

MANPOWER PLANNING AND FISHERIES EDUCATION IN INDONESIA

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Summary

The paper outlines the growing need for skilled personnel as a result of the expansion of large-scale fisheries and the up-grading of artisanal operations. During the course of the Second Five Year Plan it is estimated that nearly 9,000 trained people will be required in the artisanal sector and more than 17,000 in the industrial fisheries. The main education facilities in the fisheries sector are described.

1. INTRODUCTION

The Indonesian fisheries consist of two types of operations, i.e. artisanal fisheries which account for about 98 percent of all operations, and the more modest industrial fishery. The artisanal fisheries are composed of small units, mostly sailing proas using traditional methods, while the recently developed industrial fishery comprises much larger vessels. The development of the industrial fishery has been stimulated by the enactment of the Foreign Capital Investment Law (1967) and the Domestic Capital Law (1968) aimed at encouraging investment in Indonesia. The first Five Year Development Plan (1969-74) provided added stimulus to the development of the fishing industry.

The development of the industrial fisheries and the introduction of more sophisticated techniques has led to the need for more qualified manpower, and in view of the integrated nature of operations (catching/landing/processing) this sector needs not only fishermen and other sea-going personnel, but also technicians and management staff. The growth of the industrial sector has also encouraged the artisanal fisheries to adopt more progressive production methods and has consequently created a demand for training in new skills in the sector also.

Realizing the importance of qualified manpower for the success of fisheries development as a whole, the Directorate General of Fisheries has given considerable emphasis to fishery education in the First Five Year Development Plan, a policy which is being continued in the Second Five Year Plan.

2. THE FISHERIES DEVELOPMENT PLAN AND THE EXTENT OF MANPOWER NEEDED

2.1 Development of the Artisanal Fisheries

The highest priority is being given to the development of the artisanal fisheries in the Second Five Year Development Plan. The general objective of the development of the artisanal fisheries is to increase their individual productivity in order to obtain better income and better living. Several ways have been formulated to reach the objective, among others:

- motorisation of the fishing fleet and its equipment with several types of gear, thus enabling the fishermen to reach and fish more productive grounds;
- application of modern technology in fish culture by introducing rational stock manipulation and the use of fertilizer and pesticides.

During the Second Five Year Development Plan about 2,465 new small motorised fishing vessels will be built and distributed to selected fishermen on a loan basis. This will be a substantial programme for the training of qualified skippers, motor drivers and skilled fishermen.

The development of fish culture will be carried out in Java, South Sulawesi, Sumatra and Nusa Tenggara for brackish water fish culture, and on Java, Sumatera, Sulawesi and Nusa Tenggara for freshwater fish culture. This will cover an area of about 52,000 ha of fish ponds within five years, of which 15,000 ha of brackish water ponds will be financed by a World Bank loan.

The need for skilled manpower in the artisanal fisheries sector for the next five years is estimated as follows:

Table 1 Estimated Skilled Manpower Requirements - Artisanal Fisheries, 1974-1978

Qualification	1974	1975	1976	1977	1978	Total
<u>Sea-Going Personnel</u>						
1. Skippers	435	466	498	519	547	2,465
2. Motor drivers	435	466	498	519	547	2,465
3. Fishermen	435	466	498	519	547	2,465
Sub total	1,305	1,398	1,494	1,557	1,641	7,395
<u>Fish Culture</u>						
1. Managers	-	22	41	41	31	135
2. Hatchery supervisors	-	110	205	205	155	675
3. Fish culturists	-	110	205	205	155	675
Sub total	-	242	451	451	341	1,485
Total	1,305	1,640	1,945	2,008	1,982	8,880

2.2 Development of the Industrial Fisheries

The development of the industrial fisheries, which was started during the First Five Year Development Plan, has made much progress and will be intensified during the Second Five Year Plan.

Besides fish catching and fish marketing operations carried out by the industrial fisheries up to the present, some fish culture operations in brackish water ponds will be open to new investment in the future. Fish capture is mainly by trawling, long-lining, purse seining and pole and line fishing.

Estimated manpower needs are given in Table 11.

2.3 Development of the Fisheries Administration

The implementation of the fisheries development programme requires the backing and support of an effective and efficient government apparatus. Technical and administrative personnel are given the opportunity to attend courses to keep them up-to-date with developments in their field and to aid their managerial ability. The highest priority is given the training of extension workers, since they are the persons who continuously have direct contact with the fishermen/fish farmers.

Extension workers are divided into two categories, viz. field extension workers and extension subject matter specialists. The number of field extension workers is related to the number of fishermen/fish farmers in a certain area, on the basis of one extension worker for each 1,000 fishermen/fish farmers, a ratio which implies the need for 1,770 field workers. Extension subject matter specialists are limited to five persons for each province, cover specialists in fish capture, fish culture, fish marketing, fish processing and cooperatives. With 26 provinces in the country the number of subject matter specialists needed is 130 persons.

Table II Estimated Skilled Manpower Requirements - Industrial Fisheries, 1974-1978

Qualification	1974	1975	1976	1977	1978	Total
<u>Sea-Going Personnel</u>						
1. Ships captains	118	176	220	149	175	838
2. Officers	21	83	199	150	265	718
3. Ships engineers	127	227	401	394	420	1,569
4. Refrigeration engineers/assts.	15	30	183	220	230	678
5. Fish processors	15	30	12	15	20	92
6. Radio operators	10	16	86	117	120	349
7. Boatswains	19	88	152	151	155	565
8. Oilers	38	130	287	300	310	1,065
9. Crew	1,087	2,006	2,638	2,134	2,500	10,365
10. Cooks	19	90	209	268	275	861
Sub total	1,469	2,876	4,387	3,898	4,470	17,100
<u>Fish Culture</u>						
1. Managers	-	3	1	4	2	10
2. Hatchery supervisors	-	15	5	20	10	50
3. Fish culturists	-	15	5	20	10	50
Sub total	-	33	11	44	22	110
<u>Cold Storage</u>						
1. Processing expert/assts.	10	15	13	-	-	38
2. Cool technicians/assts.	10	15	13	-	-	38
3. Mechanical technicians	43	48	55	-	-	146
Sub total	63	78	81	-	-	222
Total	1,532	2,987	4,479	3,942	4,492	17,432

3. THE FISHERIES EDUCATION SYSTEM

The fisheries education system in Indonesia is broadly divided into two groups: that concerned with full-time education and that concerned with part-time education.

3.1 The Full-Time Education System

The regular education system consists of full-time institutions with fixed curricula and is presently carried out by one academy, three senior high schools and three training centres, run by the Central Government, besides several other training centres owned by regional governments. The regular fisheries education system has in fact been revised since the First Five Year Development Plan and the objectives are now more oriented to the direct needs of the fishing industry rather than to government personnel.

Some details of the existing fisheries educational institutions are as follows:

- (i) The Fisheries Academy at Jakarta, a three-year course with an average output of 50 graduates per year, consisting of 40 graduates for catching techniques and 10 graduates for fish processing. The graduates are meant to fill technical posts in the industrial fisheries (offshore and high seas fisheries) and managerial posts in cooperatives.
- (ii) The Fisheries Senior High Schools at Tegal and Manado, a three-year course each with an output of 40 graduates per year majoring in navigation and engineering. The graduates are chiefly meant to fill technical posts in the industrial fisheries (coastal fisheries).
- (iii) The Fisheries Senior High School at Bogor, a three-year course specialising in fish culture with an output of 30 to 40 graduates per year. The graduates are meant to fill technical and managerial posts in the more modern fish culture operations.
- (iv) The Fisheries Training Centres at Belawan, Singaraja and Ambon are six-month courses meant for training fishermen as crew members of the industrial fisheries, in addition to training fishermen for obtaining licences in navigation and engineering of small fishing boats.

3.2 Part-Time Education

Part-time courses are provided for the training of personnel of the Directorate General of Fisheries and are broadly of three categories:

- (i) The pre-service training, which is meant to introduce newly recruited personnel to their jobs.
- (ii) The in-service training is a means of upgrading the existing personnel in their respective fields through refresher courses. The courses are carried out by personal attendance for those working at the Central Office, and by correspondence for those working in the regions.
- (iii) The pre-recruitment training is aimed at training technical and managerial know-how to those who are interested in entering the private sector after their retirement.