

FISHERIES DEVELOPMENT PLANNING IN INDONESIA

by

Hadi Atmowasono
Directorate General of Fisheries
Ministry of Agriculture, Jakarta

Summary

The Indonesian economy is heavily dependent on natural resources, of which fisheries constitutes an important element. Development plans for the fisheries sector have to be formulated in coordination with the broad objectives of national development policy. Development planning in Indonesia embraces short, medium and long term plans extending over 25 years. At present the country is at the beginning of the second five year plan, which gives considerable prominence to the development of agriculture and fisheries. In the fisheries sector particular emphasis is being given to increased value added and a more even distribution of income, as well as to nutritional aspects. The present development strategy in the fisheries sector gives emphasis to market considerations as well as production. In the current (second) five year development plan particular emphasis is being given to improvements in the social and economic position of low productivity fishermen.

1. INTRODUCTION

Indonesia is an archipelago of thousands of large and small islands with a total population of 125 million people. The distribution of the population is rather uneven, some islands being very densely populated and others sparsely. Although not the largest island Java is the most heavily populated and contains some two-thirds of the national population. It is also the seat of the Central Government (Jakarta), and the most important location for agricultural and industrial activities. Constitutionally the country is a unitary republic consisting of 26 provinces with considerable autonomy.

At its present stage of economic development Indonesia relies heavily on its natural resources, and in particular its fisheries. This has been recognized in the first five year development plan, which was initiated in 1969, and which gives particular emphasis to the agricultural sector (broadly defined) including fisheries. The fisheries potential, including resources in marine and inland waters as well as land actually under, or potentially suitable for, fish culture, is estimated roughly at seven to eight million tons annually. At present rather less than a fifth of this potential is being harvested.

Fish capture is concentrated along the north coast of Java and the east coast of Sumatera, especially in the Strait of Malacca. Most of the fishing gear used by the artisanal fisheries are traditional types, using sailing proas as their craft. Fishing intensity is very high and concentrated in certain coastal areas, without any special measures being taken to prevent fishing of juveniles or other damaging practices. Centuries of continuous operations have resulted in a degree of overfishing in certain areas along the north coast of Java and along the Strait of Malacca, creating critical areas from the viewpoint of the potential of the resources, as well as affecting the socio-economic conditions of the fishermen.

Fish culture is especially practised in Java, where unfortunately average land holdings are very small at 0.3 ha/per head as the average. Brackish water fish culture is carried out along the north coast of Java on a very extensive scale, with the average yield ranging between 200 and 400 kg/ha/year, consisting mainly of milkfish (Chanos chanos). Freshwater fish culture is carried out extensively by farmers in ponds and rice fields, except in certain areas of West Java. The most common species cultured are Cyprinus carpio, Tilapia mossambica, Puntius javanicus, Osphronemus goramy and recently also Tilapia nilotica.

Outside Java the development of fish culture in freshwater and brackish water ponds at present still limited to certain areas. Quite important freshwater culture areas are Sumatera, North Sumatera, North Sulawesi and Bali. Brackish water culture areas are South Sulawesi and Aceh. Fish culture in inland open waters outside Java is mainly carried out in Sumatera and Kalimantan.

The most important domestic fish market is Java, which since long ago has resulted in a regular fish trade business from the other islands, consisting mainly of dried and salt fish. The salt-fish trade business, which is carried out by private enterprise on an almost monopolistic system, has become a major obstacle to the Government in attempting to increase the fishermen's incomes.

2. THE METHODOLOGY OF DEVELOPMENT PLANNING

2.1 Regional and National Planning

Development plans for the fisheries sector cannot be formulated in isolation from the broad objectives of national development policy and the strategy adopted to meet these objectives. In Indonesia the large size of the country necessitates some decentralization of planning; thus, at the regional or provincial level a special body responsible to the regional government is charged with preparing a regional plan. In addition, at every regional office of the central administration, e.g. the regional fisheries service, there is a special section in charge of development planning.

The institutional structure of the planning mechanism in the Central Government is as follows:

- (i) The National Development Planning Board is the highest institution in national planning. The Chairman of the Board is ex officio the Minister for Economic, Financial and Industrial Coordination.
- (ii) In every Government Department a special section has charge of all planning activities covering the respective sector. This body is usually responsible to the Secretariat General.
- (iii) In every Directorate General, e.g. Directorate General of Fisheries, and other executive bodies of the Department there is also a special section in charge of planning activities.

2.2 The Time Horizon of Planning

Development planning in Indonesia covers the long, medium and short term. The broad lines of development are laid down in a long term plan covering 25 years, which is divided into medium term plans covering five year periods, and these in turn are sub-divided into annual plans.

The long term objectives have been established by the People's Assembly in 1973. In the field of economic development the main aims are to achieve a balanced economic structure based on a modern and powerful industry supported by a well developed agriculture, as a basis for a just and prosperous society according to the Pancasila (Five Basic Principles).

Within these long term objectives various priorities have been given in the five year development plans, viz:

- (i) As already indicated in the Introduction to this paper the first five year development plan (1969-73) gives emphasis to the agricultural sector and to agro-allied industries.
- (ii) The second five year development plan (1974-79) will continue to give emphasis to the agricultural sector and will also encourage industry to move from producing raw material to basic materials.
- (iii) The third five year development plan will give emphasis to the agricultural sector and to the stepping up of industry from producing basic materials into finished products.
- (iv) The fourth five year development plan will give emphasis to the agricultural sector by way of stepping up the manufacture of industrial machinery, for both the heavy and light industry which will be further developed in the following five year plans.

3. FISHERIES PLANNING

3.1 Objectives and Policies

The main objectives of fisheries development in Indonesia are:

- (i) To increase the contribution of this sector to national income and to assist in the achievement of a more even distribution of income - in particular by raising the income of low productivity fishermen.
- (ii) To increase production with a view to increasing the protein consumption of the population as well as to increase exports.

- (iii) To provide more employment opportunities.
- (iv) To ensure rational management of fishery resources in order to maintain their yields.

13. The translation of these objectives into action involves increasing the productivity of the artisanal fishermen, as well as improving the management of the stocks which these fishermen exploit. It also involves organizing the industry so as to achieve a balanced economic structure and the creation of an atmosphere favourable to the attraction of capital investment into the industry. Nutritional objectives could be met by means of non-commercial fish culture development.

14. The planning system used in fisheries development is the output-oriented system applying the basic elements of "Planning - Programming - Budgeting System". The application of the system is still in its initial stage and will be improved gradually. One of the major handicaps of the planners is lack of data which is indispensable for good planning. For that reason the fisheries statistical system is being improved at present with the assistance of a UNDP/FAO expert.

3.2 Strategy under the First Five Year Plan

15. The most important effort made by the Government, i.e. the Directorate General of Fisheries, during the first five year development plan was the application of a new fisheries development concept. This, in broad outline, has attempted to give a new image to fishing by modifying the previous approach which concentrated almost exclusively on increasing production. Present policy gives more attention to economic factors, in particular market considerations. The implementation of this new concept can be seen in the following developments:

- (i) The growth of large scale industrial fisheries has been stimulated, at first through foreign capital investment (Foreign Capital Investment Law, No. 1, 1967) and later through domestic capital investment (Domestic Capital Investment Law, No. 6, 1968), with the main objective of creating a pioneering venture with a demonstration effect to the constitutional and structural set-up of the existing fisheries activities. Some achievements of the first five years development plan are illustrated in the Appendix (Tables I, II, III and IV).
- (ii) Through appropriate policies formulated into regulations for licensing, etc., a pattern for the establishment of commercial ventures has been successfully initiated. This attracts the artisanal fisheries into the operational sphere of large fisheries enterprises, as in the case of cooperation achieved between fish processors owning cold storage facilities, and local fishermen and fish farmers in areas where such facilities are established.
- (iii) Fresh fish marketing has been introduced as a substitute for the old salt fish marketing system, with the objective of giving a more attractive and stimulating marketing outlet for fisheries commodities in the domestic market as well as in the world market. One concrete result during the first five years development plan was the remarkable increase in fisheries products exports (see Table IV).
- (iv) Selective catching and selective culture for the production of high value commodities has been stimulated by the new marketing system. Small shrimp trawling is developing along the coastal areas, while shrimp culture is getting more popular in brackish water ponds as well as milkfish culture. Freshwater culture has the tendency to increase its productivity per unit of effort through improved techniques, such as using supplementary feeding

3.3 The Second Five Year Development Plan

16. The second five year fisheries development plan takes as its basis consumption requirements over the period, plus projected export possibilities, imports because of their small quantity being disregarded. The possibilities of supplying this projected consumption are then considered and production targets are accordingly allocated to various sources, e.g. capture or culture fisheries, as well as by type of fishery, e.g. artisanal or industrial, and geographical area and marketing channel. From this it is clear that, as indicated, regional planning is necessary to support national planning.

17. Based on the projection of production, inputs - on a national and regional basis - are then calculated together with an assessment of the way this will be shared between Government and the private sector. At the same time the ratio of inputs from the Central Government and the regional governments is also determined. Public sector inputs will, of course, depend on budgeting policy which is closely related to the policy of creating a favourable business climate.

18. All the activities necessary to achieve the development objectives are then formulated into programmes and sub-programmes. The main programmes for fisheries development in the second five year plan are: (a) programme for increasing fish production and marketing, (b) programme for education, training and extension, (c) programme for research and survey and (d) programme for developing the government fisheries structure.

19. The first programme, that for increasing fish production and marketing, covers all activities directly concerned with increasing the supply of protein from fish. In the second five year plan greater emphasis is being given to the small scale, low productivity producers and therefore a considerable degree of Government support is necessary in the provision of infrastructure, improvement of marketing facilities, the organization of credit systems offering soft loans for smallholders and similar policies to improve the economic position of producers.

20. The three other programmes are in fact supporting elements of the first programme, and their outputs should therefore have a stimulating effect on the implementation of the first programme. An example of how the programmes are closely related to each other can be illustrated among others in the case of credit allocation to smallholders, in which the bank appointed by the Government needs information on the development prospect of the fishermen as regards fisheries resources, means of production to be used, income expected, technical skill to be extended, etc. The above mentioned information can be provided by activities under programmes (b), (c) and (d) (paragraph 18), which all together are linked into one integrated development system.

4. SUMMARY AND CONCLUSIONS

21. The main features of development in the fisheries sector are:

- (i) Availability of underexploited resources.
- (ii) The need to determine how the resource should be exploited
- reconciling technical, economic and social factors.
- (iii) How to market the production.

All these factors should be considered in a balanced development programme.

22. It is, therefore, essential that in developing the fisheries a balanced economic structure is created, which means that the opportunity given to the large scale industry and the artisanal fisheries should be as stipulated in the Constitution and development guidelines laid down by the People's Assembly. This leads to the necessity of having an effective planning towards a balanced capital structure between the two types of operations mentioned above. Finally, considering the dispersed nature of the country, Indonesian

Table I
Capital Investment in Industrial Fisheries, 1969-1973

To the end of the year	Foreign capital investment	Domestic capital investment ^{1/}		Total
		Private	Government	
		US\$		
1969	1 328 200	1 321 300	...	2 649 500
1970	4 852 100	1 741 100	...	6 593 200
1971	9 277 800	3 881 300	...	13 159 100
1972	12 197 600	5 181 600	...	17 379 200
1973	18 763 000	9 561 800	11 655 600	39 980 400

^{1/} Conversion rate US\$ 1 = Rp. 415

Table II
Fishing Fleet by Type of Management, 1968-1973

Year	Artisanal Fisheries			Industrial Fisheries (powered boat only)						Total	
	Non powered boats	Powered boats	Total (2+3)	Foreign investment	Domestic investment	Other private nationals	Government enterprise	Total (5+6+7+8)	Non powered boats (2)	Powered boats (3+9)	Total (10+11)
	2	3	4	5	6	7	8	9	10	11	12
1968	278 206	5 707	283 913	-	-	...	...	...	278 206	5 707	283 913
1969	275 314	5 319	280 633	...	...	...	...	...	275 314	5 319	280 633
1970	289 402	5 980	295 382	29	25	...	...	54	289 402	6 034	295 436
1971	277 662	7 061	284 723	67	48	...	...	115	277 662	7 176	284 838
1972 ^{1/}	286 463	8 562	295 025	75	53	128	...	256	286 463	8 818	295 281
1973 ^{2/}	285 700	8 694	294 394	90	86	128	72	376	285 700	9 070	294 770

^{1/} Revised data
^{2/} Preliminary data

Table III
Fish Production by Type of Fisheries, 1968-1973

Year	Culture					Capture			Total (6+7+8)	tons
	Brackish water ponds	Fresh water ponds	Rice fields	Cages	Total (2+3+ 4+5)	Inland open waters	Marine	Total (6+7+8)		
1968	43 528	53 348	19 082	160	116 118	320 410	722 512	1 159 040		
1969	51 876	42 180	20 224	574	114 854	314 201	785 344	1 214 399		
1970	55 908	51 345	24 223	3 126	134 602	286 519	807 391	1 228 512		
1971	60 788	54 647	22 540	388	138 363	285 745	820 447	1 244 555		
1972 ^{1/}	51 203	50 106	19 737	10 196	131 242	301 432	836 289	1 268 909		
1973 ^{2/}	53 300	51 100	20 200	10 100	134 700	305 300	860 000	1 300 000		

^{1/} Revised data

^{2/} Preliminary data

Table IV
Export of Fishery Products, 1968-1973

Year	Volume (tons)	Value (US\$ '000)
1968	19 717	2 822
1969	21 426	2 444
1970	22 060	6 959
1971	30 756	18 994
1972 ^{1/}	39 672	33 225
1973 ^{1/}	52 143	68 088

^{1/} Preliminary data

Table V
Projection of Fish Production in the
Second Five Years Development Plan

Year	Production	tons
1974	1 351 000	
1975	1 404 000	
1976	1 459 000	
1977	1 516 000	
1978	1 576 000	