large log. In the Philippines the lower part of the dugout canoe has been maintained, while the sides are planked with plywood. In areas where good quality plywood is not available, construction using sawn planks needs to be developed. To build a strong, light and watertight canoe out of planks is not easy, especially when the canoe is sitting on the beach and drying out in the sun between fishing trips. BOBP has built and is testing planked prototypes in Sri Lanka and Nias Island in Indonesia. The results of these trials will be of interest in all areas where outrigger canoes are used.

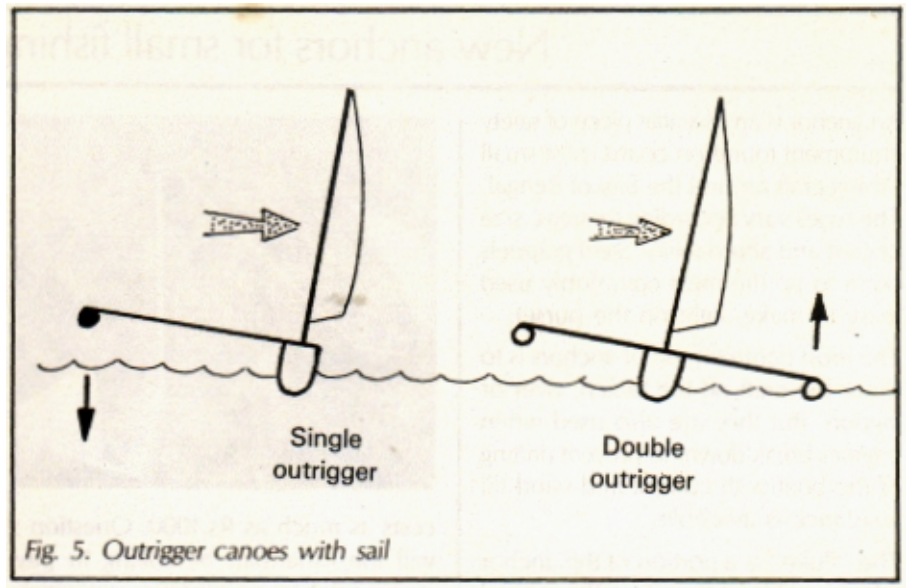


Fig. 5. Outrigger canoes with sail

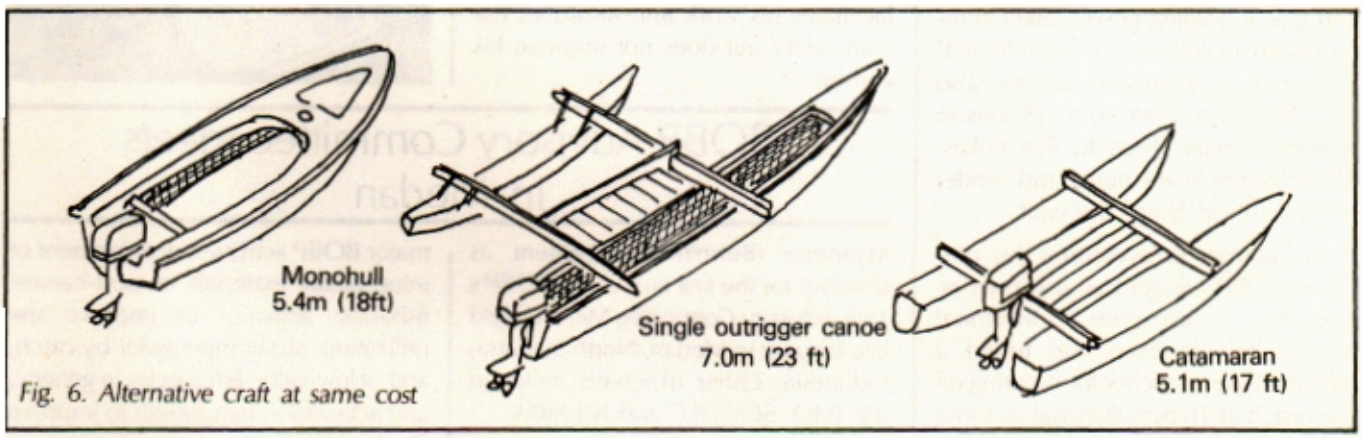


Fig. 6. Alternative craft at same cost

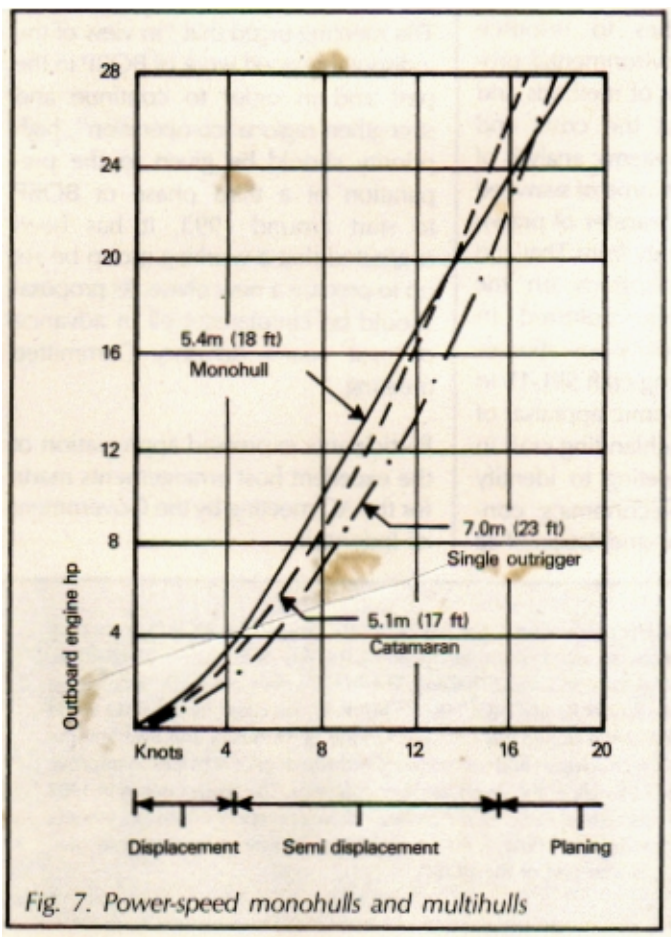
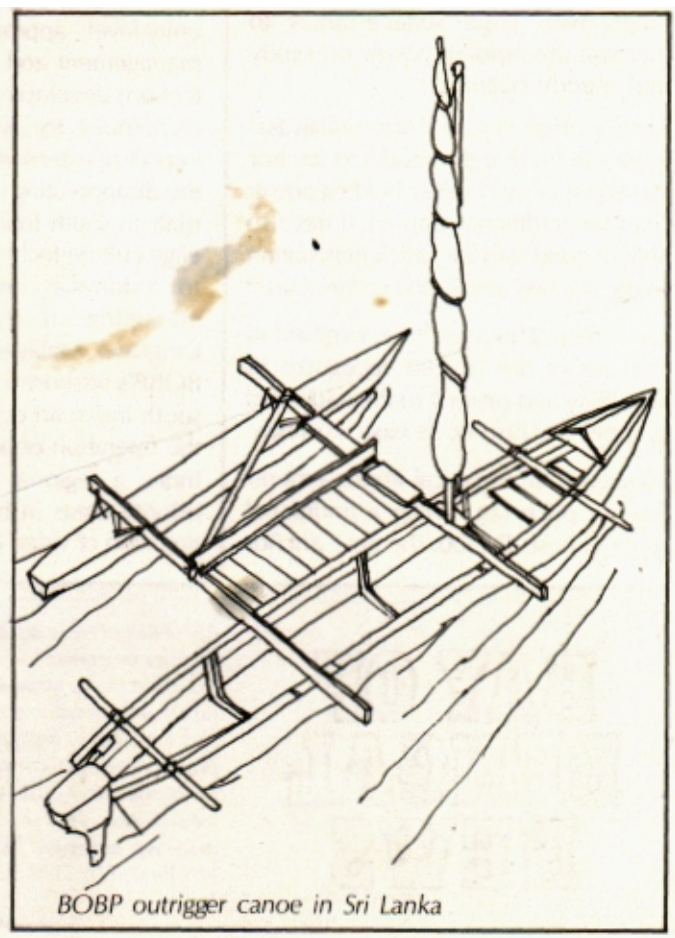


Fig. 7. Power-speed monohulls and multihulls


BOBP outrigger canoe in Sri Lanka

New anchors for small fishing craft

An anchor is an essential piece of safety equipment found on board most small fishing craft around the Bay of Bengal. The types vary according to areas, size of craft and affordability. Steel grapnels seem to be the most commonly used (easy to make, light on the purse).

The most common use of anchors is to moor the craft off the beach, river or lagoon. But they are also used when engines break down, to prevent drifting of the boat with current and wind till assistance is available.

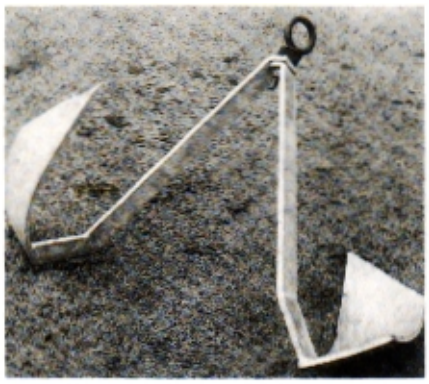
The "fluke" is a portion of the anchor which enables it to rest on the seabed and give it holding power. Steel grapnels used in India — with traditional craft such as navas and vallams, also with motorized craft up to 15 tons in weight — have three to five flukes. These grapnels are bulky and hinder movement on board the craft.

In an attempt to overcome this problem, BOBP's Roger Karlsson (marine engineer — associate professional officer) has designed and tested a different type of anchor for mooring off the beach at Thirumullaivasal in Tamil Nadu. It is foldable,and has just two flukes with large surface areas to increase the holding power on sandy and muddy bottoms.

Tests carried out in Thirumullaivasal have shown that the modified anchor has equal or even better holding power. than the traditional grapnel. It has also shown good stability, quick penetrationa in the sea bed and strong construction:

Fishermen who have been exposed to the use of this anchor recognize its suitability and prefer it to the traditional grapnel because of its easy stowage.

However, all technical improvements have a price tag. While a traditional grapnel costs Rs.500, the new anchor



costs as much as Rs.1000. Question will the fisherman be willing to pay such a price for an improvement which facilitates his work and improves the craft safety but does not improve his earnings ?

The anchor developed by BOBP. It has two flukes (left) with strong holding power and is foldable, as shown below.

BOBP Advisory Committee meets in Medan

Myanmar (Burma) was present as observer for the first time at the BOBP's 14th Advisory Committee Meeting held late January in Medan, North Sumatra, Indonesia. Other observers included the IMO, SEAFDEC and ICLARM.

The meeting urged, *inter a/ia,* community-level approaches to resource management and environmental protection; development of methods and techniques to assess the costs and impact of extension systems; analysis of the disappointing outcome of seaweed trials in south India; transfer of prawn usage culture technology from Thailand Indonesia; investigations on the marketing of oysters cultured in Langkawi, Malaysia; early operation of BOBP's offshore fishing craft SRL-1 5 in south India; an economic appraisal of the operation of beach landing craft in India; a regional meeting to identify priority areas in bio-economics; continuation of video documentation of all major BOBP activities; development of information materials in post-harvest fisheries; activities to improve the utilization of shrimp-trawler-by-catch, and of low-value fish species in general; and activities in Bangladesh to improve shark utilization.

The meeting urged that "in view of the indisputably good work of BOBP in the past and in order to continue and strengthen regional co-operation", high priority should, given to the preparation of a third phase of BOBP to start around 1993. It has been suggested that a working group be set up to prepare a new phase. Its proposal should be circulated well in advance of next year's Advisory Committee meeting.

Participants expressed appreciation of the excellent host arrangements made for the AC meeting bythe Government of Indonesia.

BAY OF BENGAL NEWS

Bay *of Bengal* News is a quarterly publication of the Bay of Bengal Programme (BOBP), a regional fisheries programme which covers seven Countries bordering the Bay of Bengal — Bangladesh, India, Indonesia, Malaysia, Maldives, Sri Lanka, Thailand. The BOBP's main project is Smallscale ficherfolk communities in the Bay of Bengal" (GCP/RAS/1 18/MUL). Executed by the FAO (Food and Agriculture Organization of the United Nations) and funded by Denmark and Sweden, the project develops techniques, technologies and methodologies through pilot activities to improve the conditions ot small- scale fisherfolk in the seven member-countries. The project began in 1987 for a duration offive years. It succeedsan earlier BOBP project, "Development of small scale fisheries in the Bay of Bengal", which terminated 1986. A five-year post-harvest fisheries project, executed and funded by ODA (U.K.), is also part of the BOBP.

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