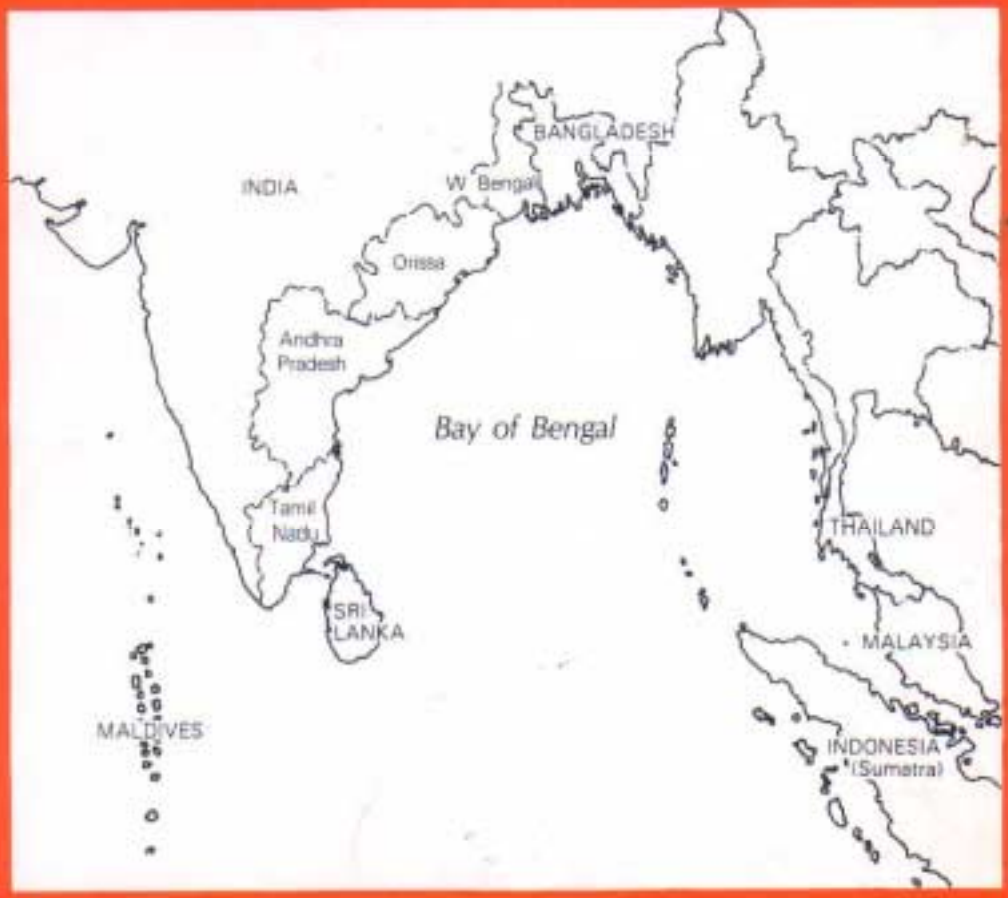
BAY OF BENGAL PROGRAMME
BOBP/REP/31

Development of Small-Scale Fisheries
GCP/RAS/040/SWE

In-Service Training Programme for Marine Fisheries Extension Officers of Orissa, India



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FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS

BAY OF BENGAL PROGRAMME **BOBP/REP/31**

Development of Small-Scale Fisheries **GCP/RAS/040/SWE**

IN-SERVICE TRAINING PROGRAMME FOR MARINE FISHERIES EXTENSION OFFICERS OF ORISSA, INDIA

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This report describes an in-service training programme for marine fishery extension officers of Orissa, India, carried out between March 1982 and July 1983. The programme dealt with major areas of fisheries extension work — social, economic, technical — and covered three "modules" — credit for fisherfolk, community development, small-scale fishing gear and methods. For each module, the training programme consisted of a preliminary survey to collect information; a training course to assess options for action; field assignments to plan a pilot project; field workshops; and a final seminar. The pilot project was then implemented.

The in-service programme improved the knowledge and the capabilities of extension officers. A major gain was that it led to two independent development projects — credit for fisherfolk and non-formal education for fisherfolk children. These projects are being reported separately in BOBP/REP/32 and BOBP/REP/33 respectively.

The in-service training programme was conducted by the small-scale fisheries project of the Bay of Bengal Programme (BOBP) in cooperation with the Directorate of Fisheries, Orissa. The 15 extension officers participated energetically in the programme at every stage. Various government agencies of Orissa — in fisheries, finance and education — offered excellent cooperation.

The BOBP's small-scale fisheries project is funded by SIDA (Swedish International Development Authority) and executed by the FAO (Food and Agriculture Organization of the United Nations). It covers five countries bordering the Bay of Bengal — Bangladesh, India, Malaysia, Sri Lanka and Thailand. It is a multidisciplinary project, active in fishing craft, gear, coastal aquaculture, extension, information and development support. The project's main goals are to develop, demonstrate and promote appropriate technologies and methodologies to improve the conditions of small-scale fisherfolk in BOBP's member countries.

This document is a technical report and has not been officially cleared by the FAO or by the concerned government.

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SUMMARY

The BOBP in-service training programme for marine fisheries extension officers began in March 1982 and concluded 'in July 1983. Apart from the training of extension officers, the programme, led to two significant development projects, dealing with bank finance for fisherfolk and non-formal education for fisherfolk children. These two projects are reported in two other papers — BOBP/REP/31 and BOBP/REP/32.

The in-service programme was part of a BOBP-assisted extension training programme in Orissa in operation since 1980.

The three particular features of the in-service programme were :

1. it was carried out within a special organizational set up for extension work with artisanal fisherfolk;

2. it was applied at the state level, covering the entire coastline of Orissa;

3. it had a special didactic structure of modules.

The in-service training programme dealt with the social, economic and technical aspects of development work, thus extending the scope of extension efforts beyond the purely technological emphasis of earlier programmes.

In 1981, fifteen extension officers had been appointed in Orissa, along with a fisheries demonstrator and a general assistant. Before the in-service programme started, the extension officers gained some experience in work at sea. They also took part in a field study of traditional fishing craft and gear. Because it was felt that a purely technological approach to extension work was incomplete, an in-service training programme was planned to include the socio-economic development needs of fisherfolk.

The expanded scope of the programme required that all major areas of fisheries extension work should be covered in training. But their time was limited because the extension officers also had to fulfil their day-to-day duties. The areas actually covered by the training scheme included :

1. social and economic organization of artisanal fishing communities;

2. methods of techno-economic and socioeconomic surveys;

3. techniques and methodology of extension work:

4. traditional and modern small-scale fishing gear and methods;

5. community development;

6. preparation and evaluation of financial/developmental schemes.

The curriculum for the in-service programme adopted the "project method" of learning and teaching. This means that a problem facing the fisherfolk was identified, information was collected about it in all its aspects, possible solutions were considered and relevant skills and knowledge acquired. The solution was tried out in the field and the usefulness of the skills and knowledge evaluated. Each project was designed as a module. Each module contained the following elements:

-A preliminary survey in which information on a particular topic was collected ;

-A training course to assess and consider options for action during which relevant knowledge and skills were imparted by resource persons;

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-field assignments during which pilot projects were planned;

— field workshops to discuss fresh problems and share experiences;

— and a final seminar to summarize the training module and prepare an action plan.

The relevant pilot project was then implemented.

Three training modules conducted were : "Financial assistance to fisherfolk", "Community Development" and "Small-scale fishing gear and methods". Techniques and methodologies of extension work were taught as part of the modules. Studies of fisherfolk and fisheries were also undertaken.

The modules were conducted between March 1982 and July 1983. The time taken for the modules differed, but they overlapped and were conducted concurrently at times.

Supervision and coordination of the training programme was well-planned and satisfactory. However, the working conditions of the extension officers — in terms of equipment available for example — could be improved.

***Module** 1.* **the fisheries finance module, conducted over 15 months, resulted in a pilot project for a new fisheries credit scheme. This module took the longest time because it entailed changes in current practices of modern institutions (banks) already operating in the field, and changes in the attitudes and expectations of the fisher-folk. The new credit scheme, launched after the module, has the following advantages over earlier credit schemes: an excellent rate of loan recovery, no subsidies and an almost 100 per cent utilization of credit.**

***Module** 2,* **on community development, took nine months. The problem selected, illiteracy, was easier to deal with than credit, because primary education among fisherfolk children was unexplored territory. This module led to the launching of a non-formal primary education project. Forty centres for primary education were established in coastal fishing villages. These centres perform extraordinarily well.**

***Module** 3,* **the fishing gear module, was conducted over six months. After the training, when options were examined, it was decided that there was no scope for improving artisanal fishing gear unless a different type of craft was introduced. Therefore, no pilot project was launched following this module.**

In evaluating the in-service training scheme, it is found that extension officers, as a result of the training, have a clearer understanding of the objectives of extension work; display more initiative and responsibility; are better geared to obtain the cooperation of other development agencies; maintain closer contact with fisherfolk; show better technical knowledge regarding financial schemes and fishing craft and gear.

With certain organizational arrangements, BOBP's role in this in-service programme can be easily taken over by the Directorate of Fisheries.

1. INTRODUCTION

In March 1982, BOBP began an in-service training programme for marine fisheries extension officers in India's east coast state of Orissa. The programme covered social, economic and technological aspects of developmental work with artisanal fishing communities and was part of a BOBP-assisted extension training project, which commenced in 1980. Prior to this programme, extension training focussed on the technological aspects of development. The in-service training programme introduced three special features.

Firstly, it was carried out with a special organizational set-up for fisheries extension work with artisanal fishing communities. In 1981, the fisheries department established a separate wing consisting of 15 extension officers and 30 fishing demonstrators and assistants, supervised by three regional Assistant Directors of Fisheries and two regional Deputy Directors of Fisheries. To maintain continuity, the Orissa Government undertook not to transfer these officers for five years. Special duty charts were drawn up, and resources and funds allocated to establish and run 15 marine fisheries extension centres.

Secondly, the scheme was operated at the state level and not limited to a district, development block or village. It was conducted in close cooperation with fisheries department personnel in the region, as well as in the headquarters, in order *to* test its compatibility with the existing department organization and to make it possible for the scheme to be repeated with another set of officers later on.

Thirdly, the training had a special didactic structure consisting of modules, each module combining both theoretical-systematic and practical-problem oriented elements.

This report explains the approach of the in-service training programme and describes its various elements and its implementation.

2. PROGRAMME ORIENTATION

2.1 Fisheries Extension Work Prior to the In-Service Training Programme

In 1980, the Directorate of Fisheries, Orissa, and the BOBP agreed to implement an extension training project to upgrade the technical capability of extension staff so that they could help improve the traditional fishing craft and gear of small-scale marine fishermen. This technological approach was later expanded in scope to cover improvement of the overall standard of living in coastal fishing communities as well as efficient exploitation and conservation of coastal fisheries resources.

The initial strategy of a technological approach is briefly described here to contrast it with the later change in project emphasis and to analyze the rationale for the change.

— Rationale/Administrative Arrangements.

In 1980, the Directorate of Fisheries, Orissa, adopted a new strategy to increase fish production from the coastal waters of the state. Earlier attempts to achieve this had aimed at replacing traditional non-mechanized fishing boats by river/harbour-based small-scale mechanized gillnetters and trawlers, which were introduced through cooperatives. At the same time, the fisheries department itself operated a fleet of mechanized boats, meant for exploratory and demonstration fishing. This approach had only a limited success due to organizational deficiencies and various other reasons. As for mechanized fishing, it had been adopted all along the coastline by private entrepreneurs without much assistance (except for bank finance) from government

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agencies. However, the introduction of mechanized boats benefited mainly the owners of such boats, the majority of whom did not belong to fishing communities.

As a result of this experience, an alternative approach was proposed by the Directorate of Fisheries in 1980. This was to undertake extension work to improve traditional fishing craft and gear by introducing appropriate low-cost innovations. This was expected to bring about a more rapid increase in the short term in fish production and in fishermen's incomes.

A number of results were expected from the new approach. The total effect of small improvements could possibly be significant in view of the large numbers of the target group. Because of the rapidly increasing operating costs of mechanized fishing craft, improvements to traditional fishing boats could be cost effective. This approach was expected to reach the large numbers of hitherto neglected small-scale fishermen, operating from open sea shores, as against the earlier approach of concentrating on the small numbers residing near harbours and anchorages.

In adopting the new approach, however, a number of problems had to be faced. There was no detailed information about the traditional craft and gear being used by small-scale marine fishermen. Also, no technical assessment of the deficiencies of these craft and gear was available — not to speak of proved and established solutions which could be offered to the fishermen. Moreover, personnel with the training and orientation necessary for such an extension programme were lacking. The following plan of action was therefore agreed upon. An extension staff of 30 officers was to be posted in six coastal bases ; five officers in each base. The officers were to work under the administrative control of three regional Assistant Directors of Fisheries who in turn would work under the control of the regional Deputy Directors of Fisheries. At headquarters level, the extension programme was to be coordinated by the Additional Director of Fisheries.

Prior to their posting, the extension officers were to gain basic experience of work at sea in mechanized fishing boats, as well as experience of working with artisanal fishermen in traditional fishing boats: the first, during a two-month apprenticeship with mechanized trawlers and gillnetters of the fisheries department, Orissa; the second, through a BOBP-sponsored training scheme at the Youth Fisheries Training Project in Negombo, Sri Lanka. Specialized training programmes were to be considered later on.

After they were trained and posted to their duty stations, the extension officers were to participate in a six-week field study of traditional fishing craft and gear, to be conducted by a national consultant. The study was also meant to assess possible improvements in traditional fishing technology. The extension officers were also to gather basic socio-economic data relating to fisherfolk in their area of operation.

Regarding the initiation of the actual programme, it was assumed that even after the two-month training period, the extension officers would not be able to determine the improvements that should be effected or the innovations that should be introduced. It was anticipated that, in the initial stage, they would have to be guided by technical experts from the BOBP in a programme of experimental fishing. From this they would acquire the practical experience to eventually work on their own initiative.

-Appointment and Training of Fisheries Extension Officers.

Of the planned 30 extension officers, 15 were actually appointed; the appointment of the other 15 was postponed. Each officer was given a staff of two, a fisheries demonstrator and a general assistant, both of them matriculates who were given some vocational training.

The appointed officers had joined the department either in 1978 or 1979. All of them have a bachelor's degree in zoology and botany. Some have in addition studied chemistry and geology. Five of the 15 officers have a master's degree, three in biology, one in law and one in labour/ social welfare. Prior to their appointment as marine extension officers, they underwent a 7-10 month departmental in-service training programme in inland fisheries and related extension techniques.

The pre-service training received by these officers during the first half of 1981 achieved its purpose only to a limited extent. Of the planned 60 days of fishing on board the gillnetters and trawlers of the fisheries department, only a few days' fishing actually materialised, because the departmental boats — as on earlier occasions-were not operational.

Though the 15 extension officers attended a two-month training scheme at a youth fisheries training project in Sri Lanka in two batches, the actual number of fishing trips fell considerably short of the set target because some of the training craft were not seaworthy. Of the 30 day/night fishing trips planned, only 17 took place. Apart from gaining seagoing experience, the extension officers were trained for one week each in making and mending fishing nets and in engine maintenance. An important part of the training -fishing trips with artisanal fishermen using small traditional craft — did not materialize, because the Negombo centre found it difficult to contact traditional fishermen.

There were two main reasons for the shortfalls in the pre-service training. The first, as mentioned earlier, was the lack of adequate training facilities/opportunities, particularly for practical training on board fishing vessels. Being basically administrative bodies, Government departments cannot operate boats which undertake fishing in a professional manner or provide practical training which meets professional standards. The same applies to a large extent to voluntary development projects like the one in Negombo. There is no substitute for an apprenticeship on commercial fishing boats, including traditional ones.

The second reason for the shortfall in practical training may also be the role perceptions of government officers of the cadre of Senior Inspectors or Deputy Superintendents belonging to the Fishery Extension Service in Orissa. The duties of such officers do not include any kind of manual work. Staff who are supposed to do manual work, such as boat drivers, master fishermen, mechanics, etc., command a low rank and status in the departmental hierarchy and receive low pay. Because of this, many of the fisheries extension officers may not have tried very hard to utilize the opportunities for practical training offered to them.

This role perception of the fisheries extension officers must be viewed in the larger context of the professional role of government officers who are concerned with development work. This role covers overall programme planning, implementation, coordination and evaluation. But purely technological aspects are handled by other people, such as technicians of companies who supply the technologies, and local mechanics.

The deficiency in the technological training of the officers, as well as second thoughts about the suitability of a specialist approach, given the traditional role perception of government officers, led to a reconsideration by BOBP of the purely technological approach.

Another equally valid reason for reconsidering the specialist approach was the outcome of the study of traditional fishing craft and gear which was conducted by a BOBP national consultant with the active participation of the fisheries extension officers. While the study yielded a detailed description of the traditional fishing craft and gear, it did not suggest many improvements which were likely to be technically feasible and economically viable. Moreover, the developmental needs of artisanal fisheries are much more complex than what was initially assumed. A brief assessment of the developmental needs is given below.

2.2 The Training Scheme as an Integrated Approach to Fisheries Extension

2.2.1 Development Needs of Artisanal Marine Fisherfolk

As elsewhere along the Indian east coast, the artisanal non-mechanized fishery operates from scattered landing sites where fisher-folk often lack amenities such as clean drinking water, electricity, sanitation, education, medical care and communication. Fishing boats at sea, as well as fishing settlements on open beaches and on the banks of rivers are regularly affected by natural calamities such as cyclones and floods. Lean seasons in fishing add to the insecurity of the fisherfolk's lives.

Whether from the natural landing sites of a beach or from the mouth of a river, several methods of fishing are employed, using active gear such as encircling gillnets, boat seines, lift nets, shore

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seines and cast nets, as well as passive gear such as gillnets of various mesh sizes, drift and bottom set longlines, set bagnets, stake nets, pots, hook and line, etc.

Methods suited to both demersal and pelagic fishing are used wherever marine resources, ecological conditions, the skills of local fisherfolk and the availability of inputs and market outlets make these methods technically feasible and economically viable.

Present-day fishing technology is the result of a steady development over the years which has not only increased the number of craft and gear, but also led to the introduction of new fishing methods and the replacement of natural fibres and materials by synthetic fibres and materials for ropes, yarn, floats, sinkers, anchors, etc. However, there are still considerable regional differences and imbalances in the use of fishing craft, gear and labour.

Artisanal fishing technology is by no means primitive, but well suited to exploit the inshore areas of the continental shelf and to generate employment and income for the coastal population. However, artisanal fishery is non-mechanized and depends on natural energy such as wind and the physical strength of crew members to propel craft and handle gear. As a result, the number of fishing days and the scale and range of fishing operations are limited. This again results in low productivity and income per crew member.

While fish is usually auctioned in southern Orissa, pre-arranged sales to middlemen who advance money to fishermen are still common. Such sales compare unfavourably with auction sales, because of low pre-fixed prices and delays and failures in receiving payment.

Fish is usually sold fresh : Only unsold fish (particularly when landed in bulk or when belonging to some particular species) is sun-dried and salted, either at the family level or on a large scale by wholesalers. Thus the volume of processing is low because of the consumer preference for fresh fish.

Finance or credit is provided by friends and relatives and by professional moneylenders from both within and outside the fisherfolk community. The latter are mainly fish merchants or big net owners. Besides these non-institutional sources of credit, institutional sources such as cooperative banks, commercial banks and regional rural banks have begun to finance coastal fisherfolk.

The comparatively low standard of living of the marine fishing communities in Orissa is due not only to low productivity (caused by non-mechanized production methods) and low economic returns (caused by low level of processing and exploitation by middlemen and moneylenders), but also to socio-cultural conditions within these communities -such as superstitions and irrational beliefs; consumption of liquor; lack of aspiration and saving habits; illiteracy; lack of knowledge and information; lack of family planning, etc.

Moreover, the benefits of development effort have generally not reached the poorer segments of the fishing communities. This has been due to their lack of access to capital and services provided by the government and the lack of an effective mechanism to assist them in obtaining these benefits.

From this brief description of the living conditions of artisanal marine fisherfolk, the following development needs may be deduced. These needs indicate potential areas for fisheries extension work.

1. *Fishing technology (including coastal aquaculture):* Need for further dissemination and diversification of traditional fishing technology. Need to develop small-scale motorized fishing boats and to test their economic viability and social acceptability. Need *to* develop brackishwater culture techniques for fish and prawns.

2. *Fisheries finance:* Need to establish direct contact between banks and fishermen. Need to facilitate indirect institutional finance through cooperatives, credit societies, etc. Need to promote institutional savings.

3. *Social welfare/relief/security:* Need to introduce institutional social security, welfare and relief measures, e.g., accident insurance, old age pension fund, cyclone relief scheme, etc.

4. *Community development:* Need to create awareness and participation among fisherfolk, particularly in the lower socio-economic groups, and among women, by introducing new income-earning activities and by training link workers* from fishing villages.

5. *Education:* Need for fisherfolk to participate in development programmes and in non-formal education programmes for children and adults, with emphasis on occupation and environment and on changing unscientific attitudes and norms.

6. *Utilization of developmental schemes and infrastructural facilities:* Need to make fisherfolk avail of various schemes that already exist-relating to institutional finance, education, health care, family planning, drinking water/sanitation, communication, electricity.

7. *Handling/processing and marketing/distribution of fish:* Need to investigate methods to improve the hygiene and durability of preserved fish/fish products. Need to investigate ways of strengthening the position of fishermen against middlemen by organizational and financial support for marketing through fisherwomen and cooperatives.

2.2.2 Role Perceptions of Fisheries Extension Officers

At the beginning of the in-service training programme, the extension officers were asked what, in their opinion, were the objectives of fisheries extension work. The 15 extension officers discussed this question in four small groups. The following objectives were identified.

While one group had an exclusively technological role perception, the other three groups acknowledged the role of both technological and socioeconomic role components. Amongst the three, technological features were emphasized by two groups and socio-economic features by the others.

Thus the role perceptions of the extension officers, before their in-service training, contained both socio-economic and technological elements, even though the pre-service training they had received was exclusively technological.

Despite the technology-dominated role perception at the beginning of the training scheme, the officers did not regard themselves as the ones who practically implemented technology programmes and should therefore avail of practical/manual skills and qualifications (See 2.1). Most of them saw their role in terms of coordination and supervision of technological programmes — with reference to economic viability and social feasibility — rather than as the identification and introduction of appropriate technologies.

During the course of the training programme, the role perceptions of the extension officers tilted further towards the socio-economic role component which, at the end of the course, clearly dominated the technological components.

The initial role perceptions of the extension officers are analyzed in detail below.

Of the 17 objectives of fisheries extension work identified by the groups, 10 were technological ones : objectives 4 and 5 of Group I, objectives 1 to 4 of Group II, objective of Group III, and objectives 1 to 3 of Group IV. The remaining seven were socio-economic objectives (See Table 1).

Among the technological objectives, the first priority, as identified by all groups, is clearly the introduction of modern fishing technology to increase fish production and income. The second is the training of fishermen in fishing techniques and functional/vocational education of fishermen. Other technological objectives cited were improvement of living conditions, education, the development of community enthusiasm and self-sufficiency.

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* See BOBP/REP/27 — "Activating fisherwomen for development through trained link workers in Tamil Nadu, India."

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Table 1

The Objectives of Fisheries Extension: Perceptions of Orissa Extension Officers Before the In-Service Training Programme

	Group I	Group II	Group III	Group IV
1	*Socio-economic improvements:* education, drinking water, sanitation, health care, housing, communication, credit	*Improvement of fishing methods,* viz., modernization of craft/gear, mechanization of country craft, introduction of new techniques	*Modernization of fishing methods* to increase production and raise income of fishermen	*Transfer of modern fishing technology*
2	Development of *community enthusiasm*	Introduction of *improved techniques of preservation of fish*	*Financial assistance to fishermen* to acquire craft/gear	*Functional* and *vocational training* and *education* of fisherwomen
3	Extension of various government schemes of *financial assistance to poor sections*	Improvement of *infra-structural facilities* for fisheries	To make the traditional marine fishermen community *self sufficient* through *socio-economic changes*	Improvement of *fish marketing* infrastructure/facilities and elimination of *middlemen*
4	To *increase fish production and income of fishermen*	*Training* of fishermen in *fishing techniques*		*Financial assistance* to fishermen through government schemes
5	To introduce *modern fishing technology,* new craft and gear			Introduction of *multipurpose co-operative stores.*

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2.2.3 Objectives and Structure of In-Service Training Programme

The in-service training programme aimed at developing attitudes, knowledge and skills among extension officers to improve their willingness and ability to cater to the developmental needs of artisanal marine fisher-folk. The trainees were to thoroughly understand the lifestyle, economy and production technology of the fisherfolk. They were to learn how to involve the fisherfolk in developmental activities and how to initiate cooperation among various government and voluntary development agencies in assisting the fisherfolk.

Apart from training extension officers, the programme also aimed at directly improving the living conditions of fisherfolk by preparing pilot projects to be implemented on completion of the programme. The aims of the pilot projects were to improve the socio-economic conditions of fisherfolk, particularly the weakest amongst them, and to ensure efficient exploitation of the fishery.

Ideally, to achieve these targets, all major areas of fisheries extension work had to be covered by the training. However, because the fisheries extension officers already had to perform a number of duties for the department of fisheries, such as collecting catch and effort statistics, implementing welfare and relief schemes, etc., the time available for the training was limited. Thus some areas which were considered important -such as handling/processing and marketing/distribution of fish; conservation of aquatic resources; oceanography; and fishing craft- had to be excluded. The in-service training programme actually covered the following areas :

1. social and economic organization of artisanal fishing communities
2. methods of techno-economic and socio-economic surveys
3. techniques and methodology of extension work
4. traditional and modern small-scale fishing gear and methods
5. community development
6. preparation and evaluation of financial/developmental schemes.

The “in-service” character of the training programme is reflected by the macro-didactic structure of the contents, as well as by the micro-didactic structure of the curriculum.

To take the second first: the curriculum was based on the “project method” of learning and teaching. A problem facing the fisherfolk was first identified after which detailed information was collected about the present situation and about various aspects of the problem.

Based on this, possible solutions were considered and skills and knowledge acquired which were relevant to the solution. The solution was tried out in the field and the newly-acquired information, knowledge and skills of the trainees were put to practical use. Finally, the application of these skills and their practical contribution to the solution of the problem were evaluated.

As for the macro-didactic structure of the contents, each project was designed as a module. Each module consisted of a preliminary survey, a training course of l-2 weeks, practical field assignments, field workshops and a concluding seminar. During the survey, the trainees collected information from the villages in their jurisdiction relating to the topic of the module. On the basis of this information, they assessed the situation in the fishing villages during the residential course and considered options and means for improvements. Systematic theoretical and practical knowledge and skills relevant to the specific topic of the module were imparted to the trainees. Resource persons from other government agencies, research institutions, voluntary agencies and local associations also participated in the training courses.

Towards the end of each course, follow-up activities to be carried out in the field were discussed and prepared in cooperation with other departments and agencies. These activities concerned the preparation of pilot projects which were to commence on completion of the training module. During the follow-up activities, on-the-job advice was given to the officers, both individually

and through field workshops. At the workshops, experience gained during field work was exchanged, problems not anticipated earlier were discussed and additional skills and knowledge were acquired.

A final seminar was held to summarize the training module and to prepare an action plan to implement the pilot project.

Altogether, three training modules were conducted : "Financial Assistance to Fisherfolk", "Community Development" and "Small-Scale Fishing Gear and Methods". Techniques and methodologies of extension work were taught in an integrated way, as part of the modules.

To familiarize themselves with fisheries and fisherfolk and to build up a sound data base, the extension officers assisted in compiling an inventory of artisanal fishing craft and gear in the state, conducted a techno-demographic fisheries census, and participated in a socio-economic study of selected fishing villages.

To encourage analytical, reflective and innovative thinking in the extension officers as well as develop their initiative, certain micro-didactic principles were introduced. Compared to traditional pre-and in-service training programmes which aim primarily at strengthening general vocational knowledge of the trainees, using lectures, demonstrations and excursions as the main teaching methods, the Orissa programme included various domains of learning, such as pragmatic components (behavioural and linguistic skills and abilities), normative components (attitudes and values), as well as transfer components concerning the critical re-examination of traditional structures (the readiness and ability to change and improve them). Learner-oriented and active learning and teaching methods, such as role plays, simulations, games, practicals, group work, individual work assignments and plenary discussions, were frequently used.

3. IMPLEMENTATION OF IN-SERVICE TRAINING PROGRAMME

The in-service training programme commenced in March 1962 and came to an end in July 1993. Apart from training the extension officers in various fields, the programme led to two significant development projects — non-formal primary education of fisherfolk children and direct bank finance for fisherfolk.

It was initially planned to conduct the training modules one after the other, each module taking about three months. But overlaps and extensions could not be avoided because the extension officers had other duties to perform.

Table 2 shows the sequence of events of the in-service training programme.

The table shows that the programme was not conducted as a sequence of modules. It was a cumulative training effort with, finally, three training modules being conducted at the same time. Module I took the longest time, 15 months; module II, 9 months; and module III, 6 months. The first module took more time because its application to field problems was more complicated : it was necessary to change the practices of modern institutions, like banks, already operating in the field, and to change the corresponding attitudes and expectations of the fisherfolk. This was easier in the case of module II, because primary school education was a new activity in fishing villages of Orissa. The third module took the shortest time because no suitable field activity could be identified.

The concurrent implementation of the modules had two significant effects. On the one hand, the trainees did not have sufficient time for their in-service training assignments, particularly as they had to attend to their regular extension work as well. Likewise, the number of days available for training courses and workshops was limited. On the other hand, the simultaneous conduct of the modules resulted in interactions between different areas of work, and so led to a more integrated extension effort. This fostered better understanding between extension officers and the target group of fisher-folk, and was appreciated by the latter.

Table 2

Sequence of Events of In-Service Training Programme, March 1982-July 1983

Period	Study (from January onwards)	Module I	Module II	Module III
		Financial Assistance to Fisherfolk	Community Development	Fishing Gear and Methods
1982 March	Conduct of techno-demographic study (fisheries census) of fisherfolk, craft and gear, infrastructural educational, medical/health facilities, villagewise compilation of data	– Enquiry into local credit needs and sources and purpose of non-institutional credit by FEOs -1½-week training		
April		course on fisheries finance – Initial discussion of artisanal fisheries credit scheme with banks, by experts		
May		– Design of appropriate bank formats, procedures and guidelines, by expert		
June	Field workshops to brief FEOs and survey methods and to interpret results	– Design of general strategy of credit flow, by experts Field work of FEOs: – Identification of common types of investments by artisanal fisherfolk		

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Period	Study (fram January onwards)	Module I	Module II	Module III
		Financial Assistance to Fisherfolk	Community Development	Fishing Gear and Methods
July		-Calculation of cost and earnings of craft/gear Field test of formats and procedures		
August		-Field workshops to review cost/earnings calculations and for briefing on and revision of formats and procedures		
September				
October		— Preparation / finalization of financial schemes and bank formats and districtwise strategies of credit flow, by experts with assistance of FEOs	— Field enquiry by FEOs into reasons for illiteracy and poor attendence of primary schools in fishing villages — 1 -week Training Course on community development	
November		— Negotiations with bank headquarters (state level) and regional offices (district level),	-Preparation of scheme outline for development of non-formal primary education	
1982 December	Participation in conduct of socio-cultural study in 10 selected villages with assistance of FEOs	by experts.	curriculum, by expert — Negotiations with UNICEF, National Council of Educational Research and Training (NCERT), State Council of Educational Research and	

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Period	Study (from January onwards)	Module I	Module II	Module III
		Financial Assistance to Fisherfolk	Community Development	Fishing Gear and Methods
1983 January		Identification of potential borrowers/education of fisherfolk about institutional credit, by *FEOs*	Training (SCERT) and Department of Fisheries, by expert – Identification of educational needs of fisherfolk, by expert with assistance of *FEOs*	
February		-Identification of and negotiation with suitable bank branches *Field workshop* to review borrower identification and response of target group	– Design of non-formal primary education curriculum outline, by experts	– *2 week training course* on fishing gear and methods at Central Institute of Fisheries and Nautical Engineering Training (CIFNET)
March	Participation in 3-day seminar on findings of socio-cultural survey	– Completion of loan application forms for 500 households and sponsoring of applications t o branches *(FEOs)*	– Development fo first module of learning materials, by experts with assistance of *FEOs*	
April		-- Processing of loan applications at branch level -Allocation of funds at branch and headquarters level	– Identification of coastal teacher training institutes for supervision of nfe-centres, by SCERT (expert) with *assistance of FEOs*	- Suggestions for improvements in traditional fishing gear, by FEOs and experts
May		Arrangements for refinance and margin money	– Identification of fishing villagesforestablishing non-formal education centres, motivation of villagers to provide school house and send children to school (FEOs)	– *Field workshops* and meetings to discuss and observe-technical and socio-economic feasibility of suggestions to improve traditional fishing gear
June		*- 1 -week seminar* attended by bank and fisheries officers to discuss operational problems and finalize arrangements for loan disbursements and refinance		
1983 July			– *1 -week seminar* to review learning materials and curriculum outline and to finalize preparation for opening of non-formal centres	

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Besides the three main modules, there were two extra-modular training components: studies of fisher-folk and fisheries and training in methods and techniques of extension work. The first component is shown in the table. Methods and techniques of extension work have been dealt with as a part of each module, but are not shown separately in the table.

Also not shown in the table are advisory services in the field provided by BOBP experts and national consultants (together referred to hereafter as "project staff") as well as by senior employees of the fisheries department and other concerned agencies. Regular supervision and advice was also given by three Regional Assistant Directors of Fisheries.

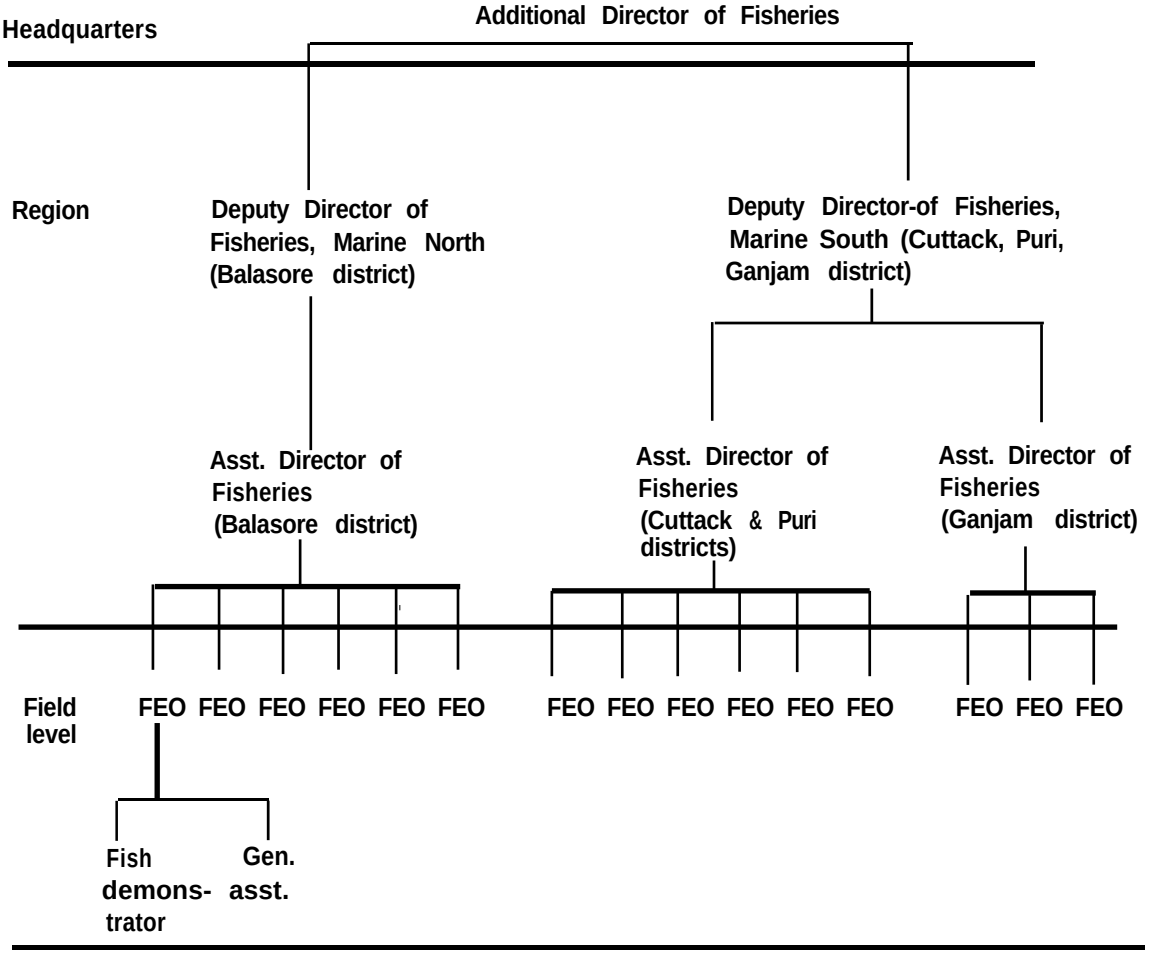
In what follows, the implementation of the in-service training programme is described. Before analyzing the conduct of the three training modules, some aspects relating to the coordination and supervision of the training programme and the working environment of the fisheries extension officers are briefly discussed. The extra-modular training components are also described.

3.1 Coordination/Supervision of the Programme and Working Environment of Extension Officers

Throughout the training period, it was necessary to coordinate the training programme with the day-to-day work of the extension officers. The field work assigned to them as part of the programme had to be supervised; this had to be integrated into supervision of their total work.

The coordination and supervision aspects of the programme had to be seen in the context of the working environment of the trainees, including the organization of the service. The 15 marine extension officers are located at almost equal intervals along the 480 km long coastline.

Organizational Chart of Marine Fisheries Extension Service



FEO — Fisheries Extension Officer

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of Orissa; each looking after approximately 32 km of coastline with an average of 16 fishing villages/hamlets, 1126 fisherfolk households and 2003 active fishermen.

Each extension officer is assisted by two staff members, one fishing demonstrator and one general assistant, both matriculates. The office is called 'Marine Extension Centre' and sometimes consists only of one or two small rented rooms with a minimum of office equipment but no special equipment for fisheries extension work. Each extension centre has a motorcycle — provided jointly by BOBP and the Department of Fisheries-which is used for travel to villages and landing sites.

In their day-to-day work, the extension officers are directed and supervised by three Assistant Directors of Fisheries who in turn are supervised by two Deputy Directors of Fisheries. At headquarters level, the Additional Director of Fisheries is in charge of the Marine Fisheries Extension Service.

Two aspects of the in-service training programme in particular, required coordination with the Department of Fisheries: determination of the work programme of extension officers; and information flow between extension officers and BOBP. Usually, overall work plans were discussed and agreed upon with the Additional Director of Fisheries, while monthly work plans were discussed and finalized at the regional level. The number of days proposed by BOBP for the residential training programme usually exceeded the number finally approved by the Department of Fisheries.

For instructing and supervising the daily work of the extension officers within the programme, a direct communication link was established between extension officers and BOBP. Each communication was copied for information to the supervisory staff at regional and headquarters level. BOBP also supervised the extension officers through direct visits to the field. Field assignments for the training programme were also supervised by Assistant Directors and Deputy Directors in their, monthly review meetings or through field checks.

Coordinating field work assignments with the officers' regular extension work was satisfactory. Coordination at different levels of the fisheries department as well as supervision of the officers was also satisfactory. However, the working conditions of the extension officers could be improved. Instead of rented rooms, there could be a permanent and more spacious building with residential facilities for the officer, audio-visual equipment, samples of yarn, accessories, fishing gear etc., available to the fisheries extension officers would help them further in their efforts.

3.2 Extra Modular Training Components

3.2.1 Studies of Fisherfolk and Fisheries

There were two objectives in studying artisanal marine fisheries and fisher-folk of Orissa before beginning any practical fisheries extension work. Firstly, it provided a sound information base from which development needs and opportunities could be identified. Secondly, the newly-appointed extension officers could familiarize themselves with their field of operation, before taking up actual work. Besides, the officers needed to learn the basic techniques of techno-economic and socio-economic/cultural surveys and field enquiries, useful for future studies. The most important information and training requirements were identified as :

(a) fishing craft and gear presently used by artisanal fisherfolk

(b) distribution of artisanal fishing craft and gear along the coastline of Orissa

(c) ethnic and caste background, social and economic organization of artisanal marine fishing communities of Orissa.

To collect this information, the fisheries extension officers participated in three studies. Regarding (a) and (b), a qualitative inventory of artisanal fishing craft and gear was prepared and a quantitative techno-demographic study of fishing technology and fisher-folk was conducted.

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The inventory provided information about the technical dimensions of all major craft and gear used by the fisherfolk, as well as their cost, earning potential, operational pattern, period and area of operation, ownership pattern and patterns of crew remuneration.

On the basis of this inventory, which was prepared before the commencement of the training programme, the quantitative techno-demographic study was conducted. It covered the following areas : distribution of fisherfolk, craft/gear ownership patterns (distribution of assets), balance between labour and craft/gear, distribution of infrastructure facilities like roads, schools, health facilities, water, electricity and housing.

The third study was a qualitative socio-cultural study of ten selected fishing villages of Balasore and Ganjam districts. It covered such aspects as ethnic background, caste, primary and secondary occupational status, family structure and authority, division of labour in family, socialization of children, festivals and rituals, superstitions and beliefs, views and perceptions, role of women, village leadership patterns, etc.

The studies yielded useful **information about Orissa's artisanal fisheries and fisher-folk. *They also helped the extension officers to become more familiar with their 'clients. The officers acquired improved or new knowledge and skills regarding methods of planning, conduct, compilation, presentation and utilization of a fisheries census including craft/gear inventory and qualitative socio-cultural surveys, as well as processing data and information, and applying the findings in day-to-day extension work.**

3.2.2 Methodology and Techniques of Extension Work

General methods and techniques of extension work were covered in the residential training courses of modules I and II. Practical application was found for them in field assignments related to special extension programmes which provide institutional credit facilities and primary education. The elements of general extension methodology covered in Module 1 were :

1. **Analysis of role expectations of fisheries extension officers;**
2. **Philosophy and principles of extension work;**
3. **Historical background of extension work in India;**
4. **Communication process;**
5. **Socio-psychological factors affecting adoption of new techniques and ideas;**
6. **Planning, monitoring and evaluation of extension programmes;**
7. **Case studies in transfer of technology;**
8. **Use of audio-visual aids in extension work.**

All topics were covered by lectures and discussions, except for (1), which was dealt with in small group sessions and a plenary discussion and (8) which, in addition to lecture/discussion, also had a practical session on audio-visual production.

The residential course of Module II did not introduce any new topics in general methodology and techniques of extension work. It dealt more elaborately with role analysis and communication process, mainly through group exercises and games.

The in-service training in extension methodology and techniques was conducted by scientists of the National Institute of Rural Development in Hyderabad (NIRD) who, prior to the course, thoroughly familiarized themselves with the working environment of fisheries extension officers.

*** U. Tietze. (Ed.) Artisanal Marine Fisherfolk of Orissa. Vidyapuri, Cuttack, 1985 *and* M. H. Kalavathy and U. Tietze. Artisanal Marine Fisheries of Orissa: a Techno-Demographic Study. BOBP/WP/28, Madras, India, December 1984.**

The training, including the games and group exercises, was much appreciated by the trainees, since they were actively involved in discussing and revising their role perception and in defining anew the objectives of fisheries extension work.

Moreover, the training also contributed not a little to the excellent personal contact which the extension officers were able to establish later on with all the fisherfolk, and not just with their (sometimes self-declared) leaders. The training also helped the extension officers to win the cooperation of officers of other government departments, institutions and voluntary agencies.

Generally, the training in methodology and techniques of extension work helped the trainees improve their communication skills, their aptitude for reflective and innovative thinking, and their ability to initiate and carry out action.

3.3 Training Modules

3.3.1 The Fisheries Finance Module

This module was conducted in five phases. The first phase, from April to June 1982, commenced with a preliminary field enquiry into local credit needs and sources and the use of non-institutional finance; and a residential training course on "Credit and Financial Assistance in Small-Scale Fisheries" (the syllabus is given in Annexure 3.1). The residential training course and the field enquiry are described in Bay of *Bengal* News, BOBP's quarterly newsletter. (June 1985, June 1982).

The rest of phase I did not contain any training elements. It was used by project staff as preparation for a pilot project in fisheries credit, to demonstrate an improved method of credit delivery. Discussions on a new delivery system of institutional credit for the fisherfolk were held with various financial institutions. A general strategy of credit flow was outlined and new forms and procedures, to be used by banks for loan applications, loan appraisal, disbursement and repayment of loans, were designed.

The second phase of the module, from July to September 1982, was devoted to field assignments. The extension officers collected further information required for the pilot project outlined during the second part of phase I. The officers identified the most common types of fishing craft and gear in use, as well as the investment requirements of women engaged in fish marketing. Costs and earnings of various craft and gear combinations and fish marketing operations were determined. The suitability of the new bank forms and procedures, designed during the second half of phase I, was tested in the field. During these work assignments, the trainees tried to apply the knowledge gained in the residential course. They were also advised on the job, individually, by the project staff. Phase II ended with a field workshop during which the costs and earnings calculations of the extension officers were discussed and revised.

The third phase, from October until December 1982, contained hardly any training elements. It was used by the project staff to discuss, with officers of various banks, the qualitative and quantitative aspects of a new, yet-to-be introduced fisheries credit scheme. Following this, district-wise and bank-wise strategies of credit flow were prepared with the assistance of the trainees, who provided information about the credit requirements of fisherfolk in their jurisdiction.

The fourth phase, from January to March 1983, saw the commencement of the pilot project in the field, The trainees held negotiations with bank branches in their jurisdiction and educated the fisherfolk about the advantages of the new credit scheme. Loan applications were received from potential borrowers; the newly- designed forms- an application activity form and a village profile form — were completed by the officers for each of the borrowers.

During the fifth and last phase, from April to June 1983, a number of operational problems came up while loan applications were pending at the branch level. These problems could not be dealt with independently by the officers since they concerned fund allotments within the banks, arrangements for refinance and security of loans, etc. After the project staff had attended to these problems, a workshop was held (the syllabus is shown in Annexure 3.1) to discuss the problems which came up during field operations and to work out solutions. The role of the

extension officers in the last two phases of this training module, when compared to their role in the first three phases, changed from that of a receiving trainee to that of a contributing partner.

On completion of the fisheries credit training module, a new fisheries credit scheme was launched in Orissa using the new strategy of credit flow, devised as part of the module, as well as the schemes, procedures and forms prepared during the training programme. (Please see BOBP/REP/32, the report of the Orissa credit scheme, and "Bank Credit for Fisherfolk: Orissa Sets an Example", article in Bay of *Bengal* News, March 1984). The scheme's main advantages are the excellent rate of loan recovery (almost absent in earlier schemes), no subsidies (on capital or interest), and an almost 100 per cent utilization of credit (misutilization was frequent in earlier schemes).

The success of the new credit scheme depended not only on the new procedures, formats and approach to fisheries credit but also on the cooperation of the extension officers in identifying loan requirements, sponsoring loan applications and following-up on disbursements and recovery. The ground work for this cooperation was laid in the fisheries finance training module, It takes considerable time, effort and expertise, after the field enquiry and residential training course, to prepare for a meaningful pilot project in the field; in this case, it took from April 1982 to June 1983. A small fraction of this time was used to devise new strategies and operational procedures. The major part was consumed by negotiations with institutions which extend institutional finance to fisher-folk; the purpose was to persuade these institutions to change their pattern of operation.

Education of the target group also took up considerable time. Those who were not familiar with institutional finance had to be convinced that banks can provide credit at short notice and in accordance with their needs. Those who were familiar with institutional finance had to be convinced that the scheme would work better without a capital subsidy.

The fisheries finance module revealed that more time should have been allotted for the initial residential training course, especially for training in costs and earnings calculations and preparation of financial schemes. Knowledge and skills imparted during the course were insufficient and had to be compensated for by more frequent field visits by project staff.

For implementing the pilot project, a few further training inputs were required in areas such as preparation of refinance schemes, calculation of fabrication costs of fishing gear, etc.

Once the enquiry and residential course were completed, there was close interaction and mutual dependence between preparatory work done by project staff and field work assignments carried out by the fisheries extension officers. While the second half of the first phase was almost exclusively completed by the first group, the second phase was mainly undertaken by the latter. The third phase, again, was mainly the work of project staff, and the fourth, of the trainees. During the last phase both groups acted in concert.

3.3.2 The Community Development Module

The community development module was conducted in two phases. The first phase commenced in October 1982 and ended in February 1983. The second phase was from March to July 1983. Thus this module had only two phases (as compared to five for the fisheries finance module). This indicates that the problem selected for a pilot project-illiteracy-was easier to deal with than institutional finance. This was mainly because modern institutions were not previously involved with fisherfolk education as a subject for community development. There was, therefore, no need to change the practices of institutions already operating. The entire field work could be devoted to dealing directly with the fisherfolk and to establishing a new institutional set-up to provide education in fishing villages. Before the module was launched, detailed information was available on infrastructural, educational, medical and health facilities in fishing villages. The census revealed that the most important problems in fishing villages were the extemely high illiteracy rate and the absence of medical and health care facilities.

The first phase of this module began with the extension officers enquiring into the reasons for the lack of attendance in primary schools in fishing villages. Some of the reasons were: the syllabus is not related to the lives of fisherfolk; full-time school is not suitable because children work part-time during the day (cleaning nets, collecting fish, etc.); higher castes and even teachers do not encourage fisher-folk children to attend school.

After the enquiry, a one-week residential training course was held (see Annexure 3.2). Besides games and group exercises (for general extension techniques and methodology, particularly in communication skills, action planning and role analysis), the course consisted of lectures, plenary and small group discussions and working groups on the following topics:

1. Concepts of community development;
2. Community development programmes and institutions in Orissa;
3. Role of voluntary agencies in community development;
4. Role of non-formal education in rural development;
5. Problems of health and hygiene in rural areas.

Apart from the fisheries extension officers, members of voluntary agencies working in Orissa fishing villages, and programme officers and field officers of the National Service Scheme took part in this course.

On completion of the training course, two possible pilot projects were discussed. The first one was to extend preventive and curative health services (as well as education on health, hygiene and nutrition) from primary health centres to remote fishing villages. This pilot project was to be prepared and implemented in cooperation with the National Service Scheme. The second pilot project was to develop a non-formal primary education curriculum relevant to the lives of the fisher-folk and to institutionalize a part-time, non-formal primary school system in cooperation with the State's education department. The second pilot project was selected because it received a better response from the cooperating agency.

During the second half of the first phase of the community development module, the project staff prepared a curriculum outline and discussed it with the SCERT (State Council of Educational Research and Training), UNICEF, the NCERT (National Council of Educational Research and Training), and coastal teacher-training institutes which were to cooperate with the scheme. Under the guidance of the project staff, the extension officers assisted in identifying the educational needs of fisherfolk, particularly with reference to their occupation.

The trainees were more involved in the second phase. Theyidentified villages where non-formal education centres were to be established, made the fisherfolk conscious of the value of education, motivated the villagers to construct school houses from their own resources, and negotiated with the teacher-training institute in their jurisdiction the institute's role in supervising the centre.

Meanwhile the national consultant drafted samples of learning materials in the context of the curriculum outline prepared earlier.

Towards the end of the second phase of the module, a seminar was held to finalize preparations for the pilot project. This began immediately after the workshop. Forty non-formal primary education centres were established in fishing villages all along the coastline. These centres perform extraordinarily well. *(See Bay of Bengal* News, December 1985). The programme of the concluding seminar is listed in Annexure 3.2.2.

As with the credit project, the success of the non-formal primary education project depends largely on the energy and competence of the extension officers.

The extension officers were successful in motivating the villagers and in working with the teacher-training institutes. Because of their participation in the socio-cultural survey and the techno-economic study, they were able to help develop learning materials relevant to the occupation and culture of the fisher-folk.

The training input was sufficient for the preparation of the pilot project. But for its implementation, further training inputs were required, particularly those relating to concepts and methods of non-formal teaching and learning.

3.3.3 The Fishing Gear Module

At the beginning of the training module on fishing gear and methods, detailed knowledge was available from earlier studies about the different types, numbers and distribution of traditional craft and gear. Possible improvements in traditional craft and gear had been proposed by a national consultant. Therefore, no separate field enquiry was carried out by the extension officers.

The residential training course was conducted at CIFNET (the syllabus is detailed in Annexure 3.3). It covered various traditional and modern small-scale fishing methods, introduced the participants to net fabrication, repair, preservation, knots, numbering systems, synthetic and natural fibres, etc. Towards the end of the course, possible improvements in traditional fishing were discussed. Suggestions were made for replacing materials/twines for fishing nets, improving traditional gear designs and introducing fishing methods in areas where they have not been used before.

In a follow-up to the course, BOBP experts examined the suggestions. They were of the opinion that, except for replacement of natural by synthetic fibres, there was no scope for improving artisanal fishing gear unless a different type of fishing craft was introduced. Therefore, no pilot project was taken up in this training module.

However, the training in fishing gear became useful later, during the pilot project on fisheries credit. When identifying credit requirements, for example, fishing gear was sometimes introduced into areas where it had not been used before. When ordering fishing gear to be distributed on credit, appropriate fibres and materials were used.

4. IMPACT AND APPLICABILITY OF IN-SERVICE TRAINING PROGRAMME

The various achievements of Orissa's Marine Fisheries Extension Service are shown in Table 3.

Considering that there are only 15 Marine Fisheries Extension Officers in Orissa, each with an "attendant" and a "fisheries demonstrator", the output per officer is substantial. On an average, each extension officer handled as many as 733 and 556 cases during 1983/84 and 1984/85 respectively, under various financial and welfare/relief schemes. This was in addition to looking after a couple of schools and cooperative societies, preparing at least one scheme for introducing mechanized boats, and collecting catch and effort statistics on a regular basis. In comparison, an inland fisheries extension officer in Orissa does not handle more than 100 cases every year under various schemes. Table 3 shows a decline in 1984/85 from 1983/84 in the number of fishermen who received financial assistance or welfare benefits. This was a result of reduced government funds, not of reduced extension effort. The performance of the extension officers should be assessed both qualitatively and quantitatively. The BOBP fisheries credit scheme, for example, achieved an unusually high degree of credit utilization and loan repayment. Similarly, the non-formal primary schools show very good attendance by children and active involvement by the fishing community.

Utilization of assets and assistance received under various welfare and subsidy schemes is satisfactory. So is the cooperation of fisheries extension officers with other government departments and agencies, including voluntary agencies.

To what extent is the performance of the marine extension officers of Orissa an outcome of the BOBP-in-service training scheme? When asked about the difference between those who participated in the BOBP training programme and those who did not (inland fisheries extension officers), the supervisors of the marine fisheries extension officers (three Assistant Directors,

Table 3

Achievements of Marine Fisheries Extension Service, Orissa

		1983-84	1984-85
Financial assistance (no. of cases disbursed)	Integrated Rural Development Programme (IRDP)	699	131
	Scheduled Caste Finance Cooperative Corporation	340	–
	Assistance to Traditional Fishermen (ATM F)	112	9
	BOBP – Direct Bank Finance without subsidy	345	362
	Financial Assistance : Total	1,496	502
Welfare/Relief Schemes (no. of beneficiaries)	Economic Rehabilitation of Rural Poor (ERRP)	2,151	570
	Saving cum Relief Scheme	–	563
	Accident Insurance	6,505	6,276
	Abolition of Bonded Labour	175	424
	Cyclone Relief	800	–
	Welfare/Relief: Total	9,631	7,833
Education (no. of centres opened and maintained)	Non-Formal Primary Education for Fisher-folk (SCERT/BOBP)	20 schools with 600 children	20 schools with 600 children
Infrastructure (no. of landing platforms established)	Construction of landing platforms	1	1
Fishing technology (no. of schemes prepared)	Preparation of schemes for introduction of beachlanding craft	–	20
Information/ Data collection	Collection of catch/effort statistics, fisheries census, inventory	regularly completed, updating	
Fishermen's Cooperatives	Technical guidance to cooperatives	23 coope-ratives	23 coope-ratives

two Deputy Directors and an Additional Director of Fisheries mentioned five points. These relate directly to the objectives of the BOBP training scheme.

– Marine fisheries extension officers have a clearer understanding of the objectives of extension work and the factors involved.

-They display more initiative and responsibility.

-They know better how to contact other departments and agencies involved in developmental work and cooperate with them.

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-They establish and maintain closer contact with fisherfolk.

-They display better technical knowledge when it comes to preparing financial schemes, evaluating artisanal fishing craft and gear, etc.

The BOBP in-service training programme functioned more or less as a practical training scheme, similar to the training and visit system in agricultural extension work-with a number of important differences, however. The extension officers are not technical specialists, but generalists trained in community development and social work, who act as change agents dealing with social, cultural and economic obstacles to development.

BOBP undertook to provide expertise in fisheries finance, fisheries education, and fishing technology, both in the field and during training courses. BOBP also assisted in directing and supervising the work of the extension officers in cooperation with developmental and research agencies, as well as in organizing and coordinating the training programme.

The role of BOBP can, in principle, be easily assumed by the Directorate of Fisheries, if certain organizational arrangements are made. Particularly:

-An experienced and qualified officer should be exclusively in charge of the marine fisheries extension service at the headquarters. The officer should perform the following functions: developing in-service training programmes; maintaining contact with research and development institutions; programme execution, implementation, monitoring and evaluation; administration; personnel management; finance; programme planning.

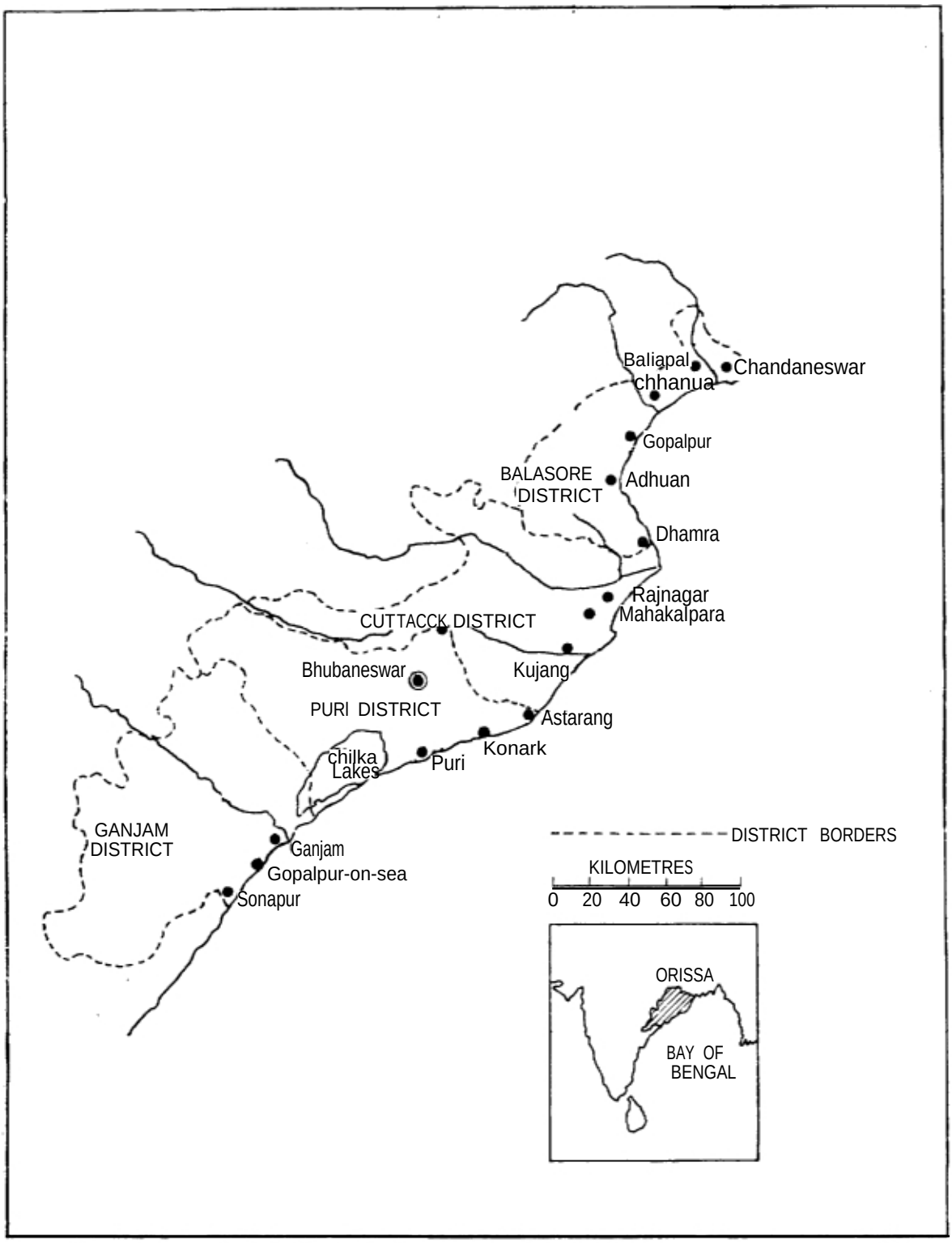
-Supervisory staff presently represented by Assistant Directors of Fisheries should modify the central programmes to local needs, develop detailed work plans for extension officers, assist extension officers in field work, assist in their training, maintain contact with local administration, and do the budgeting.

-Specialists in specific subjects (institutional finance, fishing technology, education) -some of them on deputation from other departments -should be posted either at the headquarters or at a supervisory level to train the extension officers, assist them in their field work and maintain contact with research and development institutions.

— "Develop" and "change" rather than "administer" should constitute the work ethic of the administration. And a more outgoing approach is required. Initiative should be encouraged at lower levels of the hierarchy- departmental isolation should give place to inter-departmental cooperation.

Annexure 1

LOCATIONS OF MARINE FISHERIES EXTENSION CENTRES



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Annexure 2

ARTISANAL MARINE FISHERIES OF ORISSA: SOME HIGHLIGHTS*

Orissa largely reflects the artisanal fisheries and developmental needs of the entire east coast of India, as regards marine environment, ethnic and caste background, economic and social organization as well as fishing craft and gear. Thus the state of Orissa seemed an appropriate location to test a new in-service training scheme for fisheries extension officers.

Orissa's southern coastline- Ganjam, Puri and the southern part of Cuttack district -is characterized by wide sandy beaches and surf-beaten shores as well as a narrow continental shelf, typical of the South Indian coast, viz., Andhra Pradesh and Tamil Nadu. Orissa's northern coast, consisting of Balasore and the northern part of Cuttack district, is characterized by rivers and creeks, tidal areas and an extended continental shelf, typical of the northern part of the Bay of Bengal, viz., West Bengal and Bangladesh.

The differences in the ecological and oceanographical conditions between the north and the south of Orissa account for the occurrence of different species of fish in the two zones. While artisanal fisheries in the south **is** mainly directed towards catching sardines, anchovies, mackerels, seer fishes, prawns, etc., (similar to Andhra Pradesh and Tamil Nadu), hilsa, pomfret, etc., are the mainstays of artisanal fisheries in the north (similar to West Bengal).

Fishing craft and gear used in different parts of Orissa reflect the environmental conditions and again show similarities with the southern and northern parts of India's east coast. Encircling nets and inshore seines are operated in the extended shallow shelf areas off Balasore and the North Cuttack coast. The river mouths and estuaries of Cuttack and Balasore districts are suitable for set bagnets, while tidal wall nets are used in the extended tidal areas off the Balasore coast.

Typical fishing methods off Puri and Ganjam districts include the use of beach seines, lift nets and boat seines. Gillnets and lines are used all along the coastline of Orissa — with different specifications, however, according to differences in fish species and ecological conditions.

The estuaries in north Orissa provide landing facilities and shelter for plank-built displacement boats of various types, which cannot be operated from the open surf-beaten beaches in the south. There, raft-type kattumarams are used which are able to cross heavy surf and land on the beach.

Orissa's artisanal marine fisherfolk population is more than 100,000. This includes about 30,000 active fishermen. They account for the major part of Orissa's marine catch and operate what

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* For a detailed description of Orissa's artisanal marine fisheries and fisherfolk see the following publications :

-'Artisanal Marine Fisherfolk of Orissa'. Edited by U. Tietze. Vidyapuri Publishers, Cuttack, Orissa, 1985.

-'Artisanal Marine Fisheries in Orissa: A Techno-Demographic Study'. M. H. Kaiavathy and U. Tietze. BOBP/WP/29, Madras, 1984.

-'Marine Small-Scale Fisheries of Orissa: A General Description', Madras, India 1984.

These were meant to establish a data base for fisheries extension work. The information in these publications was collected, compiled and analyzed with the active assistance of the fisheries extension officers. Their participation was a part of their extension training, viz., familiarization with the object of extension work.

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are mainly non-mechanized craft and gear from open beaches *or* river mouths, close to the 236 fishing villages of the state, distributed over a coastline of 480 km.

The vast majority of the artisanal marine fisherfolk of Ganjam, Puri and parts of Cuttack district, locally referred to as Noliyas, are of Telugu origin, and are also found in Andhra Pradesh. They belong to two castes, viz., Jalaris and Vadabalijas, whose traditional caste occupation, from time immemorial, has been fishing.

In the northern part of Orissa, sea fishing started only three generations ago. The fisher-folk are of Oriya and Bengali origin. A little more than half belong to traditional fisherfolk castes such as Kaibarta, Gokha and Rajbansi (the first and the last also found in West Bengal), whose settlements were originally confined to rivers and estuaries. The rest belong to castes such as Radhi, Teli, Gauda, Barik, Kumar, who, by traditional caste occupation, *were* agriculturists, artisans, etc. Tribals too have taken to sea fishing in the northern part of Orissa.

Annexure 3

SYLLABI OF TRAINING COURSES AND WORKSHOPS

3.1 Fisheries Finance Module

3.1.1 *"Credit and Financial Assistance in Small-Scale Fisheries" : Training Course for Fisheries Extension Officers, Orissa. (March 29 — April 8, 1982)*

Course Programme

Date		Topic
29-3-82	8.30	Opening ceremony
	10.30	Analysis of role expectations of fisheries extension officers (sgd)
	13.30	Principles of extension and extension methods-scope, philosophy in developing countries, a historical background of extension activities(l)
30-3-82	8.30	Methods & experiences of some successful extension work in bringing about modernisation in developing countries (l)
	10.30	Systems approach to extension work (l)
	13.30	Communication process — components of communication -feedback and its importance in building up a good extension programme. Different kinds of channels of communication (l)
	15.30	Factors influencing adoption of new techniques and equipment for bringing about technological change (l)
31-3-82	8.30	General principles of extension programme planning -steps involved in programme planning (l)
	10.30	Monitoring and evaluation of extension programmes (l)
	13.30	Practical session on use and preparation of audio-visual aids in extension (wg)
	15.30	Practical session on audio-visual aids continued (wg).

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Date		Topic
1 - 4 - 8 2	8.30	Transfer of technology in small-scale fisheries I (cs)
	10.30	Transfer of technology in small-scale fisheries II (cs)
	13.30	Analysis of case studies (wg)
	15.30	Generalization and application (pgd)
2 - 4 - 8 2	8.30	Role of credit in rural development (l)
	10.30	Structure of rural credit (l)
	13.30	Policy changes (l)
	15.30	Schemes for weaker sections (l)
3 - 4 - 8 2	8.30	Credit needs in traditional fishing communities (l)
	10.30	Processing of fisheries census data (iwa)
	13.30	Processing of fisheries census data (continued)
	15.30	Processing of fisheries census data (continued)
5 - 4 - 8 2	8.30	Comparison of jurisdiction-wise credit needs (sgd)
	10.30	Generalization and specification of credit needs (pgd)
	13.30	Project planning and preparation of credit scheme (l)
	15.30	Cooperative credit in Orissa (cs)
6 - 4 - 8 2	8.30	Analysis of case study (sgd)
	10.30	Cooperative credit in Orissa. Procedures and preparation of schemes (l)
	13.30	Financial assistance through ARDC (l)
	15.30	Financing weaker sections by banks (l)
7 - 4 - 8 2	8.30	Credit through IRDP in Orissa (l)
	10.30	Preparation of block credit plans (l)
	13.30	Preparation of action plan (iwa)
	15.30	Continued
8 - 4 - 8 2	8.30	Comparison and adjustments (sgd, pgd)
	10.30	Course evaluation
	15.30	Closing ceremony

Key:

l	: lecture
pgd	: plenary group discussion
sgd	: small group discussion
Wg	: working groups
iwa	: individual work assignment
rtd	: round table discussion
cs	: case study

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3.1.2 Seminar on "Inclusion of Small-Scale Marine Fisheries of Orissa in Short Term and Term Lending of Coastal Bank Branches."

May 30 — June 3, 7983, Bhubaneswar.

Programme

Date	Time	Topic
30-5-83	10.00	Registration
	14.00	Role of institutional finance in fisheries development-lecture
	14.45	Comments, views by bank representatives
	16.00	Continued
31-5-83	11 .00	Orissa's marine fisheries. Introduction — lecture
	12.00	Strategy for credit flow, assessment of credit needs at field level — lecture
	14.00	Scrutiny of loan applications/schemes (working groups)
	16.00	Plenary discussion
1-6-83		Field trip to Chandrabagh (Puri district). Scrutiny of credit applicants in a problem village.
2-6-83	10.00	Identification of credit needs at village level -lecture
	11.45	Discussion of field trip
	14.00	Education of fisher-folk in banking habits/saving schemes, repayment schedules (working groups)
	15.30	Plenary discussion on savings and repayment and education in banking habits
3-6-83	10.00	Re-finance arrangements under NABARD
	11.30	Discussion on re-finance arrangements
	14.00	Valedictory function

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Annexure 3.2

COMMUNITY DEVELOPMENT MODULE

3.2.1 Training Course on Community Development for Marine Fisheries Extension Officers in Orissa, 11-16 October, 1982.

Venue: Directorate of Fisheries, Jobra, Cuttack, Orissa.

Programme

Date	Time	Topic
11-10-82	10.00	Opening address
	11.30	Community development concepts, institutions and programmes in Orissa (lecture)
	14.30	Critical review of experiences and role of voluntary agencies (lecture)
	16.00	FEO's links with existing programmes, achievements Et shortcomings (preliminary discussion)
12-10-82	9.00	Preliminary results of socio-economic survey of traditional marine fishing villages in Orissa (lecture)
	9.30	FEO's expectations towards their role in community development and towards the course, anticipation of role conflicts (small group discussions)
	11.00	-do-
		(Preliminary discussion)
	14.00	Communication process and its major elements (conceptual session)
	16.00	-do-
13-10-82	9.00	Communication process and extension work (game: NASA)
	11.00	-do-
	14.00	Role of non-formal education in rural development. Existing schemes and experiences. (Lecture and discussion)
	16.00	Differences between primary and adult education. (Lecture and discussion).
14-10-82	9.00	Small groups and education in fishing villages.
	14.00	Communication process and extension work (continued).
	16.00	Games : broken squares, tower building.
15-10-82	9.00	Role analysis and action planning
	11.00	Major diseases and hygiene problems in rural areas, the role of health education and community participation.
	12.30	Small groups on health and hygiene in fishing villages.
16-10-82	9.00	Action planning
	11 .00	Closing.

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3.2.2 Seminar on "Curriculum Development for Primary Schools in Fishing Villages". July 26- 30. 7983, Orissa University of Agriculture and Technology, Bhubaneswar.

Programme

Date	Time	Topic
26-7-83	11.00	Inaugural ceremony
	14.00	Slide show on BOBP
	15.00	Approach adopted for non-formal primary education for fisher-folk children -an introduction (lecture)
	16.00	Implementation of CAPE Programme (Comprehensive Access to Primary Education) by SCERT — experiences and inferences (lecture)
27-7-83	10.00	Marine fisherfolk of Orissa : socio-cultural features (lecture)
	11.30	Marine fishing as an occupation -skills and technology (lecture)
	14.00	Reasons for non-attendance at formal schools by fisher-folk children (lecture & discussion)
	15.30	Approach followed in BOBP non-formal curriculum development for fisherfolk: goals, structure and learning materials (lecture)
28-7-83	10.00	Discussion on learning materials, packages and modules (working groups)
	14.00	Modification of learning materials (plenary discussion)
29-7-83	10.00	The impact of literacy on attitudes and lifestyle of Telugu fisher-folk in South Orissa (lecture)
	11.30	The impact of literacy on attitudes and behaviour of O riya and Bengal fisher-folk in North Orissa (lecture)
	14.00	Significance of formal education and scope for non-formal education (working groups and plenary discussion)
30-7-83	11 .00	Valedictory ceremony.

Annexure 3.3

FISHING GEAR MODULE

Programme for Training Course on Fishing Gear Technology,

S-25 February, 1983

Date	09.30-10.30	10.40-11.40	11.40-12.40	14.00-16.30
9-2-83		***Inaugural session***		Fishing Gear Practicals
10-2-83	Theory	Theory	Theory	Fishing Gear Practicals
11-2-83		***Local study tour/sightseeing***		
14-2-83	Theory	Theory	Theory	Fishing Gear Practicals
15-2-83		***Fishing trip on board BLUE FIN***		
16-2-83	Theory	Theory	Theory	Fishing Gear Practicals
17-2-83	Theory	Theory	Theory	Local visit to see the Chinese dip net at Fort Cochin.
18-2-83	Theory	Theory	Theory	Fishing Gear Practicals
19-2-83		***Visit to CMFRI Krishi Vignan Kendra at Narackal***		
21-2-83	Theory	Theory	Theory	Fishing Gear Practicals
22-2-83	Theory	Theory	Theory	Fishing Gear Practicals
23-2-83	Theory	Theory	Theory	Fishing Gear Practicals
24-2-83	Theory	Theory	Theory	Fishing Gear Practicals
25-2-83	Theory	Theory	Theory	Concluding Session.

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Annexure 4

BACKGROUND LITERATURE

— Books

1. **Brown's Knots and Splices by Captain Jutsum. Published by Brown, Son and Ferguson, Printed in Great Britain (1975)**
2. **Marine Fisheries Information Service by E. G. Silas. Published by Dr. M. J. George, Printed by Paico, Cochin-31.**
3. **Banks in the Service of Weaker Sections by M. A. Oommen. Published by Mohan Primlani. Printed in Delhi-6.**
4. **Fishing Boat Designs: 2 V-Bottom Boats by Oyvind Gulbrandsen. Published by Food and Agriculture Organization of the United Nations. Printed in Rome, July (1974)**
5. **Netting Materials for Fishing Gear by Gerhard Klust. Published by Food and Agriculture Organization of the United Nations. Printed in England (1973).**
6. **Mending of Fishing Nets by L. Libert and A. Maucorps. Published by Food and Agriculture Organization of the United Nations. Printed in England (1973).**
7. **A South Asian Experience of Training for Participatory Development by Kamla Bhasin. Published by Food and Agriculture Organization of the United Nations. Printed in Rome (1975).**
8. **Introduction to Accounting and Management for Sea Fishermen. Published by Food and Agriculture Organization of the United Nations. Printed in Rome (1974).**
9. **Installation and Maintenance of Engines in Small Fishing Vessels, by Brian Mutton. Published by Food and Agriculture Organization of the United Nations, Printed in Rome (1979).**
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— BOBP Publications :

1. **BOBP/REP/4: Role of Women in Small-Scale Fisheries of the Bay of Bengal. Madras, India, October 1980**
2. **BOBP/REP/5: Report of the Workshop on Social Feasibility in Small-Scale Fisheries Development. Madras, India, 3-8 September 1979. Madras, India, June 1980.**
3. **BOBP/REP/6: Report of Workshop on Extension Service Requirements in Small-Scale Fisheries. Colombo, Sri Lanka, 8-12 October 1979. Madras, India, June 1980.**
4. **BOBP/REP/9: Report of the Training Course for Fish Marketing Personnel of Andhra Pradesh. Hyderabad,India, 11-26 November 1980. Madras, India, September 1981.**
5. **BOBP/WP/1 : Investment Reduction and Increase in Service Life of Kattumaram Logs. R. Balan. Madras. India, February 1980.**
6. **BOBP/WP/2: Inventory of Kattumarams and their Fishing Gear in Andhra Pradesh and Tamil Nadu T. R. Menon. Madras, India, October 1980.**
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11. **BOBP/MIS/1 : Fishermen's Cooperatives in Kerala : A Critique. John Kurien. Madras, India, October 1980.**

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Publications of the Bay of Bengal Programme (BOBP)

The BOBP brings out six types of publications:

Reports (BOBP/REP/. . . .) describe and analyze completed activities such as seminars, annual meetings of BOBP's, Advisory Committee, and projects in member-countries for which BOBP inputs have ended.

Working Papers (BOBP/WP/. . .) are progress reports that discuss the findings of ongoing BOBP work.

Manual< and Guides (BOBP/MAG/. . .) are instructional documents for specific audiences.

Miscellaneous Papers (BOBP/MIS/. , .) concern work not originated by BOBP — but which is relevant to the Programme's objectives.

Information Documents (BOBP/INF.). are bibliographies and descriptive document.+ on the fisheries of member-countries in the region.

Newsletters (Bay of Bengal News), issued quarterly, contain illustrated articles and features in non-technical style on BOBP work and related subjects.

A list of publications follows.

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6. Report of the Workshop on Extension Service Requirements in Small-Scale Fisheries. Colombo, Sri Lanka, 8-12 October 1979. Madras, India, June 1980.
7. Report of the Fourth Meeting of the Advisory Committee. Phuket, Thailand, 27-30 November 1979. Madras, India, February 1980.
8. Pre-Feasibility Study of a Floating Fish Receiving and Distribution Unit for DubIa Char, Bangladesh. G. Eddie, M. T. Nathan. Madras, India, April 1980.
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16. Report of the Seventh Meeting of the Advisory Committee. New Delhi, India, January 17-21, 1983. Madras, India, March 1983.
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