SCIENTIFIC COMMITTEE
FOURTH REGULAR SESSION

11-22 August 2008
Port Moresby, Papua New Guinea

ANNUAL REPORT – PART 1
INFORMATION ON FISHERIES, RESEARCH, AND STATISTICS

WCPFC-SC4-AR PART 1/WP-12

INDONESIA

REPORT TO THE COMMISSION

Republic of Indonesia

PROFILE OF INDONESIA'S MARINE CAPTURE FISHERIES IN THE EASTERN INDONESIA

Budi Iskandar Prisantoso
Research Centre for Capture Fisheries, Ministry of Marine Affairs and Fisheries, Republic of Indonesia

1 INTRODUCTION

Indonesia is an archipelagic country that straddles the equator along the sea lanes between East and South Asia (Figure 1.1). Indonesia is comprised of over 17,500 islands with a combined coastline of about 81,000 km. The total land area combined all islands is about 1.9 million km2. The marine area of Indonesia is about 5.8 million km2, consisting of territorial and archipelagic waters of 3.1 million km2 which includes waters from the shore to 12 nm and an Indonesian Exclusive Economic Zone of 2.7 million km2 (Rusmanto and Kardono, 1999).

The wide areas of sea waters contain very large fisheries potential, which was estimated 6.2 million tons (National Commission for Stock Assessment, 2001). The length of coast-line was estimated about 81,000 km, which implies has a large potential for marine-culture. In addition, the very long of coast-line and many islands raises constraints in collecting fisheries data. Fishermen may land their catch at many islands and many spots at coast-line.

For management purposes, all sea waters are divided into nine Fisheries Management Areas (Wilayah Pengelolaan Perikanan, WPP). Those WPP's are 1 Indian Ocean, 2 Malacca Strait, 3 South China Sea, 4 Java Sea, 5 Makassar Strait and Flores Sea, 6 Benda Sea, 7 Seram Sea and Tomini Bay, 8 Arafura Sea, and 9 Sulawesi Sea and Pacific Ocean.

2 THE EXISTING FISHERIES OF LARGE PELAGIC FISHERIES

2.1. Production

The main area of tuna fisheries in eastern Indonesia were Sulu Sea, Ceram Sea and Banda Sea which are involve in the WCPFC convention area. The tuna fisheries in this area performed rapid development in the 1970s when global economy started to influence the region. Higher price of fish commodities abroad compared to those in the local market resulted in the boom of fisheries export from coastal states. High demand of tuna in international market had led to the development of pole and line, longline and purse seine in this region.

Large pelagic fisheries is divided into tuna, tuna like, sharks and rays. The production of tuna and and tuna like fisheries is presented in Table 1. The production of tuna, skipjack and tuna-like fishes in the period of 1997-2001 were decreasing.

Table 1 Production of marine fisheries (tons)

No.	Species group	Year				
		1997	1998	1999	2000	2001
1	Tuna & tuna-like:					
	-Tuna	82,176	128,824	107,984	131,239	123,126
	- Skipjack	143,903	186,399	199,303	202,042	180,551
	- Tuna-like	80,548	102,795	102,313	99,089	87,594
2	Sharks	14,852	22,233	23,630	26,958	23,714
3	Rays	6,371	12,773	6,639	6,584	5,134

Source: Statistical of capture fishery Indonesia, 1997 - 2001

2.2 Fishing Fleet

The fishery in this area is dominated by small scale. The number of dugout boats registered in Eastern Indonesia in the period of 1997-2001 ranging from 89212 to

111686 with the average of 104621. Plank built boats (small, medium, large) were ranging from 40558 to 86526 with the average of 56391, and boats using outboard motor from 25319 to 70408 with average 38496. The number of plank built boats and outboard motors were more registered in KBI than in KTI. The development of inboard motors less than 30 GT were still increasing and 30 GT up were decreasing. The steepest decreased was 30-50 GT and than followed by boats more than 300 GT.

Table 2. The development of inboard motors by GT category

Boat Size (GT)	Year				
	1997	1998	1999	2000	2001
< 5	5,776	5,882	6,250	7,059	7,114
5-10	2,862	3,428	2,928	3,050	3,819
10-20	1,122	1,548	1,582	1,595	1,397
20-30	470	747	764	599	515
30-50	908	943	583	538	50
50-100	252	221	512	481	191
100-200	180	290	502	515	113
> 200	60	165	211	243	19

Source: Statistical of Capture Fishery Indonesia, 1997 – 2001

2.3. Fishing Gears

Pole and line fisheries were well developed in Eastern Indonesia, because the availability of live baits (anchovies). The government of Indonesia has built 3 state companies for pole and line 1970s located in Bitung, Ambon and Sorong. Two kinds of purse seine are operating in eastern Indonesian waters, industrial purse seine for catch tunas mainly based in Bitung, and small scale purse seine locally called Pajeko (in Nortn Sulawesi), Gae (in South Sulawesi) and Giop (in Ambon).

Table 3. Fishing gears operating in Eastern Indonesia

Type of Gear	Year				
	1997	1998	1999	2000	2001
Purse seine	3,134	2,370	3,799	3,816	5,233
Drift gillnet	42,380	29,562	36,177	37,786	51,940
Longline	1,435	1,833	1,287	1,339	2,745
Pole and line	1,441	1,335	1,569	1,581	1,951
Troll line	38,055	40,766	44,162	46,558	50,390
Total	86,445	75,866	86,994	91,080	112,259

Source: Statistical of capture fishery Indonesia, 1997-2001

2.4. Disposition of Marine Fisheries Production

The product of preserved and processed marine fisheries commodities, mainly for fermentation was not high. Fish peda decreased remarkably with the average 67.9% annually. Frozen product was also decreasing 17.7% per year.

Table 4. Production by type of disposition (tons).

Type of disposition	Year				
	1997	1998	1999	2000	2001
Marketing fresh	962,836	653,461	860,388	30,837	787,572
- Drying/Salting	139919	187,679	196,796	56,280	473,909
- Boiling	17,602	28,564	37,366	30	33,328
- Fermentation:					
- Belachan	2,314	124	165	0	3,936
- Fish peda	1,682	2,505	11	0	18
- Fish saucing	3	307	332	0	5
- Smoking	21,295	48,833	28,394	1,053	39,582
- Others	14,461	26,630	12,980	0	15,913
Freezing	35,010	243,220	264,597	0	346,475
Canning	11,511	42,163	41,212	0	42,966
Fish meal	16,605	13,306	1,471	0	2,902
Total	1,223,238	1,246,792	1,443,702	88,170	1,746,606

Source: Statistical of Capture Fishery Indonesia, 1997-2001

2.5. Number of Marine Fishermen

Number of fishermen in eastern Indonesia as full time and part time were increasing with the average of 4.9% annually (Table 5).

Tabel 5. Number of Marine Fishermen by Category

Category	1997	1998	1999	2000	2001	Increase (%)
Full time	262641	294930	238231	37859	293634	2.8
Part time (major)	338555	392615	273804	456515	456589	7.8
Part time (minor)	165239	186145	191458	197078	178419	1.9
Total	766435	873690	703493	691452	928642	4.9

3. INFRASTRUCTURES AND DEVELOPMENT CENTRES

3.1. Fishing Ports and Fish Landing Places

To support fisheries development and the provincial/local economy in general, the government has constructed fishing ports and fish landing places. Such basic facilities are of great important as centre for fisheries activities as well as fishermen community development centre. Commercial facilities in the port complex, usually funded and operated by private sector. Fishing port in particular has functions (DGF, 1995):

(i) Centre for fishing community development, economic growth, and agribusiness (including agroindustry) development
(ii) Centre for mooring cervices of fishing vessels and landing places for fish catches and farmed fish
(iii) Centre for servicing of fishing vessel operation
(iv) Centre for fish quality control and inspection, and for marketing and distribution
(v) Centre for fisheries industry development and export services, and
(vi) Centre for MCS, extension and data collecting.

The fishing ports built by the Government of Indonesia, can be classified as Oceanic Fishing Port (4 in KBI and 1 in KTI), Nusantara Fishing Port (8 in KBI and 3 in KTI) and Coastal Fishing Port (13 in KBI and 3 in KTI). Besides, the Government of Indonesia has built Fish Landing Centres in almost every Province.

3.2. Fishery Products Quality Control Development Centre

In Indonesia, Provincial Fish Quality Control Laboratories is available. These laboratories are responsible for quality control of fish/fishery products.

3.3. Educational Institutes

In order to achieve the fisheries development program, the government tries to increase and upgrade man power, trough universities or colleges teaching fisheries or fisheries related subjects. These include at least 12 universities, such as, University of Brawijaya, University of Hasanuddin, University of Lambung Mangkurat, University of Pattimura, University of Halue Leo, and University of Sam Ratulangi. Besides, the government is also built specialized institutes, Higher Institute of Fisheries Jakarta and Bitung and Senior Fishery High School of Manado, and Ambon.

4. MONITORING, CONTROL AND SURVAILLANCE

Fisheries Management Plan will not success in managing a fishery unless implemented through MCS (Flewwelling, 1994). Less interest or commitment in implementing MCS often causes overfishing in the fishery, cause fishery collapse and cause economic loss for future generation.

National program for MCS has been be adopted by the Ministry of Marine Affair and Fishery through a system for vessel monitoring (VMS) that focused on the vessels more than 30 GT have to equipped VMS transponder. With this system,

the Government will not issues license, unless: (a) The vessel sends the VMS data Needed, (b) The last fishing ground of the vessel should be in the area permitted.

Although this system has positive characteristics, and must be promoted, some items should be known:

- This programme will not solve the weakness of the "enforcement" from the licensing. It depends on the implementation of licensing.
- Because the basic VMS only inform vessels with transponder, "enforcement" on the sea to illegal vessels (which is the weakness of the current system) is still needed.
- Ministry of Marine Affair and Fisheries should not to "underestimate" on the hard duty relating to the beginning of VMS system covering thousand of vessels, and utilization of the next information. Which institution will collecting, processing reporting the violation and take measures**.**

5. FISHERIES MANAGEMENT

The government agencies that are responsible for the administration, development and management of the fishing industry of Indonesia are the Directorate General of Capture Fisheries (DGCF). Now DGCF has a secretariat and 5 directorates, viz., Programme Development, Production, Enterprise and Processing, Resource Management, Infrastucture and Seed Development (Aquaculture). DGCF has also fisheries development Centres, serving as technical implementation units in the regions; however, the Centre for Development of fishing Technology in Semarang is the only one for marine fisaheries (Tan, 1996 *in* Menasveta, 1997).

For licensing, the Provincial Fisheries Service has the responsibility to issue fishing licenses for local fishing vessels of 30 GT or less, using engines of not more than 90 HP in compliance with Ministerial Decree No. 815/1990 and

control the development of aquaculture (Menasveta, 1997). DGCF is responsible for issuing licenses for fishing vessels beyond this range as well as for those operating in the Indonesia EEZ.

Research Institute for Marine Fisheries (RIMF) under Research Centre for Capture Fisheries (RCCF) which is responsible to the Agency of Marine and Fisheries Research under the Ministry of Marine Affairs and Fisheries, supplies research results to DGCF, to support its fisheries management program. The research results are also made available to fishermen and the industry.

In order to empower MCS, the Government of Indonesia has established Vessel Monitoring System (VMS), and built Patrol Vessel which operate in Indonesian Waters, such as North Sulawesi, Riau, and others.

REFERENCES

Directorate General of Capture Fishery. 1999-2003. Statistical of Capture Fishery Indonesia, 1999-2003. Directorate General of Capture Fishery, Jakarta.

Directorate General of Fisheries. 1994. Indonesian Fisheries in Brief 1993. Directorate General of Fisheries and Japan International Cooperation Agency, Jakarta. 48 p.

Directorate General of Fisheries. 1996. Indonesian Fisheries in Brief 1995. Directorate General of Fisheries and Japan International Cooperation Agency, Jakarta. 52 p

Research Centre for Capture Fisheries and Central Research for Oceanology. 2001. Fish Stock Assessment in Indonesian waters. Research Centre for Capture Fisheries and Central Research for Oceanology, Jakarta. 125 p. (in *Bahasa Indonesia*).

Menasveta, D. 1997. Fisheries Management Frameworks of the Countries Bordering the South China Sea. FAO Regional Office for Asia and the Pacific, Bangkok. RAP Publication 1997/33. 151 p.

Widodo, J. 2003. Current Status of Fisheries and Their Management in the Tomini Bay. 30 p. Unpublished.