Majuro Based Transhipment Industry Study

FFA Report 92/23
1. Introduction

The government of Marshall Islands has a strong policy for the development of fishing industry and given the first priority to establish the industry. In this regard, the Government considers the Majuro based tuna operation as provide a significant opportunity to obtain further benefits from their tuna resources.

The Forum Fisheries Agency undertook a study to analyze economic aspects of the Majuro based fresh tuna transhipment industry and small scale tuna longline operation.

The Agency's Tuna Industry Adviser, Mr. T. Maeda conducted this study on the basis that experience in Majuro could provide important information for the development of similar operation elsewhere in the region.

2. General information on the tuna longline operation in Majuro

2.1 History

In 1986, some Japanese small scale tuna longliners established the fresh tuna transhipment based at Okinawa. They air-freighted their catches directly or through brokers to the sashimi market.

Since their establishment, these operations have expanded to the foreign bases located more closely to good fishing grounds such as Guam or Bali, Indonesia in 1970's. This expansion coincided with the strong demand from sashimi consumers. At this moment, these transhipment industries have been established in Guam, Indonesia, Philippine and are being establishing in Palau, Federated States of Micronesia and Marshall Islands.

2.2 Current aspect

MMAGG commenced the fresh tuna transhipment business in December 1990 using the fisheries facility of Marshall Islands Government which was built by Japanese Government aid in Majuro. As the government have not decided the licensing policy for the fishing vessels based in Marshall Islands the vessels are paying 3.5% of final sales amount as a temporary fishing license fee provided they land the all catch, to utilize the facilities of MMAGG and Marshall Airline. Although this business started with only one Taiwanese longliner, 11 Taiwanese vessels joined as of September 1991. According to the management of MMAGG, 30 Taiwanese longliners will join to the operation in the near future.

2 Taiwanese agents send the longliners from Taiwan on a contract basis and they have the responsibility for the fishing operation and grading of fish.
As the fishing masters on the existing Taiwanese longliners are inexperienced in the fishing grounds in Marshall Islands waters and fishing equipment and communication systems are relatively poor, fishing operations have not been effective until now. Other than the wharf, freezing and storage facilities, MMAGG installed the ice making machine which has the capacity of 200MT per day and is building the crew's rest rooms.

The result of study for the Guam based fresh tuna transhipment industry is the attached to this report.

2.3 Fishing vessels

11 Taiwanese longliners ranging for 20 - 49 GRT are involved in this operation. Number of crew is 3 Taiwanese and 4-5 Philippine. One local longliner owned by a Japanese living in Majuro has operated for transhipment of fresh tuna, but at the time of writing, fishing had suspended his operation because of engine trouble of vessel. In early 1991, 3 Hawaiian longliners joined this operation, but they withdrew after one trip, because of high handling charges and low prices for by-catch fish compared with the Hawaiian market.

Fishing vessels
Number of vessels : 11 as of September 1991
Nationality : Taiwan
Size of vessels : 20GRT - 50GRT
Number of crew : 3 Taiwanese and 4-5 Philippine

2.4 Fishing operation

The fishing grounds are in the vicinity of Marshall Islands water. The operation started in 1991 and the skippers have not yet adapted to operating the long lines in these waters. Therefore the fishing operation is not effective, nor is the handling of fresh tuna for the transhipment. It appears that the communication between shore base and fishing vessels is not done smoothly because of language problems.

Fishing vessels have to return to the port for landing fish each 10 days due to air cargo space at moment. This is one cause of ineffective fishing operations.
### 2.5 Annual catch and species ratio

<table>
<thead>
<tr>
<th></th>
<th>1988</th>
<th>1989</th>
<th>1990</th>
<th>average</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of vessel</td>
<td>173</td>
<td>193</td>
<td>205</td>
<td>190</td>
</tr>
<tr>
<td>Fishing days</td>
<td>1,975</td>
<td>2,067</td>
<td>2,428</td>
<td>2,157</td>
</tr>
<tr>
<td>Total catch (MT)</td>
<td>2,515</td>
<td>2,412</td>
<td>2,723</td>
<td>2,550</td>
</tr>
<tr>
<td>Yellowfin</td>
<td>1,195</td>
<td>1,288</td>
<td>959</td>
<td>1,147(45.0%)</td>
</tr>
<tr>
<td>Bigeye</td>
<td>903</td>
<td>917</td>
<td>1,534</td>
<td>1,118(43.8%)</td>
</tr>
<tr>
<td>Albacore</td>
<td>40</td>
<td>21</td>
<td>11</td>
<td>24(0.9%)</td>
</tr>
<tr>
<td>Billfishes</td>
<td>356</td>
<td>172</td>
<td>174</td>
<td>234(9.2%)</td>
</tr>
<tr>
<td>Others</td>
<td>21</td>
<td>14</td>
<td>45</td>
<td>27(1.0%)</td>
</tr>
<tr>
<td>Catch/day (Kgs)</td>
<td>1,273</td>
<td>1,167</td>
<td>1,121</td>
<td>1,182</td>
</tr>
</tbody>
</table>

(Source: record held by FFA)

It is assumed that as Taiwanese vessels set their long lines shallower than Japanese longliners, the percentage of yellowfin tuna is larger than and the percentage of bigeye tuna is smaller than for equivalent operation of Japanese vessels.

### 2.6 Fishing gear

(a) Japanese vessels

<table>
<thead>
<tr>
<th></th>
<th>19 tons type</th>
<th>59 tons type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of main line/basket</td>
<td>720-800 meters</td>
<td>760-900 meters</td>
</tr>
<tr>
<td>Length of buoy line</td>
<td>20-25</td>
<td>20-25</td>
</tr>
<tr>
<td>Length of hook line</td>
<td>20-25</td>
<td>20-25</td>
</tr>
<tr>
<td>No. of basket</td>
<td>100-125</td>
<td>125-140</td>
</tr>
<tr>
<td>No. of hook/basket</td>
<td>17-19</td>
<td>17-19</td>
</tr>
<tr>
<td>No. of total hooks/day</td>
<td>1700-2000</td>
<td>2200-2600</td>
</tr>
</tbody>
</table>

(b) Taiwanese vessels

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of main line/basket</td>
<td>240-300 meters</td>
</tr>
<tr>
<td>Length of buoy line</td>
<td>15-20</td>
</tr>
<tr>
<td>Length of hook line</td>
<td>14-20</td>
</tr>
<tr>
<td>No. of basket</td>
<td>250-360</td>
</tr>
<tr>
<td>No. of hook/basket</td>
<td>5-7</td>
</tr>
<tr>
<td>No. of total hooks/day</td>
<td>1500-2200</td>
</tr>
</tbody>
</table>
3. Transhipment operation

3.1 Air line and the freight

Two airline companies operate out of Majuro (not cargo flights). The average cargo space for the fresh fish per flight, freight costs and the routes are as follows.

(a) Continental Airlines: no proper cargo space available for the transhipment operation.
   Aircraft: Boeing 727 and 72M
   Route: Majuro-Kwajalein-Kosrae-Pohnpei-Truk-Guam
       : Majuro-Honolulu

(b) Air Marshall Islands:
    Aircraft: DC-8

<table>
<thead>
<tr>
<th>(Route)</th>
<th>(capacity)</th>
<th>(freight)</th>
<th>(Frequency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Majuro-Honolulu</td>
<td>14MT</td>
<td>US$1.44/kg</td>
<td>Tue, Fri, Sat</td>
</tr>
<tr>
<td>Honolulu-Tokyo</td>
<td>30MT</td>
<td>US$1.09/kg</td>
<td>every day</td>
</tr>
<tr>
<td>(China Airline)</td>
<td></td>
<td>US$0.45/kg</td>
<td>(Ex. Thu, Sun)</td>
</tr>
<tr>
<td>(Japan Airline)</td>
<td></td>
<td>US$0.82/kg</td>
<td>every day</td>
</tr>
<tr>
<td>(Northwest Airline)</td>
<td></td>
<td></td>
<td>Mon. Fri</td>
</tr>
<tr>
<td>(Japan Air System)</td>
<td></td>
<td></td>
<td>every day</td>
</tr>
<tr>
<td>(Continental Airline)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Aircraft between Honolulu and Tokyo: Boeing 747 or DC-10

The above shows that fish could be sent to Japan three times a week with a load limit of 14MT per trip. The cheapest freight between Majuro and Tokyo is US$1.89/kg.

According to Marshall Islands Airlines, the Sunday flight for Honolulu will be increased from 1st of November 1991.

In September 1991, only 9 Taiwanese longliners were operating in the transhipment business. Cargo space utilized has been about 7MT per trip on average. In addition, Marshall Islands Airlines could increase the number of flights and cargo space, if there were an increase in the number of fishing vessels based in Majuro.

It is recommended that MMAGG show its long term plan to the Airline for settlement of the problem.

In addition, PITI, an agent for fresh tuna transhipment in Palau, is negotiating with the Marshall Islands Government and Marshall Islands Airlines for landing license of their aircraft and with MMAGG for transportation of fish to Japan via Saipan.

Booking for cargo space must be done three days prior to loading.
Necessary documents for the air cargo are air way bill, packing list and custom declaration.
3.2 Ship's agent

Fishing vessels employ the ship's agent to facilitate the procedure of port entry and departure, customs, formalities, immigration and quarantine, loading fuel, water and provisions, payments on behalf of vessels.

There are two ship's agents for tuna longliners in Majuro. Neither is involved in the fresh tuna transhipment business.

(1) Marshall Islands Seafood Company
Majuro, Marshall Islands 96960,
Telephone: (6929) 3260

(2) Robert Reimers Enterprise Inc. group
Central Pacific Maritime
P.O Box 1 Majuro
Telephone: (6929) 3250

3.3 Shipper

Shippers regulate vessel port entry by vessels or the basis available space in port for berthing and vessel servicing, air cargo space and collect the information of current market conditions etc. They contact the ship's agent and necessary authorities before vessels enter port. They supervise unloading, grading, packing and forwarding fresh fish to sashimi markets in Japan. This includes processing all documentation required to land and export the fish.

There are Two Taiwanese agent connected with MMAGG in Majuro. They employ the experts in grading fresh fish from Taiwan and send them to Japanese or Hawaiian sashimi markets on behalf of ship's owners.

3.4 Packer

After grading and weighing fish unloaded, packers wrap fish with thick plastic sheet and dry ice or jet ice and they are packed in the cardboard boxes. About 90 kgs of fish is packed in the box by request of Airline.( not exceed 100 kgs of gross weight) The boxes are sealed with tape and banded.

MMAGG, a company based in Hawaii, is an exclusive packer in Majuro. MMAGG has a cool room for packing works and arranges the labour for discharging and packing of fish and transporting to airport.
3.5 Trading company for by-catch fish and rejected tunas

There is no trading company in Majuro. Operating agent (Taiwanese companies) are dealing with Japanese buyer directly to sell rejected fish and others.

3.6 Land facilities

(1) Wharf space

The length of wharf is about 80 metres and depth of water is enough for a 59 GRT type longliner. Therefore, 3-4 vessels can unload fish per day, but if it takes several days to supply the ice, water, bait and provisions, the wharf will be congested with vessels.

(2) Ice supply

MMAGG has 4 ice making machines with a total 200MT capacity per day and an ice store of 160MT capacity. A pipe line which can supply crushed ice to fishing vessel directly by air pressure, is installed at dockside.

(3) Water supply

Water is piped to the dockside.

(4) Fuel supply

The fuel pipe line at dockside is connected with Shell's fuel tank.

(5) Maintenance facilities

There is a shipyard with small machinery workshops in town which can be used for temporary or simple repairs.
 Almost all sashimi quality tuna caught by longliners go to Japanese sashimi markets though some are sold at Hawaiian markets. The remaining (non-sashimi quality fish and by-catch) are frozen at Majuro and export to Japan or other markets.

According to Japanese statistics, the export of fresh tuna from Marshall Islands to Japan in 1990 was as follows.

<table>
<thead>
<tr>
<th>Species</th>
<th>Volume</th>
<th>Value ('000 yen)</th>
<th>Price (Yen/Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellowfin tuna</td>
<td>5,549</td>
<td>4,088</td>
<td>737</td>
</tr>
<tr>
<td>Bigeye tuna</td>
<td>12,112</td>
<td>10,198</td>
<td>842</td>
</tr>
<tr>
<td>Total</td>
<td>17,661</td>
<td>14,286</td>
<td>809</td>
</tr>
</tbody>
</table>

Convert US$ 105,800 = 6.00

4.1 Market destination in Japan for sashimi quality tuna.

(1) Tokyo area markets: about 10% (top quality bigeye tuna only)
(2) Nagoya area markets: about 30% (biggest market for yellowfin tuna)
(3) Sendai and Tohoku: about 20% (mainly bigeye tuna) area markets
(4) Other area markets (Hokkaido area, Osaka area and Kyushu area): about 40% (mainly yellowfin tuna)

In 1991, as MMAGG started the transhipment business, the export quantity of fresh tunas was increased remarkably over previous year. (The figure is not available)

4.2 Fish price at market

The quality of tuna caught in Marshall Islands water is almost the same as tuna for tuna caught in Micronesia water. As a result the prices of fresh tuna exported from Marshall Islands are almost the same for fish from Guam.

Average price in 1990/1991

Bigeye tuna around 1,200 yen/Kg (about US$8.90/Kg)
Yellowfin tuna around 800 yen /Kg (about US$5.90/Kg)
5. Economic aspect of the operation

5.1 Vessel operation costs

The standard operation costs for Japanese and Taiwanese longliner are attached to this report. (Table 2)

5.2 Costs in Majuro

(1) Port charge
   (a) Pilotage: Not compulsory US$400/call
   (b) Port entry fee: US$25/call
   (c) Dockage: free at MMAGG wharf at this moment
   (d) Wharfage: same as the above

(2) Fish handling charge
   including labor charge for discharging, sorting, packing, transporting, crane and forklift charge, water charge, truck charge.
   Final sales amount x 3.5%

(3) Fuel price
   US$393/kl (US$1.22/gal)

(4) Ice
   US$150.00/MT for ice and US$0.15/25kg are charged
   crusing ice.

(5) Carton (owner supply)
   US$20/box

(6) Bait fish
   Taiwanese vessels bring their own bait fish from Taiwan and keep them in the freezer of MMAGG.
   In the event that their Japanese longliners join this operation, bait fish should be imported from Japan or Taiwan. It is assumed that the price of imported bait fish is higher than at Guam because of additional freight.

(7) Dry ice
   There is no dry ice factory in Majuro. Therefore jet ice pack have to be imported from Japan or Hawaii. MMAGG is using normal ice in plastic bag at this moment.
   Jet ice pack: calcium chloride powder is contained in plastic bags, dissolved in water before frozen for 10 hours prior to use.
(8) Fishing license fee
Total sales amount x 3.5%

(9) Packing and handling charge
Fishing vessels pay packing and handling charges amounting to 3.5% of final sales in Japan to MMAGG.
This charge includes wharfage, dockage, labour charges of unloading, packing costs and truck charges.

5.3 Costs in Japan

(a) Custom agent charge : US$ 400/10MT
(b) Transportation : US$ 550/10MT
(c) Handling charge at market : US$ 15/MT
(d) Market commission : total sales x 5.2%
(e) Sale's commission : total sales x 3-5%
(f) Import tax (for fish caught by non-Japanese vessel): CIF value x 5%

6. Future aspect

There are several sashimi markets around the world in Korea, Hawaii and on the west coast of the United States. However non are larger than the markets of Japan. Therefore almost all sashimi tuna are sold to the Japanese markets consumer demand for fresh fish continues to increase.

However the quantity of tropical fresh tuna imported from Southeast Asia, South and Middle America and South Pacific countries is continuously increasing.
The success of this industry depend on whether both fishing vessels and shore companies make a profit from fresh tuna transhipment business.

As the fresh tuna transhipment business in Majuro has started recently, the various systems for the development of the transhipment industry have not got underway yet, such as licensing policy for the foreign vessels based in Marshall Islands, aspects of air transportation, operation of the shore company and fishing vessels. The critical problem of this business in Majuro is the lack of air cargo space and the high freight cost.

However the Marshall government is going ahead with a development plan and supporting the industry strongly, so various difficulties will be overcome step by step. MMAGG must negotiate with the Airline of the Marshall Islands and the Government about cargo space, number of flights and freight in the long term.
The agent for the fishing vessels have to prepare the on-shore fleet manager who will be the expert on the fishing operation for the establishment of good relation with fishing vessels and MMAGG. The Government should establish an effective management system for the foreign fishing
vessels based in Marshall Islands and provide incentives to vessel operators such as a reduced license fee, exemption of fuel tax and import tax for the fishing gear etc, until the industry is established.

Although the port facility is not very big, it can be used as a fishing base for 50 fishing vessels which the Government is considering as the limit for the foreign vessels based in Majuro.

7. The point to consider

(1) Air cargo space
   It is the key point for the development of this industry.

(2) Records for export and landed fish
   MIMRA should maintain record for all unloading and export of fish, including daily catch reports.

(3) Collection of data for resource assessment
   Measurement of landed fishes (length and weight by species)

(4) Harbour pollution and disposal of vessels