

**BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR DEVELOPMENT
OF
ARTISANAL FISHERIES
IN
THE REPUBLIC OF THE GAMBIA**

JUNE 1989

**JAPAN INTERNATIONAL COOPERATION AGENCY
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PREFACE

In response to the request of the Government of the Republic of the Gambia, the Government of Japan has decided to conduct a Basic Design Study on the Project for Development of Artisanal Fisheries in the Republic of the Gambia and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to the Gambia a survey team headed by Mr. Shuji Ishida, Deputy Director of the Long-Distance Fisheries Division, Ocean Fisheries Department, Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries from January 30 to February 23, 1989.

The team exchanged views with the officials concerned of the Government of the Gambia and conducted a field survey in Banjul. After the team returned to Japan, further studies were made. Then, a mission was sent to the Gambia in order to discuss the draft report and the present report has been prepared.

I hope that this report will serve for the development of the Project and contribute to the promotion of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of the Gambia for their close cooperation extended to the team.

June 1989

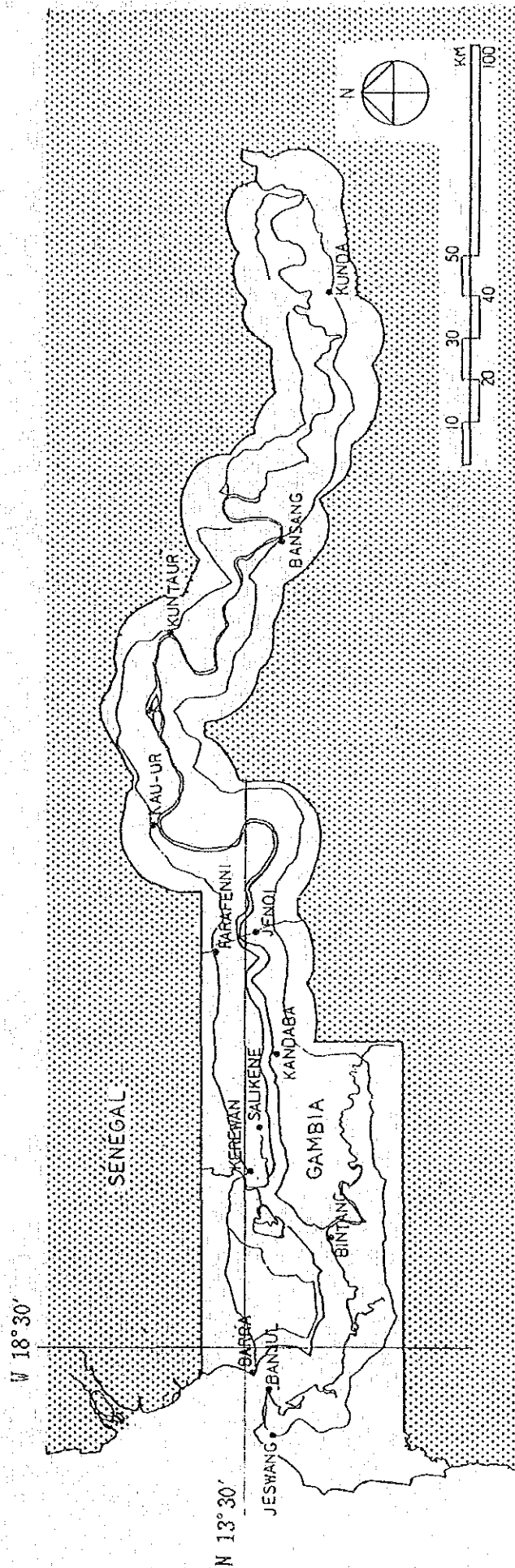
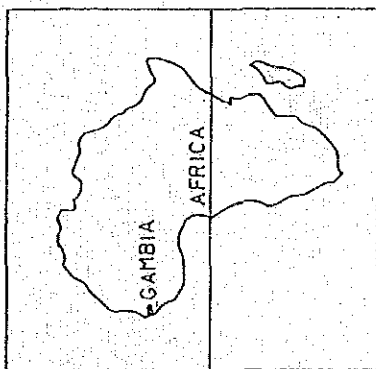
A handwritten signature in cursive script, reading "Kensuke Yanagiya".

Kensuke Yanagiya

President

Japan International Cooperation Agency

MAP OF THE REPUBLIC OF THE GAMBIA





SUMMARY

About 70% of the population in the Republic of the Gambia is engaged in agriculture, mainly in peanut cultivation. And over 90% of the country's exports consist of peanuts and peanut products. However in recent years, the world market price for peanut oil has dropped dramatically. This has reduced the value of the country's exports and has seriously affected the country's economy which relies on peanut production.

The Government of the Gambia has thus placed much importance on the promotion of coastal fisheries as part of its Economic and Social Development Plan. This plan's Fisheries Development Project is designed to: exploit marine resources efficiently, raise the population's nutritional standards by increasing fisheries production, increase employment opportunities and foreign currency income, and involve Gambian enterprises in the fisheries industry.

The Gambia's fisheries industry comprises artisanal fishing, commercial fishing, and licensed foreign vessel fishing. For the effective use of the country's limited territorial waters and inland waters, artisanal fishing is being promoted and fishing by foreign vessels is being disallowed to promote fishing by Gambian vessels. In 1987, artisanal fishing yielded 5,133 tons of fish, commercial fishing brought 10,241 tons, and foreign vessels caught 9,580 tons for a total of 24,954 tons.

In the Gambia, there are 1,814 artisanal fishermen who use 1,021 canoes. These fishermen still use traditional fishing gear and methods. The majority of their canoes are made of wood, and only about 20% are equipped with outboard motors. Modernizing these fishing vessels and training the fishermen to operate modern fishing vessels are major goals of the Government of the Gambia.

Artisanal fishing statistics are collected mostly for marine fishing. Although about 80% of all canoes are used for inland fishing, there are hardly any statistics on inland fishing. This is due to the lack of a means of collecting inland fishing statistics. There are also problems with the distribution, storage, and processing of fish catches.

The Government of the Gambia thereby formulated the "Project for Development of Artisanal Fisheries (hereinafter, the Project)" which aims to acquire outboard motors and FRP canoes to modernize fishing vessels, introduce modern fishing gear, construct a training facility for fishermen, acquire equipment for fisheries statistics collection, and reform the distribution system. In order to execute this Project, the Government of the Gambia has requested the Government of Japan for grant aid for the acquisition of the necessary facilities and equipment.

In response to this request, the Government of Japan decided to conduct a Basic Design Study for the Project. The Japan International Cooperation Agency (JICA) therefore dispatched a survey team to the Gambia from January 30 to February 23, 1989. The team was headed by Mr. Shuji Ishida, Deputy Director of the Long-Distance Fisheries Division, Ocean Fisheries Department, Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries.

The survey team surveyed the current conditions and problems of the Gambia's fisheries industry, and the background, objectives, and substance of the proposed Project. Discussions were held with Gambian government officials and the necessity and value of Japan's cooperation were ascertained. Also, the contents of the discussions were summarized in the Minutes of Discussions, which were signed by the Japanese and Gambian representatives, duplicated, and exchanged.

The study found that the Project's objectives were to modernize fishing vessels, educate and train fishermen, as well as improve fishing gear and methods. Upon discussion, it was determined that the attainment of these objectives is essential for the development of the Gambia's artisanal fisheries. These essential factors for attaining the above objectives are given below, according to the basic design of the facilities and equipment.

- | | | | |
|---|--|---|--|
| 1 | Modernization of fishing vessels | : | FRP boats and outboard motors |
| 2 | Reform of fishing gear and methods | : | Completed nets, semi-finished nets, and fishing gear |
| 3 | Training of artisanal fishermen | : | Workshop |
| 4 | Equipment repair | : | Workshop |
| 5 | Reform of distribution system | : | Refrigerator truck |
| 6 | Outboard motor repair, fishing net repair, and fisheries statistics collection | : | Motorcycles |
| 7 | Simplification of canoe landing | : | Canoe landing winches |

The agency executing the Project will be the Fisheries Department which is under the Ministry of Water Resources, Forestry, and Fisheries.

The workshop building will be built on the Fisheries Department's property which is located near the mouth of the Gambia River in Banjul. The area of the site, which is owned by the Government of the Gambia, is about 1,500 square meters.

The workshop building will have two workshops for mechanical training and repair and fishing gear training and repair. It will be staffed by 25 personnel from the Fisheries Department. Four trainees for mechanical training and repair (4-month training session, 8 trainees per year) and six trainees for fishing gear training (3-month training session, 18 trainees per year) will be trained during a training session. The workshop will also conduct activities which cannot be done in the fishing villages, such as the repair of outboard motors and the development of optimum fishing gear.

FRP fishing vessels, outboard motors, and fishing gear will be managed by the Fisheries Department and distributed to artisanal fishermen at cost. Some of this equipment will also be reserved for training purposes.

As for the management and operation of the workshop, the Government of the Gambia will bear the utility expenses, and the Fisheries Department will select and provide instructors from among its current personnel. Thus, there will be no additional personnel expenses. The annual operating cost is estimated to be D 15,000. This includes travel expenses and daily allowances for the instructors and the travel expenses for the trainees. Since the Fisheries Department is earmarking D 40,000 for the Project, it is presumed that there will be no financial problems for the operation of the proposed workshop.

As for the timetable of the workshop construction and equipment deliveries following the exchange of notes between the two governments, it is estimated that it will take 3 months to formulate the implementation plan, 2 months for the bidding and contract awarding, and 11.5 months for Project completion, for a total of 16.5 months.

This Project is designed to develop the highly promising industry of artisanal fisheries. The planned facilities and equipment are aimed to modernize fishing vessels, train fishermen, improve fishing gear and methods, etc., for artisanal fisheries. The implementation of this Project will result in the increase of fish catches, the improvement of the living standards of artisanal fishermen through higher incomes, and the supply of animal protein to the inland population through distribution reform. The Project is therefore expected to make substantial contributions to the development of the Gambia's artisanal fisheries. The Grant Aid from Japan for the implementation of this Project is thus judged to be worthy and appropriate.

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CHAPTER 1 INTRODUCTION

CHAPTER 1 INTRODUCTION

The economy of the Republic of the Gambia largely depends on peanuts. About 90% of the country's exports consist of peanuts and peanut oil. In recent years, the world market price for peanuts has dropped dramatically. As a result, the Gambia's trade balance had a deficit of 14 million dalasies (D) in fiscal 1986 and a deficit of D 26 million in fiscal 1987. This has troubled the country's economy.

This economic situation has stimulated the Government of the Gambia to formulate policies, within its 5-year Economic and Social Development Plan, aimed at product diversification and a reduction of income disparities. It has placed top priority on the development of artisanal fishing in order to increase catches.

Within its Fisheries Development Plan, the Government of the Gambia is concentrating on the development of artisanal fishing to increase employment opportunities, raise the country's nutritional standards, and to gain foreign currency through exports. In order to attain these goals, the Fisheries Department of the Ministry of Water Resources, Forestry, and Fisheries has plans to modernize fishing vessels, improve fishing gear and methods, manage marine resources properly, and reform the distribution system. However, due to budgetary problems, it has been unable to execute these plans.

Faced with this situation, the Government of the Gambia formulated the "Project for Development of Artisanal Fisheries" to promote the fisheries industry and realize the above plans. And it has requested the Government of Japan to render financial assistance for constructing the necessary facilities and acquiring the necessary equipment for the Project.

In response to this request, the Government of Japan decided to conduct a Basic Design Study for the Project. The Japan International Cooperation Agency (JICA) therefore dispatched a survey team to the Gambia from January 30 to February 23, 1989. The team was headed by Mr. Shuji Ishida, Deputy Director of the Long-Distance Fisheries Division, Ocean Fisheries Department, Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries.

The survey team held discussions with Gambian officials and studied the background, objectives, and substance of the Project; the correlation with priority plans; and the implementation and management of the Project. Through discussions, the team also sought clarification on the facilities, equipment, and supplies necessary for the Project's implementation.

After returning to Japan, the survey team examined and analyzed the survey materials and the contents of discussions that were held. The team thereby evaluated the impact the Project would have on the Gambia's fisheries. An ideal basic design was devised for the facilities, equipment, and supplies required by the Project. The basic design was also compiled in a Draft Final Report.

To explain and discuss the Draft Final Report with Gambian government officials, a mission headed by Mr. Mitsunori Oi, Planning Officer, Office of Overseas Fisheries Cooperation, International Affairs Division, Ocean Fisheries Department, Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries, was dispatched to the Gambia on May 11-25, 1989.

This report is based on the results of the initial studies. The ideal basic design of the Project's facilities and equipment, the operating expenses, evaluations, and recommendations have been compiled in this report.

Supplemental materials have also been included, such as the list of survey team members and Gambian counterparts, the survey schedule, and the Minutes of Discussions.

CHAPTER 2 PROJECT BACKGROUND

CHAPTER 2 PROJECT BACKGROUND

2-1 Economic Conditions

Roughly 70% of the Gambia's population is engaged in agriculture. Over 90% of the country's exports consist of peanuts and peanut products. The world market price (CIF) for peanut oil in May 1984 was US\$1,171 per ton. In August 1987 this plunged to US\$467 per ton.

As a result, the country's overall balance of international payments showed a deficit in fiscal 1985 (July - June) and 1986. And although the trade deficit doubled in fiscal 1987, since the capital balance surplus was large, the overall balance of payments showed a surplus. (See Table 1.)

Table 1 The Gambia's Balance of International Payments
(In millions of SDR)

Item	Fiscal 1985	Fiscal 1986	Fiscal 1987 (Forecast)
Trade balance	-12.8	-14.1	-26.3
(Exports)	(62.1)	(59.3)	(52.1)
(Imports)	(-74.9)	(-73.4)	(-78.4)
Services balance	-22.1	-19.1	-10.8
Ordinary balance	-34.9	-33.2	-37.1
Capital balance	31.1	19.7	48.3
Overall balance	-3.8	-13.5	11.3

(From: JMF, Recent Economic Development)

Since the country's agricultural and processing industries depend heavily on peanuts, the deflated prices of peanut products has had an adverse effect. Since 1986 the Government of the Gambia has been implementing economic countermeasures (reduction of government employees; reduction of rice, peanut, and cotton prices paid to farmers; privatization of major public corporations; etc.) through the aid of the World Bank and the IMF. However, the recovery of the country's economy will be difficult due to the persistently low world market price for peanuts, the country's sole source of foreign currency.

2-2 Fisheries

2-2-1 The Fisheries Industry

(1) The Fishing Environment

Extending along both sides of the Gambia River, the Gambia is a long and narrow country running along the 13° North latitude in West Africa. It is about 330 km long east to west and 30 km to 50 km wide. The country is surrounded by Senegal, except for its western border which faces the Atlantic Ocean. It has 57 km of coastline and a narrow 1,500km² continental shelf which lies in the middle of West Africa's rich demersal and surface fishing grounds that stretch from Mauritania in the north to Sierra Leone in the south.

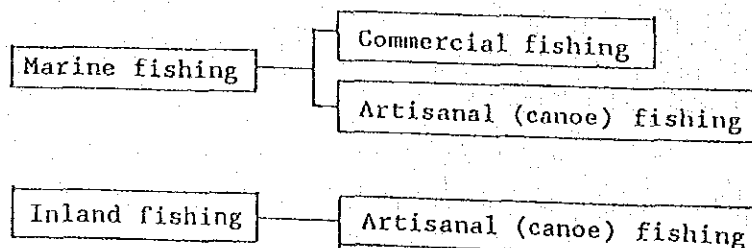
The Gambia's inland fishing grounds consist of the Gambia River, the major river in West Africa. The Gambia River originates in Guinea and flows through Senegal to reach the Gambia. The river is about 1,000 km long and 13 km wide at its widest point. During the dry season, the ocean reaches up to 200 km upstream from the river mouth.

The river has an abundant resource of shrimp and many fishermen use canoes to catch them.

(2) The Fishing Industry

① Basic Description

With regard to fishing grounds, the Gambia's fishing industry is classified as marine fishing and inland fishing. With regard to operations, it is classified as commercial fishing and artisanal (canoe) fishing.



Marine fishing is done within the country's exclusive economic zone 200 nautical miles offshore along the 57-km coastline. Commercial fishing is done offshore while artisanal marine fishing is done along the coast.

Among the seven commercial fishing companies, two are major enterprises. One of the two operates purse seiners and trawlers. Seagull Co. hauls in about 10,000 tons of fish, which is about one-third of the country's total catch of 30,000 tons. This company dominates commercial fishing almost totally. The company is followed by N.P.E. (National Partnership Enterprises) with its annual catch of 300 to 500 tons of mostly shrimp.

As for artisanal marine fishing, 219 canoes (21% of the Gambia's total of 1,021 canoes) and 784 fishermen (43% of the Gambia's fishermen) are engaged in this occupation. They annually catch 7,000 to 10,000 tons of fish.

Inland fishing is done by artisanal fishermen in canoes on the Gambia River. Eight hundred two canoes (79% of the Gambia's canoes) and 1,030 fishermen (57% of the Gambia's fishermen) are involved. There are few statistics on the amount of fish caught by this sector due to the problems of the fisheries statistics collection system.

Table 2 shows the past record of fish catches according to the type of fishing.

Table 2 Past Fish Catches

(In tons)

	1978	'79	'80	'81	'82	'83	'84	'85	'86	'87
Artisanal fishing										
Inland fishing		2,795	3,409	1,423	3,508	644	466	114	197	
Marine fishing	11,999	8,284	10,255	11,055	6,196	8,455	7,709	7,359	9,906	5,133
Total	11,999	11,079	13,664	12,478	9,704	9,099	8,175	7,473	10,103	5,133
Commercial fishing										
(Co. name)										
Seagull	14,652	10,136	8,242	9,301	6,359	4,894	4,533	9,426	4,820	9,529
N.P.E.	273	159	310	313	316	443	504	583	459	288
F.M.C.					102					
Others									202	424
Total	14,925	10,295	8,552	9,614	6,777	5,337	5,037	10,009	5,481	10,241
Gambian vessels										911
Foreign vessels	5,161		2,200	1,169	702	1,610	9,608	13,643	16,737	9,580
Total	5,161		2,200	1,169	702	1,610	9,608	13,643	16,737	10,491
Grand total	32,085	21,374	24,416	23,261	17,183	16,046	22,820	31,125	32,321	25,865

(From: Gambian Fisheries Department materials)

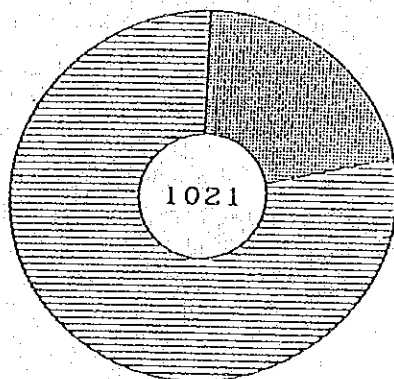
(Notes): The low figures for river fish catches are attributed to the inefficiency of inland fishing and inadequate statistics collection methods.

② Artisanal fishing

A total of 1,021 canoes and 1,814 fishermen are engaged in marine fishing and inland fishing. They haul in between 7,000 and 13,000 tons of fish annually. (See Table 4.)

A. Canoes

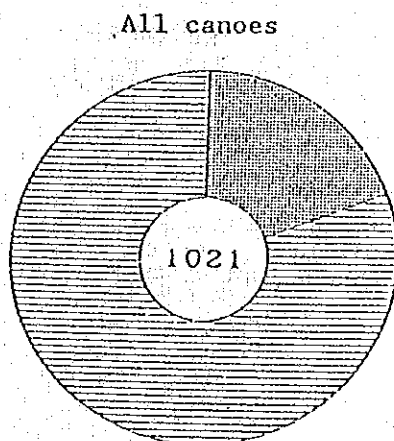
i. Number of canoes used



	No. of canoes	Percentage
For marine fishing	219	21.4
For inland fishing	802	78.6
Total	1,021	

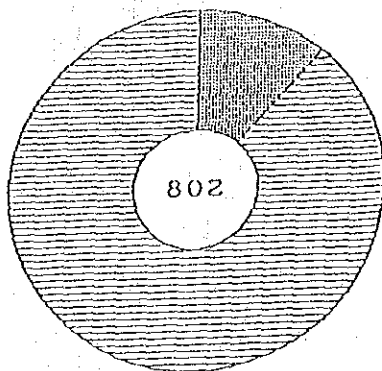
There is a total of 1,021 canoes in the Gambia, of which 802 (79%) are used for inland fishing and 219 (21%) are used for marine fishing. The number of canoes used for inland fishing is much greater than that for marine fishing.



ii. Motorized canoes



	No. of canoes	Percentage
Motorized	194	19.0
Non-motorized	827	81.0
Total	1,021	

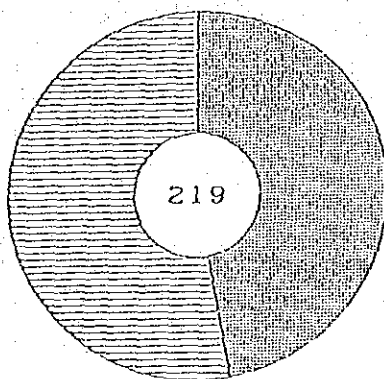
Inland fishing canoes





 Motorized
 Non-motorized
 Total

No. of canoes	Percentage
90	11.2
712	88.8
802	

Marine fishing canoes



 Motorized
 Non-motorized
 Total

No. of canoes	Percentage
103	47.0
116	53.0
219	

Only 194 of the total of 1,021 canoes are motorized. The remaining 80% are not motorized.

Out of the 802 inland fishing canoes, only slightly more than 10% (of 90 canoes) are motorized. Whereas almost half (103) of the 219 marine fishing canoes were motorized. Thus, the proportion of motorized canoes is much higher for marine fishing canoes.

B. The number of fishermen

In 1987, out of the total of 1,814 fishermen, 1,030 were engaged in inland fishing and 784 were engaged in marine fishing. There were an average of 1.3 fishermen per canoe for inland fishing, and 3.6 fishermen per canoe for marine fishing. More hands are needed for marine fishing since a surrounding gill net and a bottom gill net are used. (See Table 3.)

Table 3 The Number of Canoes and Fishermen
According to Area and Fishing Method (1987)

Fishing villages	No. of fishermen	Canoe Type							Total
		Wooden canoes					FRP canoes		
		Motorized		Non-motorized			Motorized		
		Bottom gill net	Surrounding gill net purse seine net	Bottom gill net	Hand line bottom gill net	Stow net	Bottom gill net	Surrounding gill net	
Marine fishing									
Gunjur	285	8	19	2	13				42
Sunyang	50	2	2		28				32
Batakonku	22	5	1						6
Tanji	210	2	23				1	1	27
Brufut	30	7	1						8
Bakau	45	3			20				23
Banjur	80	9	15		25				49
Bara	50	1	3		21				25
Kartong	12	1			6				7
Subtotal	784	38	64	2	113	-	1	1	219
Inland fishing	1,030	90		353	30	329			802
Total	1,814	128	64	355	143	329	1	1	1,021

(From: Fisheries Department materials)

C. Fish catch

Artisanal fishing reaps between 10,000 to 13,000 tons of fish annually. Of this total, 10% to 30% comes from inland fishing. This is a small proportion when considering the fact that about 80% of all canoes are used for inland fishing. This low percentage is due to inadequate statistics collection methods.

Usually, 30% to 50% of the catch is a type of herring called "bonga" in the Gambia. Depending on the year, 70% to 80% of the total catch may consist of bonga. This is followed by fish glue and catfish.

Table 4 Fish Stock Caught by Artisanal Fishing

(In tons)

Fiscal year	1979	1980	1981	1982	1983	1984	1985	1986
<u>Inland fishing</u>								
Tilapia	1,203	1,200	73	304	210	300	300	9
freshwater catfish			279	663	480	670	670	3
Bonga			256	436	310	430	430	
Other freshwater fish	1,592	2,289	815	2,100	1,500	2,100	2,100	185
Total	2,795	3,489	1,423	3,503	2,500	3,500	3,500	197
<u>Marine fishing</u>								
Sole	117	612	158	10	138	114	72	26
Catfish	1,112	1,711	1,704	673	765	1,119	650	427
Grouper	179	153	219	102	73	70	87	36
Fish glue (Lady fish, quasave fish)	1,364	1,144	2,030	704	705	841	753	558
Barracuda	311	317	623	146	99	228	114	196
Mullet	378	144	190	95	119	180	66	53
Nemipterus virgatus	485		470	149	102	180	109	62
Shrimp	123	322	409	272	312	508	479	21
Horse mackerel	51	482	202	88	117	197	170	153
Bonga	2,938	3,067	3,920	3,605	5,699	4,572	5,023	7,818
Shark, ray	639	913	832	335	377	347	298	302
Other ocean fish	746	1,578	733	333	447	772	156	289
Total	8,443	10,443	11,490	6,512	8,953	9,128	7,977	9,941
Inland fishing catch	2,795	3,489	1,423	3,503	2,500	3,500	3,500	197
Marine fishing catch	8,443	10,443	11,490	6,512	8,953	9,128	7,977	9,941
Grand total	11,238	13,932	12,913	10,015	11,453	12,628	11,477	10,138

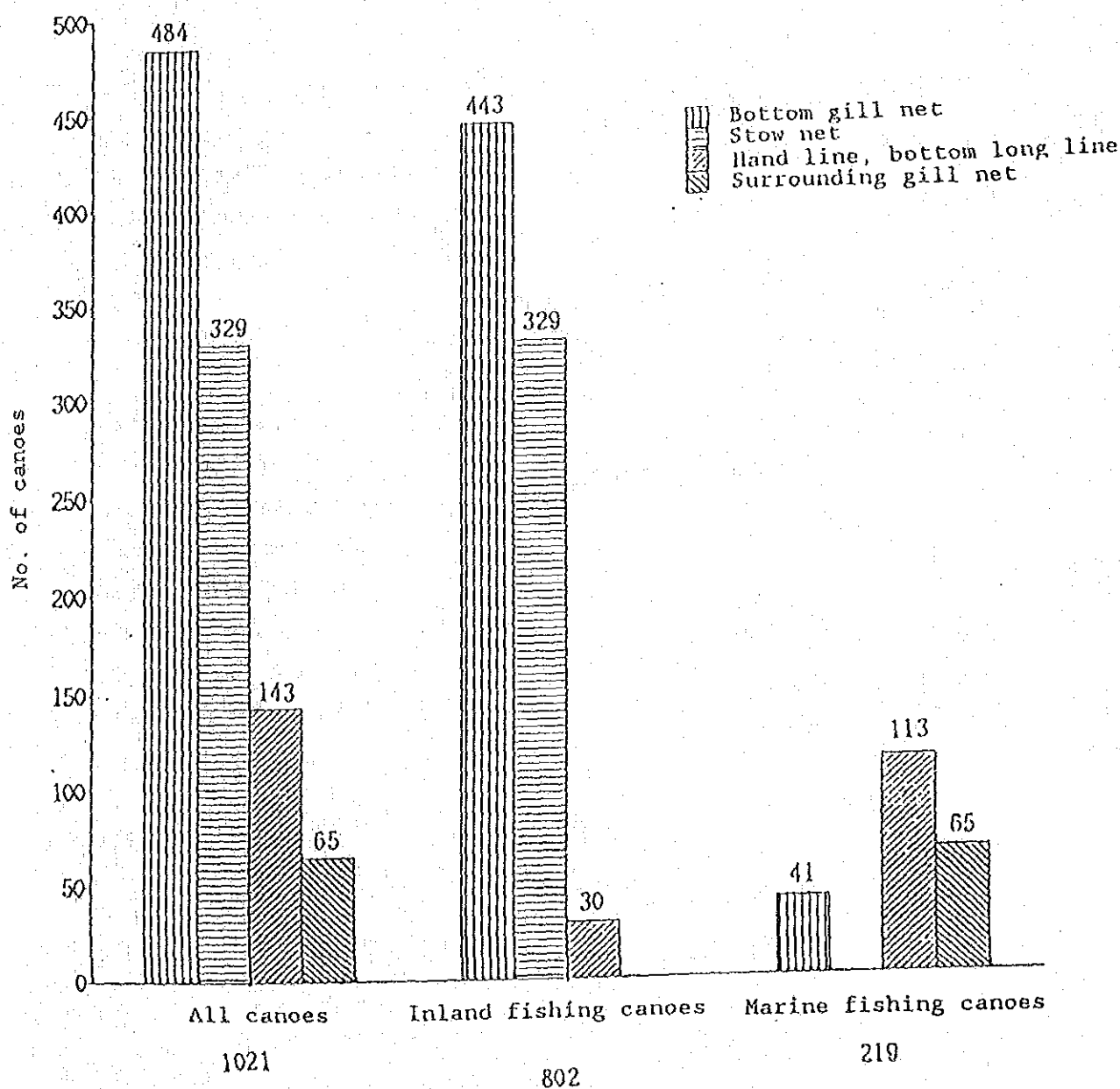
(From: FAO materials)

(Notes): The fish catch figures for inland fishing in the above table are different from those in Table 2 because the FAO materials includes estimated values.

D. Fishing Methods

In artisanal fishing, bottom gill nets and stow nets are mainly used. The chart below shows the number of canoes that use the respective fishing methods.

No. of canoes according to respective fishing method



③ Commercial fishing

The Gambia's commercial fishing industry brings in 5,000 to 10,000 tons of fish annually. Seagull Co. hauls in over 90% of this total. This is followed by N.P.E., which brings in 300 to 500 tons of mostly shrimp.

Established in 1970, Seagull Co. uses four purse seiners to catch bonga, sardine, and other fish. Besides domestic marketing of its catches, it also exports fish after they are frozen by an onshore processing plant. The company also operates a large trawler off the coast of the Gambia and Senegal. The fish catch is frozen on-board and exported to Ghana and other countries.

(3) Distribution

The distribution system of Tanji, a major fishing village, is described below.

① Conditions

i. Number of fishing vessels based at Tanji

Bottom gill net vessels	3
Surrounding gill net vessels	24

ii. Fish catch

Demersal fish	Max. 1 ton/day
Bonga	40 - 50 tons/day

iii. Marketing area (Approx. distance from Tanji)

Cerekunda	(25 km)
Banjul	(35 km)
Bakau	(30 km)
Burikama	(45 km)

iv. Fish brokers

- o Fish broker: Uses 7 light trucks and buys and sells 15 to 20 tons of fish.
- o Minor fish broker: A group of 30 to 40 people buy 40 to 100 kg of fish and sell the fish while riding bicycles.

② Distribution

Tanji brings in mainly bonga. A maximum of 25 tons of fresh fish per day are bought up and the remaining 15 to 25 tons are used for smoked fish products. Tanji is capable of producing 20 tons of smoked fish per day.

The fresh fish is sold at neighboring or nearby towns and cities. Smoked fish and salted fish are mainly sold at inland areas.

2-2-2 Status of Facilities Acquired by Previous Japanese Grant Aids for Fisheries

(1) Equipment acquired by the first award of grant aid

From among the 110 FRP fishing vessels that were granted, 80 vessels were initially distributed to the Fisheries Product Marketing Corporation (FPMC) and 30 vessels to the Fisheries Department. The Fisheries Department later transferred the management of these vessels to National Partnership Enterprises (NPE), which is a fisheries-related public corporation. On river waters, the vessels are being used for stow net fishing. It has been confirmed that 15 vessels are operating out of the fishing port of Banjul.

(2) Facilities granted by the second award of grant aid

① Ice plant

The ice plant was installed at Mansa Konko, a inland fishing ground. The plant operated without any problems from 1982 to 1986 while a Japanese specialist was assigned to the plant. However, after the specialist returned to Japan, the water pump broke down in January 1987, putting the plant out of service. Due to the difficulty of obtaining spare parts, the ice plant is still inoperative.

Operating time of the ice plant (before inoperation)

No. 1 freezer	1330 hours
No. 2 freezer	1125 hours
Ice machine	1140 hours

The ice plant's power generator and freezer equipment have never been overhauled. Although there are spare parts, they are improperly stored. The Government of the Gambia will be responsible for the adequate provisions of equipment and parts. To overhaul the equipment, it will be necessary to obtain basic and special tools.

Since the plant's electrical system has not been used for an extended period, an inspection of the electrical system will be required before restarting the plant. Therefore, it will be necessary to dispatch Japanese engineers to conduct the inspections and repairs to restart the plant.

② Two 5-ton FRP training vessels

Both training vessels are moored at Banjul Dock and are being managed by FPMC. The hull and engine are in good condition. However, inspection and servicing of the bridge navigation instruments and fishing equipment will be necessary.

③ Two 2-ton FRP training vessels

Under the management of the Fisheries Department and JICA, one of the 2-ton training vessels is being operated out of Tanji, a coastal fishing base. The vessel is being used for training purposes and trial operations for bottom gill net, surrounding gill net, trawling, and trap fishing. The other 2-ton training vessel has sunk in an accident. However, it has been raised and repaired under the guidance of JICA specialists.

④ Outboard motors

The outboard motors were distributed to artisanal fishermen through loans and they are still in use.

2-3 Related Plans

2-3-1 Economic and Social Development Plan

The Government of the Gambia implemented public investment plans in three stages from 1963 to 1975. During this period, the world market price for peanuts increased and the Gambia's economy continued to expand. The government built a stable financial base. And at the end of 1974, it had a 10-month increase of its foreign currency reserves.

With the confidence gained by the success of its public investment plan, the government of the Gambia decided to formulate an economic and social development plan. The goals of the plan were to stem poverty, starvation, illiteracy, and epidemics. It was to also contribute to the freedom and prosperity of the people and the revitalization of the nation.

The basic policies of the first 5-year (1976 - 1980) phase of the Economic and Social Development Plan concentrated on the diversification of agriculture, the development of farming and fishing villages, the well-balanced development of natural resources for man, and the reduction of the income disparity between the urban and rural areas. During the last two years of this first phase, peanut production dropped due to bad weather conditions and the world market price for peanuts also dropped suddenly. Due to the resulting lack of funds, many projects could not be completed as planned. This phase was therefore extended by a year, which allowed the completion of the projects. However, an uninvested 92.8 million dalasies was carried over.

The second 5-year (1982 - 1986) phase of the Economic and Social Development Plan was designed to continue the basic policies of the first phase. However, since the goals of the second phase were not attained as planned, this second phase was extended from 1987. A third 5-year phase was therefore not devised.

Table 5 shows the major investments made during the first and second phases of the Economic and Social Development Plan.

Table 5 Investment Amount

(In million dalasies)

Investment target	First phase		Second phase	
	Amount	Percentage	Amount	Percentage
Agricultural/Natural resources	57.4	16.4	131.3	27.6
Industry	5.9	1.7	29.2	6.2
Public facilities	42.0	12.0	67.3	14.2
Transportation and communications	155.0	44.3	143.9	30.3
Tourism, trade, and finance	16.5	4.7	7.3	1.5
Education, sports, and culture	32.1	9.2	37.0	7.8
Health, labor, and welfare	7.7	2.2	15.0	3.2
Housing and social security	11.9	3.4	21.0	4.4
General public services	21.5	6.1	23.0	4.8
Total	350.0	100.0	475.0	100.0

(Notes): 6.8 dalasies = US\$1 (As of February 1989.)

A total of 350 million dalasies were invested during the first phase, and a total of 475 million dalasies were invested during the second phase. This is an increase of 36%. Significant increases in investment were made for agricultural/natural resources (16.4% → 27.6%) and industry (1.7% → 6.2%). In contrast, the investment made for transportation and communications was reduced significantly (44.3% → 30.3%).

The objectives of the second 5-year phase of the plan are as follows:

(1) Product diversification

Since the country's agricultural production and export products depend heavily on peanuts, product diversification is being pursued.

(2) Reduction of income disparity

The income of those in farming and fishing villages is low compared to those living in urban areas. In order to reduce the income gap, there are plans to increase the income of those living in farming and fishing villages.

2-3-2 Fisheries Development Plan

(1) Basic Policies

The basic policies of the second phase of the Fisheries Development Plan were aimed to involve private enterprise in the fisheries industry and to increase fish catches by promoting the effective use of marine and inland fishing resources through artisanal fishing. Fish catches are to be increased to raise the country's nutritional standards, increase the employment rate, and increase foreign currency income.

- ① The ocean and inland fishing resources are to be used efficiently and on a long-term basis.
- ② Fish catches are to be increased to raise the country's nutritional standards.
- ③ The fisheries industry is to be promoted to raise the employment rate and increase foreign currency income.
- ④ The participation of private enterprise in the fisheries industry is to be promoted.

(2) Strategies

Concrete strategies based on the above basic policies are as follows:

- ① Appropriate measures will be implemented and relevant facilities will be enlarged and bolstered to improve artisanal fishing technology to yield larger fish catches.
- ② The exploitation of marine resources in Gambian territorial waters by Gambian fishing vessels will be promoted.
- ③ Sales, storage, and processing facilities will be improved to promote artisanal fishing, and the distribution of marine products to rural areas will be encouraged.
- ④ The government will provide available funds to artisanal fishermen and private enterprise.
- ⑤ Aquaculture will be promoted to increase inland fishing catches and fish consumption in inland areas.
- ⑥ To secure stable fish catches, basic research and surveys on marine resources will be conducted.
- ⑦ The establishment of local fishing cooperatives will be promoted and their activities will be bolstered.
- ⑧ Basic facilities for fisheries will be established.
- ⑨ The Fisheries Bureau will be bolstered for the development of human resources.

(3) Fisheries Development Plans

① Marine resource management

A. Survey research

The Government of the Gambia is surveying the volume of fisheries resources to formulate a fisheries resource development plan. The fisheries resource survey will be continued in local areas and fishing villages. Special training is being given to the Gambia's marine biology researchers and fisheries officials so that the survey can be implemented more effectively. The Government of the Gambia is giving top priority to the research of fisheries resources.

Also, the Fisheries Department is making efforts to collect and analyze fisheries statistics to ascertain the correlation between the volume of fisheries resources and the volume of fish catches. The findings will be used for the administration of the fisheries industry. Although the Fisheries Department's Statistics Group is being reinforced, it still has problems with data collection methods.

B. Fishing permit policy

To prevent indiscriminate fishing in Gambian waters and to have an appropriate scale of fishing operations vis-a-vis the volume of fisheries resources, the government of the Gambia is studying a fishing permit system to limit the number of fishing vessels operating in its territorial waters.

In accordance with this fishing permit system, fishing permits will be granted only to Gambian enterprises which have made a significant investment in the fisheries industry. The number of fishing vessels permitted will be determined according to the maximum, continuous volume of fisheries resources and the agreements on fish catch quotas with neighboring countries.

To reinforce the enforcement of the above measures, fishing operations by foreign fishing vessels in Gambian territorial waters will be prohibited. Also, patrols of Gambian territorial waters will be increased to protect marine resources.

② Support activities for fisheries production

A. Development activities

To develop the fisheries industry, it will be essential to increase fisheries production, process the fish catches appropriately, and examine storage methods. Effective facilities and equipment will therefore be necessary. In particular, transportation routes and means must be improved. The Fisheries Department's fisheries development activities showed substantial growth during the first phase of the plan. Through development staff training, the Department's development activities are being improved further.

B. Training

To increase employment through the increased investment in artisanal and commercial fishing, the Fisheries Department is employing and training the younger segment of the population. The Department is training artisanal fishermen on fishing methods, improved fish-smoking methods, etc. Positive results are being obtained from these training plans. However, there is a serious shortage of Gambians who have been trained to engage in commercial fishing.

C. Establishment of a distribution system

Insufficient storage facilities for artisanal fishing and the lack of transportation and processing methods has restricted the marketing system. The Artisanal Fishing Development Plan will provide ice machines and cold storage plants in inland areas. These facilities will be used for the cold storage of fish catches and agricultural products.

The Commercial Fishing Development Project aims to construct cold storage facilities at three locations for inland sales distribution of fresh fish. The completion of the highway connecting Banjul and Basse will enable the transportation of fresh fish via a refrigerator truck to major areas.

D. Financing

Recognizing the need for an appropriate financing system for fishermen, the government of the Gambia plans to strengthen the existing revolving loan system. The Fisheries Development Bank is also planning to extend financing to private fishing enterprises requesting financial assistance.

③ Fisheries projects

The Government of the Gambia has invested a total of D 3.77 million for the Artisanal Fishing Development Project and the Commercial Fishing Development Project during the second phase.

Artisanal fishing will yield increased catches as a result of the revolving loan and the Artisanal Fishing Development Project. It is forecast that artisanal fishing catches will exceed those of commercial fishing when the Commercial Fishing Development Project becomes firmly established.

A. Artisanal Fishing Development Project

The Artisanal Fishing Development Project was started at the end of the first 5-year phase of the Economic and Social Development Plan. It is being continued by the second 5-year phase of the Economic and Social Development Plan. The major plans of this Project include: artisanal fishermen training on improved fishing methods and processing methods for dried and smoked fish, construction of an ice plant (one plant) using the revolving loan fund, highway construction, and the repair of Tanji Bridge using revolving loan funds. A total of D 7.7 million has been invested in this Project.

B. Commercial Fishing Development Project

This Project will establish a fishing company with the Government of the Gambia holding over half of the company's capital. Fish will be caught, processed, and marketed. The company will be mainly involved in the construction of a fish processing plant and fishing vessel wharf,

the promotion of small fishing vessels, the renovation of fishing vessel maintenance facilities, the transportation and distribution of fish catches, and the construction of cold storage facilities to develop the inland market for fish. A total of D 60 million is being earmarked for this Project.

C. Other projects

i. Survey and development of oyster resources

The development of oyster resources is considered to be important. There are plans to develop oyster resources during the second phase while taking into account the results of the initial survey conducted during the first phase.

ii. Promotion of aquaculture

The promotion of aquaculture is being stressed to increase the production and consumption of fish and shellfish. To expand aquaculture systematically, plans are being formulated for building aquaculture farms in local areas.

(4) Results of the Fishing Development Plan

The fish catch during the initial period of the second phase of the Fishing Development Plan dropped from 23,261 tons in 1981 to 16,046 tons in 1983. This drop is attributed to the decrease in the number of commercial fishing vessels. However, from 1984 onward, the fish catch increased. In 1986, 32,321 tons of fish were caught. This rapid increase is due to the increased fish catches made by foreign vessels and by the increased number of Gambian-owned fishing vessels.

In 1986, all taxes on fish and shellfish exports and all import duties on fishing gear, fuel, etc., were abolished at the same time. This is expected to boost foreign currency income from fisheries exports.

The artisanal fishing catch decreased from 13,477 tons in fiscal 1980 to 10,103 tons in fiscal 1986. The number of artisanal fishermen also declined from 2,380 in 1982 to 1,814 in 1987.

The Commercial Fishing Development Project was started in December 1984. This project yielded 13,000 tons of fish and shellfish, about D 7 million in foreign currency income, and 350 new jobs. The fisheries company established in 1987 by this project was discontinued in 1988 due to a lack of funds.

2-4 Construction Conditions

(1) Building characteristics

In Banjul, most government buildings and commercial buildings are either low-rise one- or two-story structures or medium-rise four- to five-story structures. Like other African countries, masonry and concrete block wall structures are the Gambia's traditional and major construction forms. Concrete blocks are mainly used. Concrete depositing is also sometimes used. Rigid frame construction centering on columns and beams is hardly used. A combination of techniques is often seen with the upper part of concrete block walls being reinforced with ferroconcrete.

Unlike in hot and humid tropical regions where building openings are made large to promote natural ventilation, the windows of buildings in this region are made small to minimize exposure to direct sunlight. This architectural style is similar to that of the Middle East and other parts of Africa. As a result, there is inadequate natural lighting indoors.

The flooring on upper floors and the roof trusses are often made of wood. Corrugated galvanized iron sheets are often used for the roof.

(2) Construction materials

Locally procurable construction materials include cement, sand, and gravel. To give the cement a higher compressive strength, aggregate must be obtained from Senegal. There is no concrete plant or precast concrete technology in the Gambia. Except for angle reinforcements, there are no I- or H-type steel girders available.

Older buildings have wooden window frames and fittings. Steel sashes are commonly used today. Aluminum sashes are hardly used.

As for finishing materials; plaster, paint, paneling, plywood, plaster boards, and ceramic tiles are locally procurable.

(3) Building permit application

The Gambia Building Regulations were enacted by the Department of Housing and Building Control Services under the Ministry for Local Government and Lands. The building permit application will be reviewed by the Building Control Officer. He is appointed by the National Building Control Committee, which has the authority of issuing building permits.

The application procedure generally requires the submission of three copies of the proposed building's plans (site drawing, floor plan, elevation drawing, section drawing, structural calculations, etc.).

It takes about 2 weeks to a month for the application to be processed and approved.

2-5 Request Background and Description

The Gambia's economy relies heavily on peanut cultivation. Roughly 90% of the country's exports consist of peanuts and peanut oil. Droughts and drops in world market prices for peanut oil are having an adverse effect on the Gambia's economic activity.

The country's 1980 population of 603,000 is expected to jump to 1,012,000 by the year 2000. There will be serious problems concerning the feeding and employment of the increased population.

The Government of the Gambia is therefore stressing product diversification and the rectification of income disparity in its basic policies for the 5-year Economic and Social Development Plan. It is also placing top priority on the development of the highly promising fields of artisanal and commercial fishing.

While concentrating on the development of artisanal fishing as part of the 5-year Plan mentioned above, the Fishing Development Plan seeks to increase employment opportunities by expanding the fisheries industry, raise the country's nutritional standards, and secure foreign currency income through exports. The Fisheries Department, which is responsible for fisheries administration, hopes to attain these goals by modernizing the fishing vessels, improving fishing gear and methods, managing fisheries resources properly, and improving the distribution system. However, due to budgetary problems, the Department is having difficulty in implementing these measures.

The Government of the Gambia therefore formulated the "Project for Development of Artisanal Fisheries" to increase the country's fish catch and asked the Government of Japan for assistance to construct or acquire the necessary facilities, equipment, and materials for the Project's implementation.

The items requested by the Government of the Gambia according to the Basic Design Study are listed below.

List of Requested Items

Items Requested	Quantity requested by the B/D
1 Workshop building (Workshops, offices, storage rooms, training room) Total area: 1,050 m ² (2 stories) i. Workshop equipment ii. Office and storage equipment	1 1 set 1 set
2 FRP vessels i. 14.1-meter shrimp trawler ii. 8.1-meter FRP vessels iii. 4.7-meter FRP vessels iv. 7.1-meter FRP vessels v. 12.8-meter FRP vessels vi. 12.8-meter FRP vessels (with inboard motor)	-- -- 100 50 10 2
3 Outboard motors i. 4 hp gasoline outboard motors ii. 8 hp gasoline outboard motors iii. 40 hp gasoline outboard motors iv. 27 hp diesel outboard motor	50 120 50 --
4 Fishing nets i. Bottom gill nets ii. Surrounding gill nets iii. Purse seine (Completed nets) (Net material) iv. Stow net	150 10 2 3 20
5 Other equipment i. 5-ton-capacity refrigerator trucks ii. Canoe winches iii. Motorcycles	2 20 20