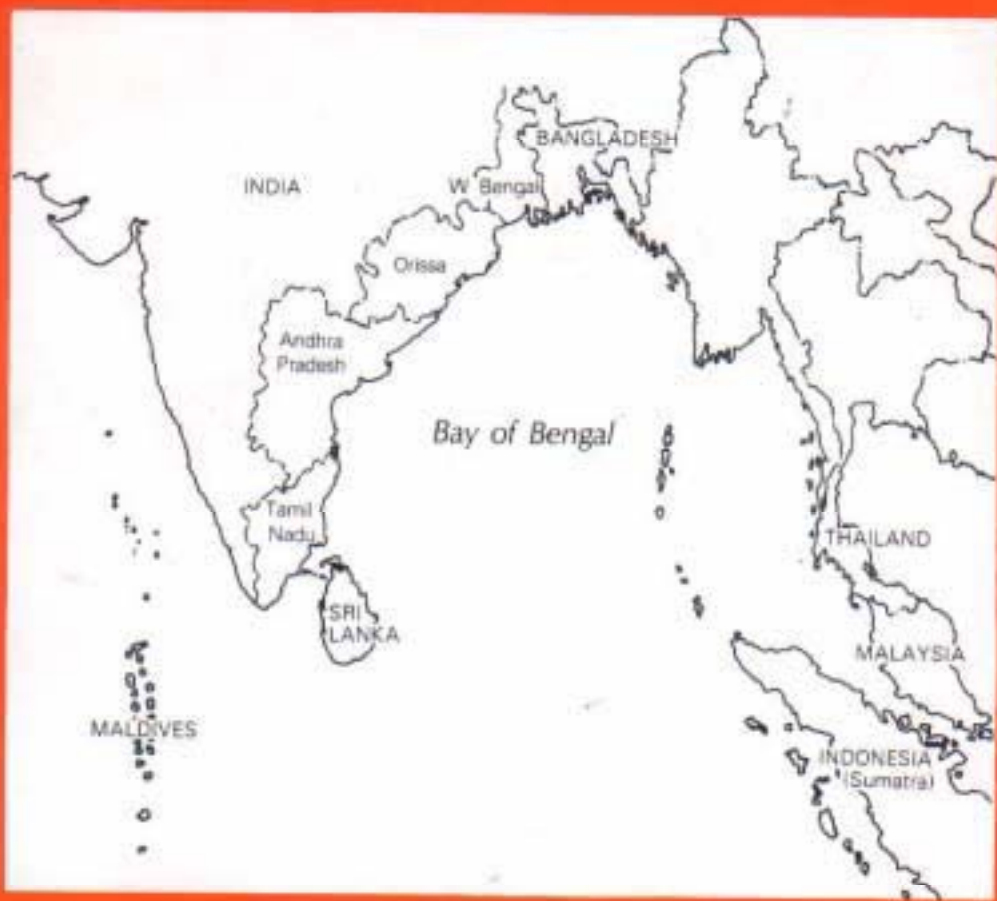


Non-Formal Primary Education for Children of Marine Fisherfolk in Orissa, India



Development of Small-Scale Fisheries

GCP/RAS/040/SWE

NON-FORMAL PRIMARY EDUCATION
FOR CHILDREN OF MARINE FISHERFOLK
IN ORISSA, INDIA

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SUMMARY

The pilot project on NFPE (Non-Formal Primary Education) for Orissa fisherfolk children grew out of an in service training scheme conducted by BOBP between March 1982 and July 1983 for 15 marine fisheries extension officers of Orissa. The scheme consisted of three modules, including one on community development. The work undertaken during the community development module led to the NFPE project.

The NFPE pilot project was carried out in Orissa's four coastal districts — Balasore, Cuttack, Puri and Ganjam — from 1983 to 1986. The project aimed at developing and demonstrating a non-formal primary education programme for fisherfolk children between the ages of 6 and 14. Children who satisfactorily complete the programme's curriculum are free to choose whether to join standard VI of a formal school or to remain in the non-formal stream, which is presently being established.

Under the project, a curriculum tailored to the needs and circumstances of Orissa's marine fisherfolk children was prepared and finalized in cooperation with various state and central authorities — the Department of Fisheries, the Department of Education, SCERT and NCERT. Several workshops with 50-60 participants were held to review the draft material and also to train teachers to use the material. More than 90 pictorial booklets were published in Oriya; UNICEF funded the printing of the booklets. The booklets are being used at 40 non-formal centres set up in the four districts - 19 in Balasore, 5 in Cuttack, 8 in Puri and 8 in Ganjam.

The response of the fisherfolk community to the project has been excellent. They have provided rooms or houses for running the centres, and sometimes food and accommodation for the teachers.

The curriculum consists of three packages especially developed for fisherfolk children by BOBP, comparable to Standards I, II, III, V of formal schools; plus four packages from general non-formal learning materials prepared earlier by SCERT, which are comparable to standards IV and V. Each package is divided into modules or subject areas, and every module consists of 4 to 12 "capsules". (Modules and capsules organize the learning process in an integrated way, based on the experience of the learner. They are different from traditional discipline-oriented methods.) There is a booklet for each capsule. The project consultant prepared 94 capsules or booklets, while some 60 capsules were used from the NFPE general materials prepared by SCERT. Together, the 150 odd booklets cover the entire primary stage of school, and are comparable to the learning

materials used from Standard I to Standard V of formal schools.

The first package relates to the learners' social and physical environment. It teaches basic sciences and social science concepts; words, letters and numbers; and language skills. The second package, while further improving literacy, numeracy and linguistic competence, aims at developing the child's personality and deals in greater detail with socio-cultural and socio-economic aspects. It highlights blind beliefs, social evils and exploitation. The third package on oceanography is meant to develop the child's scientific perception of the marine environment, of marine products and of fishing techniques. Together, the NFPE curriculum integrates learning with life.

The NFPE project had some innovative features - a special focus on a clearly defined occupational group; active community participation; a sound information base on the target group; a built-in evaluation mechanism; incorporation of modern principles of curriculum development, teaching and learning; and a special emphasis on teacher training and NFPE centre supervision.

For assessing the project's progress and the students' attainments, examinations were held in August 1985 in the 20 centres set up in 1984. They were conducted by the district inspectors of schools. A standardized test for Class I was used. The results were extremely encouraging: 94 per cent of the learners passed the language test, 98 per cent passed in environmental studies, 95 per cent passed in arithmetic. The average marks per subject were also satisfactory. Examinations conducted the following year for the first and second classes were equally satisfactory.

While the pilot project initiated by BOBP is now run by the authorities in Orissa, a proposal has been formulated to expand the project to cover fisherfolk children throughout the state. The project envisages the setting up of 60 more non-formal centres. A proposal for adapting the material developed for Orissa fisherfolk children to another state (Andhra Pradesh) has also been formulated.

1 PREAMBLE

Hardly anybody would object to the statement that literacy programmes are an integral part of development. It is also commonly accepted that education need not necessarily take place in schools and that it can mean different things to different people.

An informal vocational education arrangement exists among artisanal marine fisherfolk, by which boys and girls are initiated into the trade by fathers, mothers or other elders.

Traditional mechanisms of education also operate in imparting religious or spiritual values and behavioural norms.

A common drawback of these traditional systems of transferring skills, knowledge and values from one generation to the next is that they are rather closed systems. They do not respond or react readily to changes which occur in the outside world. This is particularly so if they function in remote locations like fishing villages.

While traditional systems of education may have been suitable for a community living in a closed, subsistence-oriented economy, they are no longer suitable, since artisanal marine fishing has become a part of the coastal market economy, with its products even being exported to other continents.

Catches have risen sharply through more efficient fishing gear* and cash earnings have increased for marine products. But the living standards of fisherfolk — as reflected in their conditions of health, hygiene and housing, in their general appearance, in their clothing — have undergone hardly any change. This can be confirmed by regular travellers along the coastline. This is particularly true of the southern part of Orissa where Telugu-speaking fisherfolk are settled.

This state of affairs can partly be attributed to people other than fisherfolk themselves — such as middlemen and fish merchants who appropriate the benefits from new developments. Part of the responsibility, however, lies with the fisherfolk themselves; they do not comprehend the new developments and how they can benefit from them. Reason: lack of information and education about happenings outside their villages, and lack of literacy skills to acquire this knowledge.

Examples: Fishermen lack information about the prices paid for fish/prawns by the ultimate buyers and consumers, and the price which the fisherfolk themselves could rightfully demand. They lack information about their rights and privileges as citizens regarding infrastructure, health, education and credit facilities under various government schemes meant for the weaker sections of society.

Education and literacy can also help fisherfolk change their outlook — from one of day-to-day living, which is appropriate to a subsistence economy, to one of planned living, based on long-term aspirations, taking advantage of increased incomes.

*Atil marine fisherfolk of Orissa. Ed.

The development of long-term aspirations is also necessary, if improved fishing technology presently developed by BOBP — such as motorized beachlanding craft which require higher investment than artisanal fishing technology — is to be successfully adopted by traditional fisherfolk.

The effort to develop educational facilities for children of marine fisherfolk strengthens government effort at universalizing elementary education in India. Part-time education for children of the age-group 9-14 had been proposed as early as 1939 (Naik, 1966); and Article 45 of the Indian Constitution states that all children up to the age of 14 are to be enrolled in schools by 1960. These goals have remained elusive.

To prepare a plan to achieve universalization of elementary education, the Working Group on Universalization of Elementary Education was established in 1977. This recommended that every child in the age-group 6-14 should be a full-time learner in formal school, or a part-time learner in a to-be-developed non-formal stream. The non-formal stream was also meant to cater to the needs of drop-outs from the formal stream.

To implement the Working Group's recommendations, the CAPE (Comprehensive Access to Primary Education) project was launched in 1979. It aimed at out-of-school children between 9 and 14, who had either never been to school or had dropped out before completing primary education. NFPE is offered to this group of students on a part-time basis, which suits the working pattern/daily routine of the youth/children.

The CAPE project also took into account the criticism about the qualitative shortcomings of the formal school system (Naik, 1977), its over-emphasis on imparting information and on the student's memory power, its relative lack of success in building up skills and promoting values, in helping the personal growth of learners or in hastening social transformation.

In contrast, the non-formal approach recommended under CAPE aimed not merely at numeracy and literacy, but also at developing competence among the learners in solving various problems and tasks faced by individuals and the community.

Under CAPE, special curricula are being developed. These deviate from the discipline-oriented curricula of formal schools, and are based instead on everyday activities and problems, around which units of work are organized. These attempt to deal in an integrated way with literacy, numeracy, science, social studies, arts and aesthetics. For their content, non-formal curricula draw on real



Above left: One of the 40 NFE centres for fisherfolk children in Orissa. Right: Children await opening of a new centre. Below: Seminar for NFE teachers is on.



life-situations which are meaningful and significant to the learner.

Learning materials are designed for self-study, and allow learners to enter into the system at any of various points.

This arrangement is particularly suitable for drop-outs and facilitates education in the learners own time.

The curriculum is developed in a decentralized way. It involves teacher-students and teacher-educators of the Teachers Training Institutes and the SCERT; it transfers skills required to develop curricula from centralized to decentralized levels of the educational set-up.

CAPE incorporates principles and concepts such as "project-based and experience-oriented learning", "integrated curriculum", "functional education", "moral and spiritual child development" etc. This indicates that part-time education of children from the 9-14 age group is something more than a crash programme to expand school enrolment; it is a complex and sophisticated part-time primary education system which seeks to overcome all the ills that afflict the traditional school system.

The low-cost character of the part-time non-formal school system however, remains. While having to meet ambitious standards and expectations, NFPE has to depend on less qualified, less trained and less paid teachers, as well as on poorer infrastructure and support¹, than the formal schools, a fact that makes the attainment of ambitious goals very difficult.

BOBP was aware of these constraints and tried to overcome them by introducing special conditions into the pilot project. These are described later in this report.

2. INTRODUCTION

The idea of educating marine fisherfolk children in Orissa originated from an in-service training programme² for marine fisheries extension officers of the state who had been posted in centres all along the coastline of the state.

¹ Teachers are usually matriculates with no training as teachers. Their remuneration of Rs.100 per month (US \$ 8) is not sufficient to make a living. Physical school facilities are not provided, except for books and essential stationery.

² The training programme is described in BOBP/REP/31, also in Bay of Bengal News, June 1985

After being posted, the extension officers carried out a techno-demographic census¹ of the state's marine fishing villages. The census also covered infrastructure facilities. The study showed that lack of facilities for health, drinking water, communication, and schooling were the most serious problems in Orissa's fishing villages. Primary schools were accessible to most fishing villages, but their capacity was limited in relation to the number of children of schoolgoing age.

The literacy rates in the coastal villages² of Orissa are below those for the respective districts and also below the national average. (According to the 1981 census, the literacy rates in the coastal sample villages are 35.7 per cent, 35.4 per cent, 33.9 per cent and 17.9 per cent in Balasore, Cuttack, Puri and Ganjam districts, respectively — being between 7 per cent and 13 per cent below the district figures.) Literacy rates among marine fisherfolk are probably even lower.

The perceptions of fisherfolk were investigated by fisheries extension officers during a field enquiry in September 1982. Fisherfolk were asked why they did not send their children to school. The reasons cited in southern Orissa.

- They themselves had not been to school. It was more or less customary for fisherfolk not to attend school.
- Their children would not be well-received by children from other communities.
- School timings were unsuitable. Children had to be at home to help sort fish or carry out other fisheries - related work.
- They did not know what practical use schooling would have.

When asked about their sons' future occupation, the vast majority of fisherfolk parents mentioned fishing. Only a small group of parents saw the future of their children in a salaried job. The children would follow the profession of their parents and grandparents.

Illiteracy is one of the main reasons that fisherfolk have not really benefited from the development of the fishing industry, the increase in prices of marine products, infusion of improved fishing technology etc. Further, illiteracy is an obstacle to implementing development activities.

¹ BOBP/WP/29 presents the results of the census in detail.

² A coastal sample village is an entire gram panchayat. The village is an administrative unit, comprising in many cases hamlets of both peasants and fisherfolk.

Orissa has the environmental and socio-cultural features of both the northern and southern parts of the east coast, and so seems an ideal place to develop and demonstrate a NFPE curriculum for fisherfolk children applicable to the entire east coast.

A seminar in October 1982 discussed the subject of NFPE. It was attended by fisheries extension officers, extension specialists and educationists as well as by members of voluntary agencies. They recommended an educational programme for fisherfolk children that could be later integrated with or become a part of similar national educational efforts.

This paper discusses the NFPE project that grew out of the seminar recommendation. The project turned out to be an excellent example of inter-institutional cooperation. Chapters that follow discuss the evolution and implementation of the project and the roles of various institutions that took part in the project. The curriculum packages developed by the project are discussed in detail in an Annexure. The performance of 40 NFPE centres set up under the project is discussed and evaluated. A proposal to expand the project throughout coastal Orissa by setting up 100 NFPE centres is also outlined.

3. PROJECT INPUTS

The objectives of the NFPE project were set out as follows:

- to integrate learning with fishermen's lives;
- to inculcate among the young in the community an awareness of and an aspiration for technological advancements and social changes for a democratic society;
- to help them develop a personality free from superstition and blind belief; and
- to equip them with the 3 R's for continuing education.

The NFPE project in Orissa was implemented as an experimental programme under CAPE. To overcome the constraints of the CAPE approach — lack of qualified teachers, low remuneration, inadequate infrastructural facilities and support — the following measures were adopted by the BOBP pilot project:

- Community support was mobilized by the fisheries extension service to house the school and provide food, shelter and additional remuneration to the teachers.
- Basic equipment for schools (NFPE centres) — such as a blackboard, an almirah, a chair, a table for the teacher and mats for students — were provided by BOBP.
- Teachers were paid an additional Rs 95 per month to evaluate the "capsules".

- An in-service training programme was organized for teachers.

- Supervision and administration of schools was strengthened by involving the fisheries extension service, by providing a travel allowance for supervisory staff of teacher training institutes, and by conducting an evaluation exercise which was regularly reviewed at training courses/seminars for children.

The various organizations involved in the project played the following roles:

BOBP: Developed and distributed learning materials, carried out evaluation exercises, conducted review and training workshops and provided overall coordination.

SCERT, Orissa : Assisted in developing learning materials and training teachers, arranged to print them and to run experimental centres.

10 Coastal Teacher Training Institutes , TTIs (STS)*
Supervised NFPE centres and participated in the training of facilitators through their teacher-educators..

Marine Fisheries Extension Service of the Department of Fisheries: Motivated villagers to construct and maintain buildings to house the centres, assisted in developing learning materials, participated in teaching the science aspects of the curriculum, and related education to other development activities.

Fisherfolk Community: Constructed or contributed buildings to house the centres, often provided the facilitators with accommodation and food, as well as extra remuneration; participated in review meetings, studies and investigations to prepare learning materials; took active part in the day-to-day running of the centres.

4. PHASING OF PROJECT

Work Programme

The preparation and implementation of the project can be sub-divided into four phases. The first one was a preparatory phase and the other three, implementation phases.

*STS - Secondary Training Schools.

4.1 Preparatory phase (August 1982-July 1983): During the preparatory phase of the project, the data generated earlier by a fisheries census — about schools close to fishing villages, about levels of literacy in coastal areas in general and fishing villages in particular — were analyzed. Further, the fisheries extension officers probed the reasons for non-attendance in schools. These included the fisherfolk's perception of education, as discussed earlier (Introduction). Results of other studies conducted among Orissa fisherfolk were also referred to.

Discussions were held by BOBP with the Department of Fisheries, the Education Department, SCERT and UNICEF about their likely role in developing a curriculum and learning materials, and in establishing and running NFPE centres. A general curriculum frame was prepared, indicating the broad contents of learning packages and modules. A national consultant was recruited to write the materials (booklets).

SCERT agreed to cooperate in developing special learning materials for marine fisherfolk children and to set up experimental centres under its CAPE programme. UNICEF agreed to fund the printing of books to be published through the NCERT (National Council of Educational Research and Training).

The Department of Fisheries agreed to provide curriculum inputs about the occupation and environment of marine fisherfolk; to motivate fisherfolk to participate in the educational effort and to supervise the NFPE centres once they were established in the villages; and to help maintain these centres.*

Ten coastal TTIs were identified to supervise the NFPE centres and to appoint teachers.

The villages where centres were to be opened were identified by the fisheries extension officers in cooperation with the TTIs.

The selection of IIIs and villages was then approved by the SCERT. While discussing the curriculum framework, SCERT suggested that it be confined to two years in order to keep within the stipulations of the CAPE scheme. About the duration of the NFPE programme, BOBP pointed out that it might be difficult, if not impossible, to not merely achieve a level of literacy in reading, writing and mathematics compatible with formal primary schools but also to include in addition curriculum areas related to occupation, environment and culture of the

*The fisheries extension centres, the NFPE centres supported by them and the teachers' training institutes supervising the education centres, are listed in Appendix 2.

learner — and all this in less than half the time taken in formal school, viz, five years — considering that NFPE teachers were less qualified and less paid than formal school teachers. NEPE institutional arrangements were also less elaborate than those of the formal school.

It was ultimately agreed to aim at a two-year course while developing learning materials to keep within the stipulation of the CAPE programme, and to empirically observe the actual duration of the programme at the experimental centres.

At the end of the preparatory phase, a seminar was conducted. This was attended by headmasters and teacher-educators of secondary training schools, SCERT personnel, fisheries extension officers and representatives of the fisheries and education departments.

The seminar discussed and finalized the curriculum framework, as well as the first learning materials (12 booklets or "capsules" in the CAPE terminology) developed by BOBP. The curriculum framework indicated that three learning packages compatible with classes 1,2,3 and 5 of the formal stream were to be developed by BOBP with assistance from other agencies. These packages were to focus on the occupation, environment and culture of fisherfolk. General NFPE learning materials developed by SCERT for rural folk compatible with class IV and V of the formal stream were to complement the learning packages.

4.2 Implementation Phase I (August 1983-September 1984)

In December 1983, the first 20 NFPE centres were established. Teachers, called facilitators in the CAPE terminology, were appointed by the supervising TTIs.

Learning package 1 consisting of 36 capsules, compatible with Class I and partly with Class II of formal primary schools, was prepared, printed, and distributed to the NFPE centres.

An evaluation exercise described in greater detail in Chapter 7 commenced, in which the facilitators assessed each capsule separately. The evaluation exercise covered the following areas — students' attendance, teaching time for each capsule, participation of learners in answering questions, discussion related to learning episodes; applicability of learning episodes, comprehension of literacy, numeracy, science, social science.

Three one-week seminars were conducted in February, May and September 1984 to monitor the running of the centres and to impart training to the teachers. The seminars covered the following areas¹

- February 1984 seminar: Principles of non-formal education; information about fisherfolk; briefing on structure of curriculum and learning materials; briefing on administration of centres and on cooperation with community and government agencies concerned; basic methods of teaching; teaching exercises; briefing on evaluation procedures and new capsules.

- May 1984 seminar: Review of psychology of learning; methodology of teaching languages, arithmetic, science, social science, sports/games; teaching demonstrations and exercises; briefing on new capsules.

- September 1984 seminar: Review of running of centres and review of capsules; student-teacher interaction/teaching skills; teaching aids; micro-teaching exercises; briefing on new capsules.

The draft of the learning package on marine environment and fishing technology was completed during the first implementation phase

4.3 Implementation Phase II (October 1984 - September 1985)

During Phase II, modules 1 and 2 (24 capsules) of learning package 2, which are compatible with Classes II and III of formal primary schools, were written, printed and distributed to the NFPE centres. The draft of the learning package on fishing technology and marine environment was translated into Oriya.

In December 1984, 20 more NFPE centres were opened. Teaching aids for arithmetic, geometry, and science of learning packages 1 and 2 were developed and distributed to all centres³

Two more seminars were conducted in January and September 1985 to monitor the running of the centres and to impart training to "old" and "new" facilitators (facilitators of the centres opened in December 1983 and December 1984 respectively).

- January 1985 Seminar:

For "old" facilitators : Review of NFE centres and learning materials, microteaching exercises, briefing on newly developed learning materials.

¹ The location of the centres is shown in Appendices 3a to 3d.

² The location of the centres is shown in Appendix 3.

³ The teaching aids are described in Appendix 4.

For "new" facilitators: - Outline of SCERT/BOBP scheme of NFPE for fisherfolk children of Orissa; fisheries and fisherfolk of Orissa; principles of NFE; briefing on administration of centres and on cooperation with the community and the government agencies concerned; basic methods of teaching; teaching exercises; briefing on evaluation procedures and newly developed capsules.

- September 1985 seminars (district level): Review of running of NFPE centres and of learning materials; refresher lectures on teaching skills and teaching exercises; briefing on newly developed capsules; field inspection of centres.

Towards the end of the phase, class 1 examinations were conducted by the district inspectors of schools in the 20 centres which were opened in December 1983. The standard test used in formal schools was applied, supplemented by an additional test for the environmental aspects of the syllabus. The students' performance in the examination, described in detail in Chapter 7, was encouraging.

4.4 Implementation Phase III (October 1985-April 1986)

A workshop was conducted at which the contents of the learning package on fishing technology and marine environment were converted into capsular form with the help of SCERT consultants and fisheries extension officers. The learning package consists of five modules and 22 capsules.

Another seminar was held in April - which, besides reviewing the running of the centres and revising the learning materials, had refresher lectures on principles and methods of NFPE, and microteaching exercises. Teaching skills taught earlier were practised again mainly for the benefit of newly appointed teachers.

The third and last module of learning package 2 consisting of 12 capsules was printed and distributed. So were all 22 capsules of the last learning package on fishing technology and marine environment.

During this phase, a proposal for large-scale implementation of the NFPE programme was prepared (Appendix 10). It envisaged the setting up of 100 NFPE schools with permanent buildings over a period of five years, institutionalization of pre-service training for the teachers, improving the economic status of the teachers, etc. The proposal has been cleared by the Government of Orissa and is likely to be funded by a bilateral donor agency.

5. CURRICULUM ORGANIZATION AND
STRUCTURE OF LEARNING MATERIALS *

The NFPE curriculum has three learning packages prepared by BOBP. In addition, materials prepared by the SCERT and meant for NIPE in general, were also used by this project. A summary of the curriculum materials is found in the table.

Learning packages 1 and 2, compatible with classes 1 to 3, consist of three modules each. Every module in turn contains 12 capsules. A capsule is a unit of work and can be taught in 3-4 days at 2-3 hours a day, while the modules and packages refer to special functions or subject areas; they need 8 weeks and 24 weeks each respectively.

The third learning package especially designed for fisherfolk children consists of 5 modules with a total of 22 capsules. It deals with marine ecology and fishing technology and thus accounts for most of the fisheries science content of the curriculum.

Every capsule in the packages begins with a learning episode related to real life. There is continuity between the learning episodes of a module; they cover the science and social science aspects of the curriculum, and contain key words and key concepts, which are starting points for learning letters, syllables, etc.

The learning episodes are meant to be read out to the students by the teacher or by a student; they are also meant for self-study. Questions listed after the episode are to be answered and discussed orally. The episodes help reduce regional dialectical differences, and thus develop a standard Oriya tongue.

The questions to be answered and discussed after a learning episode are "closed" as well as "open"; they demand recall of facts contained in the episode; they also call for conclusions and explanations by the students, for expression of opinion.

For teaching reading and writing, a combination of synthetic and analytical methods is applied instead of letters being presented separately. To enable recognition of a letter through shape and sound, pictures illustrate words which are key concepts in the life of the fisherfolk and already figure prominently in the learning episodes. A new letter has a distinct colour, so that it can be easily identified by the learner. Thereafter, to gain familiarity with the letter and its use, the method of synthesis is applied; other words are presented for recognition as well as reading. Writing and reading exercises are carried out.

*See Annexure 1 for a detailed description.

NFPE CURRICULUM FOR ORISSA FISHERFOLK CHILDREN

Package No.	Package Title	Objectives or main emphasis	No.of modules	No. of capsules	Compatible with
<u>Materials developed by BOBP especially for fisherfolk children</u>					
1.	"The sea is our life"	Literacy, numeracy, linguistic competence (Teaches basic concepts, letters, words, numbers)	3	36	Standards I-III of formal school
2.	"Our families & communities"	Social Science; Also strengthens reading, writing & arithmetical skills	3	36	"
3.	"Marine ecology & fishing technology"	Functional knowledge & skills in science, arithmetic, modern fishing techniques	5	22	Standard V of formal school

General NFE materials developed by SCERT

I	"We and our neighbours"	Social Science	2	12	Standards IV & V of formal school
II	"Science and scientific knowledge"	General Science	2	13	
III	"Let us read & write English"	English	2	19	
IV	"Learning calculations"	Mathematics	2	14	

To maintain a proper logical structure in each unit of work, learning of the alphabet has been separated from learning of numerals. The latter are dealt with in separate capsules; these are, however, closely related to the content of the module.

A test at the end of each module covers both traditional and non-traditional curriculum areas.

Learning Package 1

Package 1, "The Sea is Our Life," is the introductory package. It centres on the environment and occupation of the target group. It is designed to teach basic concepts, basic letters, words and numbers and to integrate the teaching of reading, writing and arithmetic — and social science as well. Each "capsule" begins with a story, called an episode. It is drawn from real life and is set in the child's living environment — the trees, the sun, the sky, the ocean, the moon, the lunar effects, the fishing trips, the craft and the gear the fishermen use, etc. These episodes, together with the questions, both open and closed, help:

- in gearing the child towards a systematic NFPE approach;
- in making the children articulate their own experiences and express their ideas in the language we expect them to develop;
- in correcting regional dialectical variations; and
- in making the children understand regional characteristics and variations concerning fisheries and fishermen in Orissa.

To facilitate learning of the alphabet, methods of analysis and synthesis are applied and picture illustrations used. Reading and writing exercises follow.

The first module "We live by the sea shore" consisting of 12 capsules, deals with the environment of the learner, the second one, "We go to the sea for fishing" (12 capsules), with fishing as an occupation, while the third module, "Our boats and nets" (12 capsules), focuses on traditional fishing technology.

The titles of the capsules in Package 1 are as follows:

Package - 1 The sea is our life**Module 1** 1

We live by the seashore

capsules under Module 1.1

- 1-1 —1— Good news for village Pakhara.
- 1-1 —2— Learning in a new way
- 1-1 —3— Arithmetic teaching starts
- 1-1 —4— Seafish on the shore
- 1 1 —5— We learn to count fish
- 1 --1 —6— Shopping at the village market
- 1-1-7— Accounting for the shopping
- 1-1 —8— Seashore at dawn
- 1-1 —9— Fishing with a Mala jalo
- 1-1 . 10 . We reach Kangali's place
- 1-1 - 11 - Counting of floats
- 1—1 - 12 - Discussion on girls' education

Module 1 - 2 We go to the sea for fishingCapsules under Module 1-2

- 1 . 2 . 1 Charan gets a new boat built
- 1 - 2 - 2 Facts about building a boat
- 1 - 2 - 3 Seasons and climate
- ~~1-2-4.~~ Preparing for a fishing trip
- 1 . 2 . 5 Going out to the sea for fishing
- 1 - 2 - 6 Reaching the fishing ground
- 1 - 2 - 7 Bringing the catch ashore
- 1 . 2 - 8 Sharing the sale proceeds

- 1-2-9 On fishing holidays
- 1 - 2 - 10 If there is a heavy catch
- 1 - 2 - 11 During leisure hours
- 1 - 2 - 12 Mutual understanding

Module: 1 - 3 Our boats and nets

Capsules under Module 1-3

- 1 - 3 - 1 Bipin learns about kattumarams
- 1 - 3 - 2 Bipin sees a kattumaram
- 1 - 3 - 4 Fishing with a Kabalanet
- 1 - 3 - 5 The kattumaram and the Irgali net
- 1 - 3 - 6 The kattumaram with a Marala net
- 1 - 3 - 7 **Line fishing**
- 1 - 3 - 8 About the Masula boat
- 1 - 3 - 9 Fishing with Bara jalo
- 1 - 3 - 10 Fishing with Jangal jalo
- 1 - 3 - 11 Salti boat and the Sarini jalo
- 1 - 3 - 12 Fishing with a Behundi net

Learning Package 2

Package 2, "Our families and communities", lays emphasis on social science, besides strengthening reading, writing and arithmetical skills. Module 1 (12 capsules) tries to question superstitions and unscientific attitudes, while supporting positive traditions. Module 2 (12 capsules) promotes a proper understanding of the role of the family and of various members, their duties and functions as well as democratic norms and values with regard to decision-making patterns, etc. Module 3 (12 capsules) deals with the various aspects of community life and the interaction between community and society.

The titles of modules and capsules of this package are as follows:

Package No.2 : Our Families and Communities

Module 2 - 1 : Our Festivals, Practices and Beliefs

Capsules under Module 2.1

- 2 - 1 - 1 The dola fair
- 2 - 1 - 2 Accounting during a congregation
- 2 - 1 - 3 Ganga Puja on Thursdays
- 2 - 1 - 4 Floor painting and calculations
- 2 - 1 - 5 Festivities on Chaitra Purnima
- 2 - 1 - 6 New Year's Day and learning of arithmetic
- 2 - 1 - 7 About Shamanism
- 2 - 1 - 8 Net inauguration and accounting
- 2 - 1 - 9 Does a talisman work?
- 2 - 1 - 10 Accounting on Kartika Purnima Day
- 2 - 1 - 11 Warding off the evil eye
- 2 - 1 - 12 Fishing camps and accounting

Module 2:2 Our Family Life

Capsules under Module 2.2

- 2-2-1 United we stand, divided we fall
- 2-2-2 Accounting of income and expenditure
- 2-2-3 The plight of Mother and Sister-in-law
- 2-2-4 Minoti overcomes her hardship
- 2-2-5 Udaya manages a new net
- 2-2-6 Prosperity in Uday's family
- 2-2-7 Counsel from the elderly
- 2-2-8 Profit from motorized boats
- 2-2-9 Life without work is meaningless

- 2 - 2 - 10 Good natured Sadananda
- 2 - 2 - 11 Industry begets prosperity
- 2 - 2 - 12 Profit from economic enterprise

Module 2:3 Our Community and Society

Capsules under Module 2-3

- 2-3-1 Let us know our community
- 2-3-2 A glimpse into simple fractions
- 2-3-3 We for others, others for us
- 2-3-4 Learning about measuring liquids
- 2-3-5 Communication system and fish supply
- 2-3-6 Accounting and the postal system
- 2-3-7 Co-operation and co-operatives
- 2-3-8 A co-operative society's accounts
- 2-3-9 Why we should be educated
- 2 - 3 - 10 Reading the clock
- 2 - 3 - 11 Our village and the village panchayat
- 2 - 3 - 12 Basic ideas on geometrical figures

Learning Package 3

Package 3, "Marine Ecology and Fishing Technology", concentrates almost exclusively on functional knowledge and skills, including modern fishing techniques, as well as on science and arithmetic. The package consists of five modules with a total of 22 capsules. The modules cover the basic concepts of aquatic science such as ecology, environment, the eco-system of open beaches, river deltas, tidal areas, currents, winds and climatic conditions during the two monsoon seasons; primary production, food webs, energy balance; vertical zonation of the sea, life cycles of economically important fish species, and modern fishing technologies.

The titles of Package 3 capsules are as follows:

Package No.3 - Marine Ecology & Fishing Technology

Module 3 - 1 - Environment

Capsules under Module 3-1

- 3 - 1 - 1 Madhab learns about the land and the sea
- 3 - 1 - 2 Sanai learns about living and non-living creatures
- 3 - 1 - 3 Bishia acquaints himself with temperature, light and gases
- 3 - 1 - 4 Surama learns about salinity and pressure
- 3 - 1 - 5 The seabed

Module 3-2 Primary Production

Capsules under Module 3-2

- 3 - 2 - 1 Plants, the primary producer of food
- 3 - 2 - 2 Phytoplankton and zooplankton
- 3 - 2 - 3 Food chain
- 3 - 2 - 4 Food chains and food web

Module 3-3 Climate and Currents

Capsules under Module 3-3

- 3 - 3 - 1 Winds and their effects
- 3 - 3 - 2 Savitha gets to know about surf and tides
- 3 - 3 - 3 Summer and the summer monsoon
- 3 - 3 - 4 Winter monsoon and cyclones
- 3 - 3 - 5 Currents and upwelling

Module : 3-4 Life Cycle of Marine Animals

Capsules under Module 3-4

- 3 - 4 - 1 Jagu learns about prawns
- 3 - 4 - 2 Jaggayya learns about sharks
- 3 - 4 - 3 Bijaya learns about Hilsas
- 3 - 4 - 4 Raju learns about mackerels

Title of Module 3-5 Fishing Methods

- 3 - 5 - 1 Shore-based fishing
- 3 - 5 - 2 Boat-based fishing
- 3 - 5 - 3 Fishing with gibbets and purse seines
- 3 - 5 - 4 **Fishing with liftnets and longlines**

COMPLEMENTARY LEARNING MATERIALS OF SCERT

On completion of learning package 2, packages of general NFPE learning materials developed by SCERT for rural folk are used. The materials in these packages are compatible with standard 4 and 5 of formal school. These packages focus on geography, science, social science, mathematics, geometry and English.

The titles of the SCERT packages and capsules are as follows:

SCERT Package - I. SOCIAL SCIENCE

Package title : We and Our Neighbours

Module I-a : Let us know ourselves

Capsules under Module I-a

- I - a - 1 Our country and its land
- I - a - 2 Orissa, our state
- I - a - 3 People in our service
- I - a - 4 Shortening distance
- I - a - 5 We and our past

Module I-b Many faces of Mother India

Capsules under Module I-b

- I - b - 1 Our motherland and its soil
- I - b - 2 Soils and their uses
- I - b - 3 Let us move about
- I - b - 4 We Indians are one
- I - b - 5 How beautiful is life!
- I - b - 6 Our pride and glory
- I - b - 7 We gain freedom

SCERT Package II : GENERAL SCIENCE

Package title : Science and Scientific Knowledge

Module II-a New Knowledge, New Life

Capsules under Module II-a

- II - a - 1 Heavenly bodies around us
- II - a - 2 Animals and trees around us
- II - a - 3 Effects of rain and wind
- II - a - 4 Our body
- II - a - 5 Our home
- II - a - 6 Different states of matter
- II - a - 7 Different types of forces

Module II-b Let Us Learn New Things

Capsules under Module II-b

- II - b - 1 Let us behold the heavens
- II - b - 2 Preserve the soil
- II - b - 3 Different phases of energy
- II - b - 4 The minutest of matter
- II - b - 5 Our apparel
- II - b - 6 Story of a living machine

SCERT Package III : ENGLISH

There are 19 capsules designed to teach the English language to Class IV. The titles are self-explanatory.

Title of Package III - Let us read and write English

Module III-a: "From words to letters and sentences"

Capsules under module ITT-a:

III - a - 1 Let us read and write English words

III - a - 2 Let us talk about persons and things

III - a - 3 Let us talk about colours

III - a - 4 More about persons and things

III - a - 5 My village

III - a - 6 My sweet home

III - a - 7 Our garden

III - a - 8 Our school

III - a - 9 My friends

III - a - 10 Our playground

III - a - 11 Our post office

Module III-b "Biju and Raju play a game"

Capsules under module III-b

III - b - 1 Biju and Raju play a game

III - b - 2 Biju at home

III - b - 3 Biju at the marketplace

III - b - 4 **Biju in the classroom**

III - b - 5 Biju and Raju set out for a picnic

III - b - 6 Biju and Raju visit a circus

III - b - 7 Biju and Raju meet a policeman

III - b - 8 Biju tells his story

SCERT Package IV : MATHEMATICS

Package title: "Learning Calculations"

Module IV-a: "Calculations"

Capsules under Module IV-a:

- IV - a - 1. Recalling past lessons
- IV - a - 2. Let us learn bigger numbers
- IV - a - 3. A monetary transaction
- IV - a - 4. Our day-to-day calculations
- IV - a - 5. Let us read time
- IV - a - 6. Let us share
- IV - a - 7. Unitary method of calculation
- IV - a - 8. Let us measure our garden

Module IV-b: "Learning calculations further"

Capsules under Module IV-b

- IV - b - 1. Let us count up to a crore
- IV - b - 2. Four fundamental rules
- IV - b - 3. Basic idea of fractions
- IV - b - 4. Odd and even numbers
- IV - b - 5. Take note of time
- IV - b - 6. Let us draw figures

6 TRAINING OF TEACHERS

Training Requirements

The teachers appointed to the NFPE centres were all matriculates (except for one graduate), without either experience or training as teachers. To impart the necessary skills and knowledge, in-service teacher training, which consisted of 5 one-week and one-day courses was organized. The courses are briefly described in Chapter 3.

While most teachers posted at the NFPE centres endured during their own schooldays an "autocratic" or "teacher centred" style of teaching, the approach of CAPE in general and the BOBP curriculum in particular requires a democratic or "learner-centred" style of teaching. Consequently, the teachers not only had to learn how to teach, but also how to teach differently (from the way they themselves had been taught in school).

The "learner-centred" style of teaching aims at promoting reflective and analytical thinking, reasoning and problem-solving. It encourages open questions and comments from learners, and invites them to share their experiences and views. Teacher responses, illustrations and explanations are also different from the conventional.

An integrated curriculum which aims at unified learning, and in which experience, occupation and environment play an important role, requires teacher qualifications different from those of a discipline - oriented curriculum.

The teacher has to take care that in the context of unified learning — in this case centred on the learning episodes — continuity in the child's learning experience is maintained and the logical structure of the subject matter adequately presented. The units of learning should also be based on continuous cooperative discussion and work assignments which again require from the teacher considerable skills in managing group work.

The capsules as units of work have been designed in such a manner that local resources can be utilized and local characteristics and problems can be referred to. In order to utilize local resources and to facilitate the solution of tasks/problems, the teacher has to have sufficient knowledge about the fisherfolk, fishing and the environment.

Another essential skill is the teacher's ability to take care of individual differences among learners. This requires assessment of the learner's level of competence and the setting up and evaluation of separate goals for individual learners etc.

Elements of Training

The training needs for teachers mentioned above* were met by the NFPE project in the following ways.

1. Through lectures, discussions and excursions, teachers were educated about the fisherfolk of Orissa, their fishing technology, marine resources and environment (1st training course).

2. The principles and general methodology of NFPE were taught along with the features of CAPE to highlight differences between the formal and non-formal systems of education and to familiarize the facilitators with the overall approach of the educational programme (1st training course).

3. Administration of centres and interaction with other concerned agencies/offices — such as teachers' training institutes, fisheries extension offices, district inspectors of schools etc — were taught, to equip the facilitators with basic managerial skills and know-how for running the centres (1st training course).

4. Telling facilitators about the findings of learning psychology, so that teacher can ensure continuity of learning experience (2nd course).

5. Methodology of language teaching, and the teaching of arithmetic/geometry, science and social science, to educate facilitators on how to consider the logical structure of subject-matter knowledge in teaching (2nd Training Course).

6. Teaching demonstrations, teaching exercises and role plays were conducted to demonstrate to the facilitators the general pattern of teacher-learner and learner-learner interaction and their major components — such as various types of non-verbal and verbal stimuli and responses, authority patterns, discipline, attention of learners, teacher-centered communication style versus learner centered communication style, expression of emotions and attitudes through gestures, looks etc. (3rd training course).

* Only those teachers who were posted to the first 20 centres (opening in December 1983) participated in all training courses. Teachers at the centres which opened in December 1984 took part only in three courses. From 1985 on, the training courses had two separate course programmes, one for the old groups of facilitators, another for the new group. The two groups overlapped only for evaluation reports and micro-teaching exercises.

7. The facilitators were briefed on the teaching of capsules and lesson planning, on how to organize "unified learning", group work and individual work assignments and tasks (all training courses).

8. Evaluation exercises were conducted to train facilitators in assessing learners' levels of attainment, and identifying problems (all training courses).

9. Lectures, teaching demonstrations and exercises in micro-teaching skills viz, stimulus variation and reinforcement (3rd training course), explanation and illustration (4th training course), and fluency in questioning and reorientation of learners (6th training course). Integration of teaching skills, even though practised in all training courses, was especially practised in the 5th training course.

In sum, the training proved to be very useful, particularly the emphasis on teaching skills, on practical teaching exercises and role plays. The NCERT's Regional College of Education, Bhubaneswar, helped conduct these parts of the training programme.

The integration of review/evaluation and training in the same seminar/training course proved to be useful too, because it helped to focus the training on the actual teaching requirements at the centres.

As for the drawbacks of teachers: these result from the distinctive style of NFPE, which calls for abilities and attitudes very different from what the teachers have encountered in their own schooldays. The drawbacks showed up even among teachers who attended all the the training courses.

These drawbacks relate mainly to analytical and transfer abilities, as well as to the teachers' perception of the teacher-learner interaction.

It is felt that the teachers need longer pre-service training before being posted to the centres, followed by in-service training. This suggestion has been made in the project expansion proposal, described in Appendix 10.

Pre-service training should basically instil a new teaching ethos among the non-formal teachers. It should focus particularly on skills and abilities which the teachers are supposed to develop in their students, but which they themselves did not acquire systematically during their schooldays. This is a matter of intellectual and behavioural analytical and transfer abilities, viz, to analyse problems and situations, to draw conclusions and to apply newly gained knowledge and skills to other problems and situations. These abilities can be used to analyse

traditional structures critically and to contribute to their change. At the same time the old emphasis on "memorization" (with memory power being the main engine of student success), which the teachers were subjected to during their own schooldays, should be criticised and discouraged.

Once the teachers have acquired basic analytical and transfer abilities in various curriculum areas such as arithmetic, science, and social science, they can be trained on how to teach their students. The methodologies of science teaching, social science teaching etc can also be taught. Micro-teaching skills can be taken up briefly during the pre-service training and in depth during the in-service training

Another essential area to be included in the pre-service training is the teacher-learner relationship. Non-formal teachers have to adopt a democratic learner-centred approach and abandon the autocratic model of the past. Without such an approach, the capsules cannot be taught in the right way. Before going into details on how a "democratic" teacher should teach — in terms of stimulating and responding to the learner's activities, gestures etc. — a pre-service training session should be organized. This will give the teachers sufficient time to discuss their own views and experiences and express them in role plays to bring about a thorough change of attitude. Specific elements of a learner-centred teaching style need to be referred to only briefly during the pre-service training.

7. MONITORING AND EVALUATION

7.1 Tools of Monitoring and Evaluation

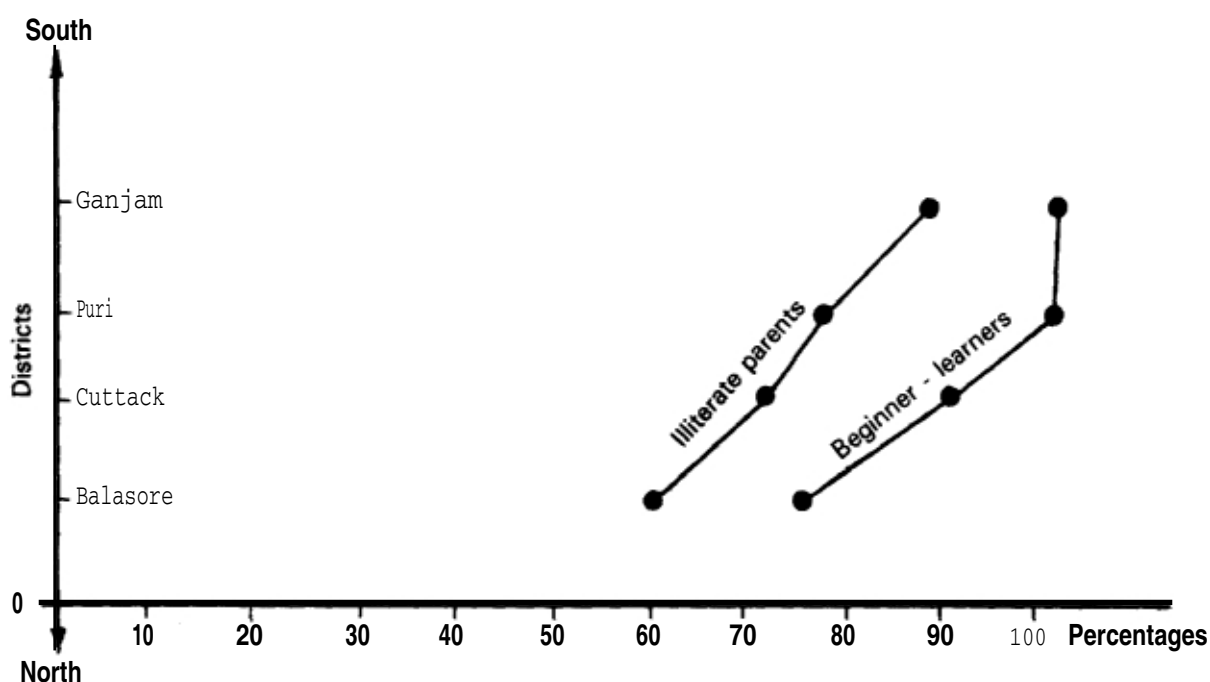
To assess the applicability of the learning material, the performance of teachers, the progress of learners and the response of the village communities, a self-evaluation exercise was carried out by the teachers. Besides this subjective instrument of monitoring, two objective tests were carried out by the district inspectors of schools: an examination in August 1985 (for 20 centres opened in December 1983) and another in August 1986 (for all the 40 centres).

The teacher's evaluation report discussed the relevance of the episodes to the learners' experience. It also discussed average attendance, the average time required for teaching the capsules, the percentage of students who participated in the discussion and who managed to do their work assignments in language/arithmetic easily. The evaluation sheet also contained the teachers' recommendations for modifying the capsules. The evaluation reports were compiled, analyzed and discussed at the periodic seminars.*

*The evaluation form and the instructions for analysis of the evaluation form are shown in Appendix 6.

Before being sent to BOBP, the evaluation report was seen by the NFPE center supervisors, the TTI educators and the fisheries extension officers, and thus served also as a monitoring tool with regard to attendance at the centres, duration of the capsules, participation of learners, applicability of learning episodes, and comprehension of literacy and numeracy. Some of the results of the evaluation exercise are discussed below.

First, however, we shall take a look at the educational level of students and their parents to find out how many students are beginners and how many are drop-outs from formal school. Appendix 7 shows that the vast majority of learners enrolled at the centres as on July 31, 1986, were beginners and at the same time. first generation learners.



Students without prior schooling (beginner - learners) and students with illiterate parents.

The graph above, based on Appendix 7, shows that as we proceed from the north to south the number of illiterate parents increases; the same is the case for learners who had no prior schooling before they were admitted to the NFPE centres.

Next we shall look at the sex ratio among learners and teachers and at the fluctuations in numbers of teachers and students. Appendix 8 shows the sex ratio among students and

teachers as on July 31, 1986.

Of the 1137 learners there were 760 boys and 377 girls (a boy-girl ratio of 2:1); but if we look at the district figures we find, strangely enough, that the two districts at the extreme north and south (i.e. Babasore and Ganjam) have boy-girl ratios of 23:10 and 38:10 respectively while those for Cuttack and Pun are 12:10 and 11:10 respectively.

Ganjam district centres have had very few girls. In fact, one centre named Kuttur has not had a single girl student since its inception.

Fluctuations in number — or strength — among students and teachers are considerable (Appendix 9). The turn-over of students is explained by the fact that almost all of them are first-generation learners, who get little encouragement from their families for attending school regularly. The numbers fluctuate for teachers because of three factors.

The teachers are usually not from fisherfolk communities. They are outsiders to the NFPE centre villages, not residents. And since transport in coastal areas is usually a problem, it is difficult for them to come and go every day. Besides residence and transport problems, low remuneration is an important reason for the rapid turn-over of teachers. Most teachers who left their NFPE assignments either got better-paid jobs or got admitted as trainees at the TTI that supervised their centre (as a kind of reward for teaching at a NFPE centre).

The turn-over of teachers is greater in the southern districts of Cuttack, Puri and Ganjam than in Balasore in the north. The main reason is that the teachers of the south regard the NFPE centres largely as a stop-gap measure before they find a more lucrative job with better prospects elsewhere; whereas in Balasore, people own agricultural land and get some additional income from their duties as facilitators.

One very interesting trend in the southern districts is that most newly-appointed facilitators are girls, and they stick to their jobs for longer periods than their male counterparts. It is a very welcome change, it may bring about some stability. Besides, female facilitators attract more girl students — rural folk feel safer about sending their girls to schools with lady teachers.

Coming to the question of student drop-outs, we see from the table that it is more pronounced among girls than boys. But in Pun, it is the other way round, and in Cuttack the drop-out rate is about the same for both. In Ganjam, 54% of the girls and 40% of the boys dropped out. When a teacher leaves, it takes quite some time for a new one to take his place. In the meantime many students lose interest and drop

out. This phenomenon is striking in Ganjam where eight centres had a total turnover of 18 teachers. Besides, there is an interesting custom among the Telugu-speaking fishenfolk of Ganjam which aborts their studies. Girls' marriages are settled by their parents at a very young age, after which they are dissuaded from attending school. In many places, the parents are education-conscious but do not have enough faith in NFPE. They put their children in formal schools where they get admitted easily because of their good performance in NFPE tests. This is certainly an encouraging sign and as NFPE gains in popularity, stability in student strength will result automatically. But, before that can occur, teacher stability must be ensured.

Having discussed the prior schooling of learners and parents, the sex ratio among learners and the turn-over among learners and teachers, we shall now discuss the evaluation exercises and their findings.

7.3 Evaluation of Capsules

As mentioned above, an evaluation report was prepared by the facilitators for each capsule. After scrutiny by the teacher-educator and the fisheries extension officer it was forwarded to BOBP for compilation and analysis and discussed at periodic seminars.

The evaluation reports served mainly three purposes:

- They made the teacher focus and reflect on the most important criteria of teaching and learning. Did he or she teach, did the students learn, according to the criteria specified in the report?
- BOBP and the supervisors got to know about learners' progress and teachers' performance.
- How useful were the learning materials? How could they be improved? Some answers were obtained.

The evaluation exercise was carried out for learning packages 1 and 2. Learning package 3 was not covered; being the last package, compatible with class V of formal school, it could not be taught during the pilot project.

The following problems were discussed at the seminars consequent on evaluation exercise. Steps were taken to rectify them.

- Low attendance of students
- Capsule teaching time — too short or too long
- Lack of learner participation in answering questions or in **discussing the learning episode**
- Learning episodes not relevant enough for the learners
- Unsatisfactory comprehension by learners of literacy or numeracy

Findings of NFPE curriculum evaluation reports:

It is not possible to go into the details of all the 72 capsules evaluated. Aggregated data for five modules of learning packages 1 and 2 are presented in the table below, separately for north and south Orissa, to reveal how the results vary with social and ecological conditions. The table brings out the following:

- The average attendance of learners per module, separately for north and south Orissa. This shows whether there was a progressive rise or fall in attendance, and whether this depended on the content of the module or on other circumstances.

- The duration or time taken for each module, so that one may estimate the time needed to complete the entire NFPE curriculum *

- The participation of learners, which is an index of the relevance of the learning materials and the quality of teaching.

- The degree of student comprehension of language or arithmetic.

When studying the table (opposite page) one should bear in mind that the information is based entirely on the teachers' perceptions which, apart from being subjective, might also be biased.

The table data are interpreted below, column by column.

Student attendance (see column 3)

Student attendance does not vary much between the north and the south since 25/26 students out of 30 attended each class. This is what emerges from the facilitators' individual reports. But practical observation reveals that students come in good number to a centre only when the teacher/facilitator is regular and punctual. Attendance becomes a problem when the facilitators are irregular, a fact which the batten do not highlight! On package 2, there was a high turnover of facilitators, hence attendance was **erratic**.

*Because of delays in printing and supply of the capsules to the centres, the time to "complete" a module at a centre usually far exceeds the teaching time.

Module number	Area	Average attendance per day (no of students)	Duration in hours	How many questions answered	% of students participation	Comprehension of language or arithmetic		
						Easily %	With difficulty %	Not at all
1	2	3	4	5	6	7	8	9
Module	North	26	94	88.2%	88.1%	64.4%	33.8%	1.8%
1 - 1	South	25	146	84.5%	78.4%	53.1%	42%	4.9%
Module	North	26	81	92%	87%	62%	31.2%	6.8%
1 - 2	South	25	153	78.7%	77.6%	53.6%	44.1%	2.1%
Module	North	25	94	91.3%	90.4%	63.8%	32.8%	3.4%
1 - 3	South	24	154	92%	80.5%	61.3%	31.4%	7.3%
Module	North	26	145	94%	91%	70.6%	34.2%	5.2%
2 -	South	21	168	95%	84%	64.6%	19.4%	16.9%
Module	North	25	122	92%	92.6%	59.1%	38.1%	2.7%
2 - 2	South	26	15.0	90%	81.9%	62.3%	26.8%	10.8%

Time taken up by each module (see column 4)

In this column we find great variations between the north and the south. As mentioned earlier in this report, most fisherfolk children from the southern part of Orissa belong to Telugu-speaking hamlets where people hardly speak Oriya; hence, any subject is covered slower in the south than in the north. But the time-gap between the north and south narrows progressively.

Another reason for the longer time taken in the south could be that almost all the southern students are first-generation learners. The northern students are second-generation or third-generation learners and grow up in a more conducive learning atmosphere.

A clarification is necessary on the time schedule for each module. The NFPE system raises students to Class VI level of formal school in 2 to 3 years. Each BOBP package can therefore be permitted a maximum period of 6 months. We see that in the south, package 1 has been covered within this specified period, since 146+153+154 hours at 18 hours per week adds up to 26 weeks. Hence we cannot say that children of the south are slow learners because of the constraint of language. The time schedule for covering the BOBP-supported NFPE curriculum in 2 to 3 years is as follows:

(a) Maximum time required to cover package 1	6 months
(b) Maximum time to cover package 2	6 months
(c) Maximum time to cover package 3	6 months
(d) Complementary learning materials developed by SCERT	12 months

The total time span to cover the whole curriculum is 30 months or 2 1/2 years - very reasonable indeed for a 5-year-course of formal school.

Questions answered and students' participation (columns 5 and 6 of Table)

In Module 1-1, under column 5, there is no significant variation between the north and the south on the percentage of questions answered, unlike in Module 1-2 where the figures for the north and south are 92% and 78.7%. This shows that topics familiar to students of the north, dealt with in Module 1-2, give them an advantage over students in the south. This is reflected by the figures on learner participation (77.6% for the south against 87% for the north - column 6). But in module 1-3, where topics familiar to the south are dealt with, the southern learners participate actively (80.5%) and answer more questions (92% against 91.3%) than the northern students.

As regards package 2, module 1, there is little variation in the questions answered (94% in the north, 95% in the south) but there is a marked improvement in student participation in the south (84%). Reasons: Episodes in this module describe various festivals, practices and beliefs which the students themselves participate in or enjoy; hence, they find little difficulty in answering **questions relating to** those episodes and take pleasure in their discussion. But Module 2.2, "Our Family Life", is tougher: it deals mostly with the behaviour patterns of different members and their interaction in a family. This does not create as much interest among the young children as was generated in the previous module "Our Festivals, practices and beliefs". Student participation is relatively higher in the north for Module 2-2 than in the south.

Comprehension of languages and arithmetic (columns 7, 8 & 9 of table).

In column 7, the figures show the percentage of students who comprehended learning matter easily. In the north, there is no substantial variation from module to module (except from 1.3 to 2.1) while in the south, the figures show an upward trend. But from module 2.1 to module 2.2, there is a sharp fall (from 70.6% to 59.1%) in the north; in the south too, the figure goes down, though not so steeply (from 64.6% to 62.3%). This can be attributed to the fact that difficulty increased from module to module, calling for greater

intelligence, skill or application.

Column 8 shows the percentage of students who could pick up lessons after these were taught or explained more than once. The students here are mostly of average level in the age-group 6-8 years.

As far column 9, there is an almost continuous rise from module to module in the percentage of students who did not pick up what was taught even after repeated teaching. According to the facilitators, these are either new entrants, or those in the age-group below 6-8 for whom this course was never meant. Besides, some good students drop out from the non-formal schools at intervals, causing the percentage to vary from time to time. The trend of students seeking admission to formal schools is regarded as a healthy reflection of parents' or students' awareness of the need for education.

Fluctuation in the numbers of student NFPE schools is perhaps inevitable in the marine fisherfolk community — given the constraints of the fishing occupation.

7.4 Examinations

An objective indicator of the NFPE programme's impact is provided by the examinations conducted in August 1985 and August 1986.

The August 1985 examinations were at 20 centres opened in December 1983 on completion of learning package one. The August 1986 examinations were held at all the 40 centres on completion of Module 2 of package two. The standard test of formal schools was applied, and supplemented by a special section on the environment. (See Appendices 6, 6a and 6b).

The examination results have been very satisfactory. In 1985, of the 483 children who appeared for the language test, 94% secured marks above 29% with average marks of 68.2%, the highest individual marks being 99%; Of the 478 children who appeared for the environmental studies test, 98% secured marks above 29% with an average of 80.5%, the highest in every district being 100 per cent; finally, of the 485 children taking the arithmetic test, 96.3% secured marks above 29% with an average of 76.6%, the highest being 100 per cent marks in both Balasore and Ganjam districts.

Surprisingly enough, in "Language", the top-ranker was the Telugu-speaking Ganjam district (average 74%, highest individual marks 99%)

In 1986, examinations were conducted for 40 NFPE centres for Class I and II, in a manner similar to 1985.

A special feature of the 1986 examinations was that all the

40 NFPE centres were given the option to allow as many students as they thought fit to appear for the Class-II standard test -- even if the centres had been opened only towards the end of 1984. Reason: many of these new centres had completed module 2 of package 2, and the progress of these new centres were very encouraging. 451 students of these new centres wrote the Class I & II examinations. Of them, 176 (39%) appeared for the Class II. The result was very satisfactory -- none of these students secured less than 30% in either environment studies or arithmetic. In "language", only 5 (3%) secured less than 29%. The relatively poor performance in the language test can perhaps be ascribed to one centre in Cuttack district -- its functioning was not very satisfactory.

Thirty-nine of the 40 NFPE centres featured in the 1986 examinations; one centre in Ganjam was closed for a long time and was shifted to New Buxipalli, because of some difficulties at Nua Golabandha.

In the 1986 examinations, 414 students appeared for Class I, and 516 for class II, giving a total of 930 examinees in all.

The performance is summarized below:

Class I

Language

Appeared	412
Average marks	66.8%
Above 29% marks	95.4%
Highest marks recorded	100% <i>in Puri</i>

Environmental Studies

Appeared	409
Average marks	80%
Above 29% marks	98.3%
Highest marks recorded	100%
	(in every district)

Arithmetic

Appeared	412
Average marks	81.4%
Above 29% marks	98.3%
Highest marks recorded	100%
	(in Balasore & Ganjam)

Class II

Language

Appeared	514
Average marks	65.6%
Above 29% marks	96.7%
Highest marks recorded	97% <i>in Puri</i>

Environmental Studies

Appeared	512
Average marks	82.7%
Above 29% marks	99.8%
Highest marks recorded	100%
	(in every district)

Arithmetic

Appeared	516
Average marks	79.6%
Above 29% marks	99.8%
Highest marks recorded	100%
	(in Balasore)

The results of the 1985 and 1986 examinations have enabled the designers of the programme to establish the following facts: -

- that the language constraint for Telugu-speaking children in the south will pose no serious problem in the long run;
- that the NFPE programme will enable students to enter formal school at any stage they like;
- that the entire NFPE programme for a child starting as a fresh candidate can be completed in three years, making him or her fit for admission into Class VI of formal school.

8. NEPE FOR FISHERFOLK CHILDREN: THE FUTURE

The experience gained through the BOBP-supported NFP[project in Orissa can be utilized in two ways:

- a) expansion and consolidation of the project in Orissa, to help all coastal fisherfolk children of the state
- b) adaptation of the approach and the curriculum to other coastal states and other countries.

During the last year of the pilot project, the Orissa government and BOBP jointly prepared a proposal for expanding and consolidating the NFPE project (Appendix 10). The proposal is intended for bilateral external funding.

The expansion project will aim at consolidating the gains from the pilot project and at extending NFPE further in Orissa with bilateral external funding. The project envisages the establishment of 60 more NFPE centres (in addition to the existing 40) during the five-year period starting 1987-88. Initially, the 40 existing NFPE centres will **be built up** before starting work on the remaining 60. Some 6,300 children are expected to be enrolled in NFPE courses by 1991-92. Of these, 4,200 children will undergo a condensed 2-year programme of primary education which is expected to prepare them for secondary education, while the 2,100 children admitted in the last year of the project will complete their primary education later. The special curriculum developed by the BOBP will be used in all the NFPE centres, and more capsules will be added progressively to the curriculum. A special system of examination/certification is also envisaged.

The infrastructure built up during this project can also eventually be used in adult literacy programmes aimed at marine fisherfolk. The total cost of the project is estimated at Rs 14.53 million, of which roughly Rs 13.70 million will constitute external bilateral assistance, the balance being borne by the Government of Orissa.

The Orissa experience can be adapted and extended to other coastal states in India. One such proposal is for the setting up of NFPE centres in Andhra Pradesh, India. There are 453 fishing villages in the eight coastal districts of

Andhra Pradesh. The literacy level of marine fisherfolk in these villages is a low 8% as against a national average of 36% and the state's average of around 30%. Low income, the nature of the fisheries, the use of children in fishing activities to raise family income and a passive attitude towards education—all these factors militate against the enrolment of fisherfolk children in formal school. Most of the approximately 85,000 children in the age group 6–14 from coastal fishing villages are untouched by the formal system. Primary schools are few and far between. Parents are neither willing nor able to send their children to these schools. The dropout rate among children enrolled in formal school is very high. Given these circumstances, a NFPE system would seem to be the best bet for children from fisherfolk communities in coastal Andhra Pradesh.

The proposed five-year project envisages the setting up of 100 NFPE centres, starting with 30 during the second year of the project. The remaining 70 centres will be established during the third and fourth years of the project. Some 5,100 learners will be enrolled at these centres. Of these, 3,900 will complete their primary education during the project period. The curriculum developed for the Orissa pilot project will be modified to suit the needs of learners in Andhra Pradesh and will be translated into Telugu, the state language. The project is estimated to cost Rs 8.4 million.