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Status of the Tuna Fishery, Research and Requirements for Kiribati.

1. Introduction

Kiribati comprises of 33 group of islands with a total land area of only 825 sq.km. The Exclusive Economic Zone however is vast which stretches across the Equatorial Pacific encompassing a total area of 3.6 million sq.km. These zones as indicated in the past catch records of distant water fishing nations, and from the SPC reports are rich in tuna resources and therefore the Kiribati Government has a firm belief that if such resources are utilised wisely, it could provide a long-term economic benefit to the country.

The exploitation of the offshore resources in particular tuna through our bilateral and multilateral access agreements with certain distant water fishing nations, and including the development of our domestic tuna industry, have both been playing important roles in providing foreign earnings to the country, protein supply, and employment. Over the last years, the contribution of the marine resources to GDP has been quite significant. Fishing licence alone in 1991 contributed 36.8 % of total Government recurrent revenue and as regards to food supply, 85 % of the total population depend on the sea for their daily protein food intake. In the current development plan 1993 - 1997, the development of the marine sector is still of top priority to Kiribati.

Knowing the importance of the tuna resources, the Kiribati government had been active in supporting the work programmes of the existing regional organisations in particular the Forum Fisheries Agency which main role is to assist member countries in the exercise of their sovereign rights of management of the living resources within EEZs, and the South Pacific Commission which aside from its other fisheries programmes also administered the Tuna and Billfish Assessment Research Programme. We have no doubt that this workshop organised by the Western Pacific Fisheries Consultative Committee would also prove beneficial to us in the small island countries in exploiting and managing our tuna resources.

2. Brief Fishery Status

The exploitation and development of the tuna fishery in Kiribati can be classed into three levels, the subsistence and small-scale artisanal fishery development; the commercial fishing by the National Tuna Fishing Company and including the Kiribati/Otoshiro Joint-Venture Purse Seine Fishing Company; and the licencing of the Distant Water Fishing Nations.

2.1. Subsistence and Small- Scale Artisanal Fishery

In the small scale artisanal fishery, small skiffs, pole and line fishing gear and troll lines are usually used. Due to the small size of the skiffs, fishing is limited to only a few miles off the islands and usually the main catch landed is skipjack. The government in an effort to improve the catch from the artisanal sector and including

fish quality control, and in the marketing of surplus catch have launched several major fisheries development projects with the financial support from the Government of Japan. One of the main problems, however, currently faced by the artisanal fishermen is the marked decline in their catch. For example, in South Tarawa between 1988 and 1990, the fishermen can usually market their surplus catch to the Te Mautari Ltd well over 100mt but have declined to only less 10mt between 1991 to 1993. The intensive fishing activities by the purse seiners during this period in Kiribati waters is partly blamed for the decline and this is now of great concern to the subsistence and small-scale artisanal fishermen.

2.2. Commercial Tuna Fishery

The government in an attempt to benefit from the tuna resources have established a national fishing company in the early 1980's. The company's main fishing operation is pole and line fishing and currently owns four fishing boats, a mothership, and onshore cold storage facilities. Unfortunately, the company has not been successful and was partially closed at one stage. The problems were many but most important was the fact that tuna catches fluctuated significantly from year to year with the catch ranges from as high as 2000 and 2300 tonnes in the 1984 and 1989 to as low as 400 tonnes in 1987. The average catches during this period are estimated to be around 500 tonnes per year. The variability in catches has been blamed on several factors which may include environment /climatic fluctuations, poor quality of baitfish and short fishing range of the vessels. Due to the seasonality of tuna fishing in Kiribati waters, the company may send its vessels to fish in other waters such as the Solomon Islands and Fiji. Despite the problems encountered, the company is still playing its role in providing employment and the export of tuna to canneries around the region. There are future plans for the company to diversify its operations into long lining.

Recently, the Kiribati/Otoshiro Joint-Venture Fishing Company has been formed with the long term objective to develop the domestic tuna purse seine fishery. Like other distant water fishing nations, the Joint-Venture Purse Seine vessel is operating not only in Kiribati but also in other waters particularly FSM, PNG, and Tuvalu. Training of the local crew in fishing, handling, and in the marketing aspects are some of the key components of the Joint-Venture and it is envisaged that at the end of the agreement period, the local purse seine company will be formed.

2.3. Foreign Fishing Operations

The licencing of the distant water fishing nations to fish in our waters in return for a fee began more than ten years back. This is also an attempt made by the government to benefit from the tuna resources being lacking the appropriate fishing technology, capital equipments, and the marketing know-how. At present, we have fishing access agreements with Japan, Korea, Taiwan, the U.S., and the Federated States of Micronesia. Japan is engaged mainly in the pole and line fishing, while Korea in long lining. The rest are engaged in purse seine fishing. The Table below shows the tuna catches in Kiribati waters over the last four years.

Table 1. Catch summary for the year 1990 - 1994 in metric tonnes

Year	Skipjack	Yellowfin	Bigeye	Billfish	Others	Total
1990	41,318.2	35,778.6	3,123	153.5	780	81,154
1991	29,139.5	2,875.6	1,814	84.7	567.5	34,481
1992	100,048.9	23,295.3	3,852.9	103.3	77.9	128,469.4
1993	107,369.6	40,608.1	3,993	111.0	963.4	153,045
1994	93,878.2	32,045.1	8,741.6	121.8	1,616.4	136,403.1

Table 2. Distant Water Fishing Nations Licensed to fish in Kiribati EEZ

Nation	Types of Fisheries	No. of Vessels
FSM	Purse Seine	5
Japan	Long Line	36
	Pole and Line	30
	Purse Seine	29
Korea	Longline	141
	Purse seine	10
U. S. A	Purse seine	47
Taiwan	Purse seine	6

From the table, the total catch by the foreign fishing vessels can now exceed over 100,000 mt and this is due mainly to purse seine catches. With the increase in purse seine activities in Kiribati waters, the national fishing company, Te Mautari Ltd is also experiencing lower catches and this is considered a problem to the company. Another concern is on the by-catch by these large purse seiners and in particular when fish species discarded are important food items to the Pacific island countries

3. Fisheries Research and Development Issues

Concerning the fisheries research activities, there were quite a number of studies related to the development potential of the tuna industry in Kiribati that were carried out over the last years. These also includes the survey for the availability of wild baitfish and the feasibility studies to culture milkfish to support the pole and line fishing with funding sourced from JICA and FAO/UNDP. Between 1978 and 1980, three visits were made by SPC under the Skipjack Survey and Assessment Programme (SSAP) to Kiribati waters to survey tuna and baitfish resources in the area. Simultaneously, pole and line fishing trials were also conducted to determine the catch rates. The result of these surveys were quite encouraging and consequently, the national pole and line fishing company, Te Mautari Ltd was then established in 1980.

In 1986 and 1988 the South Pacific Commission also undertook pilot tagging studies in Kiribati in particular to address the concern on the interaction between large-scale commercial fisheries and traditional small-scale operations. As reported, some important scientific observations were made during this pilot studies. The main tagging activity however, conducted by SPC under the Regional Tuna Tagging Programme (RTTP) was carried out in Kiribati waters in October 1990 with the objective this time to assess the extent of interaction among the various fisheries and areas of the region. The important finding as reported from these studies was that the catch levels are still low in the EEZ relative to attrition rate of the resource. This was based on the overall low recovery rate from the RTTP Kiribati releases.

4. Research Needs

On the research needs, we feel that further work is required to address the concern about the fishery interaction problems in priority order as follows :

- (1) the effect of purse seine catches in Kiribati EEZ on the domestic pole and line CPUE;
- (2) the effect of purse seine catches of yellowfin and bigeye in Kiribati EEZ on yellowfin and bigeye CPUE in the longline fishery in Kiribati waters;
- (3) a study to determine the percentage of the by-catch in purse seine catches and
- (4) effects of FADs to purse seining catches of skipjack, yellowfin, and bigeye tuna in Kiribati EEZ

As stated earlier, the purse seine fishing activities in Kiribati waters do have an impact on the domestic tuna catches. For example, there were occasions when the local fishermen catch dropped to almost nothing due to the presence of purse seine vessels. This had happened even during good fishing seasons. We believe that the purse seine fishing affects the behaviour of the tuna making them more difficult to catch by the local artisanal fishermen and Te Mautari Ltd. This meant a reduction in food supplies and export earnings to the Company, therefore, research to address this serious problem is seen essential.

With the national fishing company future plans to diversify its operations to the long line fishery, we consider that it is important to monitor the impact of the purse seine fishing on the yellowfin and bigeye stock.

The other concern also stated earlier is on the by-catch which includes undersize tuna, rainbow runner and other fish species that are important as food sources to the local population. As we understand, large quantities of undersize tuna and non tuna species caught by purse seiners are usually thrown overboard and since this might have an impact on the tuna stock and on other food fish species, we feel that this is also an important area to study.

5. Current in-country research

The current in-country fisheries research programmes related to the development of the tuna industry involves the development of appropriate fishing techniques, processing and marketing trials.

In the fishing trials, long lining for yellowfin and bigeye using small size fishing vessels has been experimented with the objective to assess its effectiveness for adoption by the artisanal fishermen, catch rates using a variety of baits and assessing potential fishing grounds. As reported, using a small boat with a size of 27 ft in length makes long line fishing difficult and bigger boats are therefore recommended. On the bait, the best one is the imported saury bait while milkfish and sardines were reported as the least effective baits. One of the best fishing area during the study is around the deployed FADs.

Recently, we have been conducting a long line fishing trials now using bigger boats with the assistance of one private foreign fishing company. The initial results in terms of catch, handling by the local crew and including marketing trials to overseas markets by air has been quite encouraging. There are now plans to continue on with the fishing and marketing trials before a commercial long line fishing operation is undertaken.

The other research programmes planned to be implemented includes tuna fishing using vertical long lining, the production of quality tuna jerky, and marketing of the product. Already, two small private companies have been actively involved in the production and export of tuna jerky on trial basis and the initial results are quite positive.

On the fisheries resource assessment programme, the Fisheries Statistic Unit is now planning to improve the collection of the tuna landings in particular by the subsistence, and the artisanal fishermen. The data generated could be useful to assess the impact of the purse seine fishing on the domestic catches