



**Asia-Pacific
Economic Cooperation**

**Case Study on the Impacts of Illegal, Unreported and
Unregulated (IUU) Fishing in the Sulawesi Sea**

APEC Fisheries Working Group

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Executive Summary

This Report provides an analysis of the nature and extent of illegal, unreported and unregulated (IUU) fishing in the Sulawesi Sea, including their economic, social and environmental impacts and the factors contributing to IUU fishing in the area. The Report also examines the efforts being made by the States bordering the Sulawesi Sea at the national, bilateral, and regional levels to combat IUU fishing. Finally, the Report provides recommendations on how Indonesia, Malaysia, and The Philippines can address the problem of IUU fishing in the Sulawesi sea in a more coordinated and effective manner.

The most significant IUU fishing activities in the Sulawesi Sea are fishing without a licence, fishing with a fake licence, fishing without or with fake vessel registration papers, vessels carrying more than one flag, use of destructive fishing gears and methods such as cyanide fishing and blastfishing, landing of fish in un-authorised ports, and non-reporting, misreporting, or under-reporting of catch. These IUU fishing activities are mostly conducted by vessels flying the flags of Indonesia, Malaysia, and The Philippines, and those of other neighbouring and distant water fishing States such as Thailand, Viet Nam, People's Republic of China, and Chinese Taipei.

IUU vessels operating in the Sulawesi Sea are known to target tuna, particularly yellowfin and skipjack, billfishes, other pelagic fishes, and sharks. Reef fishes, such as Napoleon wrasses, are also targeted by IUU fishers because of the lucrative live fish trade. Aside from fish, corals and marine mammals are also caught by IUU fishers.

The financial loss from IUU fishing in the Sulawesi Sea has been conservatively estimated at about a third of the total annual value of marine fisheries in the Sulawesi Sea. This estimate does not include the social and environmental costs of loss of future access to the fisheries resources as a result of the continuous destruction of fisheries habitats in the area.

The main factors contributing to the prevalence of IUU fishing in the Sulawesi Sea are the increasing demand for fish, population growth, increasing number of fishers, potential gain from illegal and unreported fishing activities, poor economic and social conditions, ineffective flag State control and monitoring, control, and surveillance systems and the lack of maritime boundary agreement in the area. Additionally, fisheries management measures among the littoral States are different, resulting in incompatible legal frameworks which promote IUU fishing.

Various measures are being undertaken by the littoral States to address IUU fishing in the Sulawesi Sea. These include vessel registration and licensing reforms and increased policing of national waters, coupled with increased sanctions against illegal fishers. At the bilateral level, Indonesia and The Philippines have recently adopted collaborative measures to address IUU fishing in the Sulawesi Sea. Some of the measures adopted by the two economies include formal arrangements on fisheries access, implementation of projects to address IUU fishing in shared waters, and a memorandum of agreement on IUU fishing. There are also a number of regional initiatives involving Indonesia, Malaysia, and The Philippines with respect to IUU fishing in the Sulawesi Sea. These include the Sulu-Sulawesi Marine Ecoregion Programme of the World Wide Fund for Nature, the Regional Plan of Action to Promote Responsible Fishing, including

Combating IUU Fishing, joint patrol exercises, and cooperation among local businesses of the three countries.

In order to address IUU fishing more effectively and further improve the measures currently in place to deal with the problem, it would be necessary to strengthen the existing level of cooperation among the littoral States of the Sulawesi Sea even with the absence of an agreed maritime boundary. The measures that will be adopted and applied should not only address specific IUU fishing problems but would also need to take into account the unique nature of fisheries in the area. Such measures may include coordinated surveillance and law enforcement, exchange of data and information on vessels and catch landings, vessel marking and fishing logbook systems, common procedures for catch documentation, and community-based management and enforcement. Addressing IUU fishing in the Sulawesi Sea will significantly contribute to the sustainable fisheries management in the Sulawesi Sea.

Table of Contents

Executive Summary	2
Acronyms	7
Acknowledgments.....	8
1. Introduction.....	9
2. The Sulawesi Sea	10
3. The Littoral States.....	11
4. Fisheries Profile	13
4.1 Fishing Sectors of the Littoral States	13
4.2 Marine Capture Production.....	16
4.3 Fishing Vessels and Fishers	19
4.4 Fishing Gears and Methods	21
4.5 Overall Assessment of the Fish Stocks.....	23
5. IUU Fishing in the Sulawesi Sea	23
5.1 Economic Cost of IUU Fishing.....	24
5.2 Nature and Extent of IUU Fishing	25
5.3 Factors Contributing to IUU Fishing	29
5.4 Impacts of IUU Fishing	32
6. Efforts Undertaken by Littoral States to Combat IUU Fishing.....	33
6.1 National Level.....	33
6.2 Bilateral Level.....	41
6.3 Regional Level	45
7. Conclusion	50
8. Recommendations.....	50
References.....	53

List of Figures and Tables

Figures

Figure 1. Sulawesi Sea geographic position in Southeast Asia	10
Figure 2. Littoral States of the Sulawesi Sea	12
Figure 3. Total Marine Fisheries Production in the Sulawesi Sea, 2003	16
Figure 4. Number of Fishing Vessels in the Sulawesi Sea	20

Tables

Table 1. Volume and Value of Marine Fish Landing in Sabah, 1996-2005	18
Table 2. Commercial and Municipal Fish Production in the Sulawesi Sea.....	19

Acronyms

ACIAR	Australian Centre for International Agricultural Research
APEC	Asia-Pacific Economic Cooperation
ARMM	Autonomous Region for Muslim Mindanao
DA-BFAR	Department of Agriculture Bureau of Fisheries and Aquatic Resources (The Philippines)
DOF	Department of Fisheries (Malaysia)
EEZ	exclusive economic zone
FAD	fish aggregating device
FAO	Food and Agriculture Organisation
FSO	Fisheries Surveillance Officers
FSP	Fisheries Surveillance Post
FS-TIU	Technical Implementation Units for Fisheries Surveillance
GRT	gross registered tonnage
hp	horsepower
IPOA-IUU	International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing
IUU	illegal, unreported, and unregulated fishing
LOSC	United Nations Convention on the Law of the Sea
MCS	monitoring, control and surveillance
MMAF	Ministry of Marine Affairs and Fisheries (Indonesia)
MOU	Memorandum of Understanding
MT	metric ton
NPOA	National Plan of Action
PhP	Philippine peso
RI	Republic of Indonesia
RM	Malaysian ringgit
Rp	Indonesian rupiah
RP	Republic of the Philippines
RPOA	Regional Plan of Action
SSME	Sulu-Sulawesi Marine Ecoregion
USD	United States dollar
VMS	vessel monitoring system
WWF	World Wide Fund for Nature

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CASE STUDY ON THE IMPACTS OF ILLEGAL, UNREPORTED AND UNREGULATED (IUU) FISHING IN THE SULAWESI SEA

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1. Introduction

The Sulawesi Sea is considered as one of the most diverse ecosystems in the world not only due to its high biodiversity but also the recognised need to conserve its coral reefs and associated marine ecosystems.¹ As one of the most diverse marine areas in the Asia-Pacific region, the Sulawesi Sea has become a rich fishing ground from which a complex combination of traditional and large-scale fisheries has flourished. The fisheries in the Sulawesi Sea provide support to about 20 million people who live around the area and have contributed significantly to the economies of the littoral States of Indonesia, Malaysia, and The Philippines. However, the marine wealth in the Sulawesi Sea is increasingly threatened by overfishing and overcapacity, together with the associated problem of illegal, unreported, and unregulated (IUU) fishing.

This Report provides an analysis of the economic, social and environmental impact of IUU fishing in the Sulawesi Sea. The Report has several specific objectives. First, it outlines the nature of IUU fishing in the Sulawesi Sea, including the participants, location, methods, and contributing factors to the problem. Second, it identifies the value of IUU fishing and the market and trade flows of the IUU products. Third, the Report examines the economic, social and environmental impacts of IUU fishing. Fourth, it identifies efforts being undertaken by relevant authorities to address the problem and outlines recommendations for actions that can be taken by governments and other relevant bodies to eliminate IUU fishing in the Sulawesi Sea. This Report will directly contribute to the broader assessment of the impact of IUU fishing in the region which is being undertaken by the Asia-Pacific Economic Cooperation (APEC).

The results of the Report were arrived at using desktop analysis of existing literature on IUU fishing in the Sulawesi Sea and collection of information from key national government agencies of Indonesia, Malaysia, and The Philippines. The level of IUU fishing in the Sulawesi Sea is measured in this Report through official records of apprehensions and sightings, incident reports, and secondary literature. It should be noted, however, that due to limited time and budget, the local government agencies and local governments around the Sulawesi Sea have not been consulted for this project.

This Report is divided into several parts. The first part includes a geographical and biological description of the Sulawesi Sea and the socio-economic profile of its littoral

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¹ The Sulawesi Sea is identified as one of the Global 200 ecoregions in the world. See Issues in International Conservation. The Global 200: A Representation Approach to Conserving the Earth's Most Biologically Valuable Ecoregion. *Conservation Biology* 12: 3, June 1998, page 508; See also WWF, Global 200 Ecoregions, <http://www.worldwildlife.org/science/ecoregions/g200.cfm>. Accessed on 25 February 2008.

States. The second explains the nature of fishing activities in the Sulawesi Sea, including the marine capture production and the overall assessment of the fish stocks in the area. The third part analyses the extent and impacts of IUU fishing in the Sulawesi Sea. The fourth part of the report focuses on the efforts undertaken at the national, bilateral, and regional level to combat IUU fishing and concludes with a set of recommendations in order for Indonesia, Malaysia, and The Philippines to address the problem in a more effective manner.

2. The Sulawesi Sea

The Sulawesi Sea (or Celebes Sea) is strategically located at the centre of one of the highest biodiversity regions in the world and forms part of the Sulu-Sulawesi large marine ecosystem. It is a semi-enclosed sea basin covering an area of over 290,000 square kilometres, with depth from 3,290 to 6,220 metres.² The Sulawesi Sea is bound to the northwest by the Zamboanga Peninsula and the Sulu Archipelago, separating Sulawesi Sea from the Sulu Sea.³ Major embayments in the gulf are Sibuguey Bay, Yllana Bay, Sarangani Bay and other smaller bays.⁴ The widest shelf area in the Philippine side of the Sulawesi Sea is located in the Sulu Archipelago and the southern coast of the Zamboanga Peninsula.⁵



Figure 1. Sulawesi Sea geographic position in Southeast Asia

Source: Australian Centre for International Agricultural Research (ACIAR), Project Document FIS/2002/19, *Management and Policy Frameworks for Illegal, Unreported and Unregulated Fishing in Indonesian and Philippine Waters*, University of Wollongong, 2002.

² L. DeVantier, A. Alcala, and C. Wilkinson, "The Sulu-Sulawesi Sea: Environmental and socioeconomic status, future prognosis and ameliorative policy options," *AMBIO* 33 (2004), page 88.

³ Emmanuel S. Bate, "Geographic Coverage and Geomorphology," in Johanna Pe-Montebon, Evangeline F.B. Micalat, and Jose Noel Dumaup, eds. *A Biophysical Assessment of the Philippine Territory of the Sulu-Sulawesi Marine Ecoregion*, Manila: WWF Philippines, May 2003, page 22.

⁴ *Ibid.*

⁵ *Ibid.*

The Sulawesi Sea is known for its rich biodiversity.⁶ It has abundant marine resources such as dugongs; leopard, thresher and whale sharks; groupers; yellowfin, bigeye, skipjack, frigate, bullet and eastern little tunas; sailfish; marlins; dolphinfish; ranbowrunners; hawksbill and green turtles; Irrawady and Indo-Pacific humpback dolphins; killer, sperm, deep-diving, Bryde's, false, pygmy killer, and beaked whales; Napoleon wrasses; giant clams and invertebrates; and four species of stingless jellyfishes.⁷ The Sulawesi Sea also has highly productive habitats such as diverse coral reefs; dugong habitat; grouper aggregation sites; feeding, resting and breeding sites for small and large pelagics; nesting for migratory birds; extensive mangrove areas, fringing coral reef on active volcanoes rising out of deep oceans; marine lake surrounded by dipterocarp trees; unique eurahaline lake; unique protected deep bay reefs; coelacanth sites; volcanic reefs; upwelling areas and sea mounts; and atolls with large lagoons.⁸ The marine habitats of the Sulawesi Sea are enormously rich in species which provide income and food security to people in the area and are extremely valuable to the tourism industry.⁹

Aside from the marine resources that significantly contribute to the capture fisheries industry and food security in the region, there are also aquaculture and mariculture activities in the Sulawesi Sea, as well as offshore oil and mineral resources. The Sulawesi Sea further provides important corridors to the Pacific and Indian oceans and inter-island passages.¹⁰ It serves as a major shipping route for oil tankers and other large vessels carrying other products.

3. The Littoral States

The Sulawesi Sea is bounded from south to east by North Sulawesi and the Sangihe-Talaud islands chain in Indonesia, by East Kalimantan in Indonesia and Sabah, Malaysia on the west, and by Sulu archipelago and Mindanao mainland, The Philippines on the north (see Figure 2 below). About 76 per cent of the marine areas in the Sulawesi Sea fall within the Indonesian maritime jurisdiction, while 20 per cent of the area lies within The Philippines and the remaining small portion within Malaysia.¹¹ The three littoral States have yet to agree on their maritime boundaries in the Sulawesi Sea.

⁶ Together with Sulu Sea, the Sulu-Sulawesi Marine Ecoregion is the world's centre for coral (more than 500 species) and reef fish (more than 1,200 species), has more than 300 species of algae, 33 species of mangroves, 22 speices of whales and dolphins, at least 16 of the world's 52 species of sea snakes and five of the world's seven remaining species of sea turtles. See WWF, *The Sulu-Sulawesi Marine Ecoregion: Crucial Cradle of Life*, Quezon City: WWF Sulu-Sulawesi Marine Ecoregion Program, no date.

⁷ World Wide Fund for Nature (WWF), *A Commitment to Life: Sulu-Sulawesi Marine Eco-region*, Quezon City: WWF Sulu-Sulawesi Marine Ecoregion Program, 2001, page 29.

⁸ *Ibid.*

⁹ Anthony J. Whitten, Muslimin Mustafa, and Gregory S. Henderson, *The Ecology of Sulawesi* Yogyakarta: Gadjah Mada University Press, 1988, page 210.

¹⁰ WWF, *A Commitment to Life: Sulu-Sulawesi Marine Eco-region*, page 29.

¹¹ Jose Ingles, "Management and Policy Consideration to Combat Illegal, Unreported and Unregulated (IUU) Fishing in the Sulawesi Sea: Issues, Concerns, and Actions for the Philippines and Indonesia," Paper submitted for ACIAR-funded project, FIS/2002/19, on the Management and Policy Frameworks for Illegal, Unreported and Unregulated (IUU) Fishing in Indonesian and Philippine Waters, (Unpublished) 2005, page 2. These percentages are estimated by the WWF based on the total marine areas under the jurisdiction of Indonesia, Malaysia, and The Philippines. These marine areas include the waters adjacent to the land territories of the provinces of these littoral States.



Source: CIA World Factbook 2005, www.cia.gov.

Figure 2. Littoral States of the Sulawesi Sea

Indonesian Jurisdiction in the Sulawesi Sea

In Indonesia, the Sulawesi Sea area is composed of North Sulawesi and East Kalimantan provinces. North Sulawesi is the northern-most part of the four provinces on the island of Sulawesi, occupying a peninsula stretching 600 kilometres from its western base to its eastern tip. The North Sulawesi province is composed of four cities and nine regencies.¹² North Sulawesi province has a population of 2.2 million people as of 2006 with an estimated 1.29 per cent change in population every year.¹³ It is considered the wealthiest province in Eastern Indonesia in terms of per capita income and has good health care and education systems compared to other parts of Indonesia.¹⁴ East Kalimantan, Indonesia's second largest province, borders the Sulawesi Sea on the north and the Makassar Straits in the south. East Kalimantan's coast stretches 4,242 kilometres from the Sabah border to the north and the south Kalimantan border.¹⁵ East Kalimantan has four cities and ten regencies.¹⁶ It has a population of about 2.9 million people in 2006 and has a higher rate of change in population than North Sulawesi by 3.049 per cent.¹⁷

Malaysian Jurisdiction in the Sulawesi Sea

The Malaysian jurisdiction in the Sulawesi Sea, the Semporna Peninsular, is small but may be considered ecologically significant.¹⁸ There are four districts in this peninsula, namely Tawau, Semporna, Lahad Datu, and Kunak. The total coastline of the Semporna

¹² The North Sulawesi cities are Bitung, Kotamobagu, Manado, and Tomohon. The regencies in the province are Bolaang Mongondow, Minahasa, North Bolaang Mongondow, North Minahasa, Sangihe Islands, Sitaro Islands, South Minahasa, Southeast Minahasa, and Talaud Islands.

¹³ Thomas Brinkhoff, *City Population Website*. Indonesia. www.citypopulation.de/Indonesia-CU.html. Accessed on 28 March 2008.

¹⁴ WWF, Jose Noel B. Dumaup, Raoul M. Cola, Romeo B. Trono, Jose A. Ingles, Evangeline F.B. Miclat and Nancy P. Ibuna, *Conservation Plan for the Sulu-Sulawesi Marine Ecoregion*, Quezon City: WWF Sulu-Sulawesi Marine Ecoregion Program, 2004, page 36.

¹⁵ *Ibid.*

¹⁶ The East Kalimantan cities are Balikpapan, Samarinda, Bontang, and Tarakan. The regencies in the province are Pasir, Penajam Paser, Kutai Kartanegara, West Kutai, East Kutai, Bulungan, Berau, Nunukan, and Tana Tidung.

¹⁷ Brinkhoff, *City Population Website*, Indonesia.

¹⁸ WWF, *Conservation Plan for the Sulu-Sulawesi Marine Ecoregion*, page 41.

Peninsula is 1,458 kilometres, with a fishing ground of 11,844 square kilometres.¹⁹ As of 2000, around 670,000 people live in the Malaysian districts around the Sulawesi Sea,²⁰ which is about 3 per cent of the total number of population in Malaysia.

Philippine Jurisdiction in the Sulawesi Sea

The Philippine jurisdiction in the Sulawesi Sea is composed of four administrative regions, Regions IX, XI, XII, and Autonomous Region for Muslim Mindanao (ARMM), further comprising 17 provinces and subdivided into 15 cities and 267 municipalities. According to the 2000 official census in The Philippines, about 13.3 million Filipinos live in the Sulawesi Sea region²¹ or 17.37 per cent of the total population in this APEC economy.

4. Fisheries Profile

The Sulawesi Sea supports a complex mixture of traditional, small-scale and large-scale fisheries, providing sustenance and employment to millions of people. The fishing sector is also a multi-million industry, providing significant value in trade for Indonesia, Malaysia, and The Philippines. The majority of the fishing activities in the area are small and medium scale in nature, as may be seen in the type of fishing vessels around the Sulawesi Sea. The commercial fishing industry is a smaller segment of the fishing industry; however, it is known to contribute significantly to the fisheries production in the area.

Fisheries in the Sulawesi Sea may be characterised as multi-species in nature and composed predominantly of pelagic fisheries and to a lesser extent reef species.²² The most valuable catches in the area are tuna, mackerels, sardines, and scads. Various types of fishing gears are deployed such as drift nets, gill nets, purse seines, hook and lines, and other types of nets and traps. Among the three littoral States, The Philippines has the largest share in marine fisheries production, having a bigger commercial fishing industry compared to those of Indonesia and Malaysia. The Philippines also has a more advanced fishing industry in terms of technology in vessels and post-harvest facilities.

This section discusses the marine capture production for the three littoral States of the Sulawesi Sea and the nature of their fishing industry, the types of fish caught in the region, number of fishing vessels and fisherfolks, and the types of fishing gears and methods used in the area. An overall assessment of the fisheries resources in the Sulawesi Sea is also provided.

4.1 Fishing Sectors of the Littoral States

The marine fishing sectors of Indonesia, Malaysia, and The Philippines can be generally characterised into artisanal and commercial fisheries. Different types of fishing vessels, ranging from small wooden boats to powered vessels, are used for fishing in these States.

¹⁹ *Ibid.*

²⁰ Thomas Brinkhoff, *City Population Website*. Malaysia. www.citypopulation.de/Malaysia-CU.html. Accessed on 28 March 2008.

²¹ Philippines, National Statistics Office, Official Website. *Population*. www.census.gov.ph. Accessed on 25 February 2008.

²² DeVantier, et al. *The Sulu-Sulawesi Sea: Environmental and Socioeconomic Status*, page 90.

Various fishing gears and methods are also deployed, depending on the type of fishing activities involved in each fishing sector. A significant aspect of the fishing industry in the littoral States of the Sulawesi Sea is fish marketing and processing. The general characteristics of the fishing sectors in each State are explained below.

Indonesia

The fishing sector in Indonesia is divided into two: the artisanal and commercial fishing sectors. Artisanal fishing is practiced in various coastal areas of Indonesia, including East Kalimantan and parts of North Sulawesi.²³ Artisanal fishing is mostly conducted for subsistence by fishers and their families who use vessels of not more than 10 gross tons (GRT). These vessels have the capacity for short fishing trips of one to two days, operate in close proximity to fish landing areas, and deploy a combination of traditional hook and line and gill nets.²⁴ The Indonesian commercial fisheries sector, on the other hand, is mostly composed of small-scale commercial fishing vessels. There are only a very small number of large-scale commercial fishing vessels in Indonesia that use modern technology such as fish finders and sonar.²⁵

Fish landing sites in Indonesia are categorised into three based on capacity and facilities. The first category is the Oceanic Fishing Harbour or Type A fishing harbour, which is able to provide daily shelter for at least 100 vessels of 60 Gross Registered Tonnage (GRT) or more, particularly those conducting fishing activities in the Indonesian exclusive economic zone (EEZ).²⁶ A type A harbour is able to support annual landing of 18,000 metric tons (MT) to 120,000 MT. A type B fishing harbour or what is known as *Nusantara* fishing harbour provides support to about 75 fishing vessels of 15 GRT to 60 GRT fishing in the Indonesian archipelagic and territorial waters and the EEZ and has an annual landings from 7,200 MT to 18,000 MT. The third category is the Coastal Fishing Harbour or Type C fishing harbour, which is capable of providing service to 50 fishing vessels of 5 GRT to 15 GRT on a daily basis and supports annual landings of 3,000 MT to 7,200 MT.²⁷ Types A, B, and C harbours are managed by the Ministry of Marine Affairs and Fisheries, while Type D fishing harbours, or what is commonly known as a fish landing centre, is under the management of provincial governments.

Marine fish caught in the Sulawesi Sea are processed in Indonesia through freezing, canning, smoking, drying and salting, *belachan*,²⁸ fish meal, marketing of fresh fish and other forms of fish processing.²⁹ In East Kalimantan, the most common form of fish disposition is through marketing of fish, freezing, and drying and salting. In North Sulawesi, fish are also smoked, canned, and made into fish meal.³⁰

²³ Mochtar Kusumaatmadja and Tommy H.Purwaka, "Legal and Institutional Aspects of Coastal Zone Management in Indonesia", *Marine Policy* 20:1, 1996, page 67.

²⁴ Dikdik Mohamad Sodik, *Combating Illegal, Unreported and Unregulated Fishing in Indonesian Waters: The Need for Fisheries Legislative Reform*, Thesis Submitted to the Centre for Maritime Policy, Faculty of Law, University of Wollongong, 2007, (Unpublished), page 157.

²⁵ *Ibid.*

²⁶ FAO, Official Website, *Fishery and Aquaculture Country Profile*, Indonesia, www.fao.org Accessed on 30 October 2007.

²⁷ *Ibid.*

²⁸ *Belachan* is the process similar to making shrimp paste.

²⁹ See Indonesia, Ministry of Marine Affairs and Fisheries (MMAF), *Product of preserved and processed marine fisheries commodities by type of product and province 2002 and 2003*, Jakarta: MMAF, 2004.

³⁰ *Ibid.*

Malaysia

The Malaysian fishing sector comprises inland and marine capture fisheries. The marine capture fishing sector is further divided into coastal fisheries and the offshore fisheries sub-sectors. Traditional fishing gears are used by inland and coastal fishers while trawling and purse seining are the fishing methods mostly used by those involved in marine capture fisheries, particularly in offshore areas. For the purpose of collecting data on fisheries landings, the Department of Fisheries divides the coastal belts into fisheries districts. There are a total of 68 fisheries districts, 12 of which are in Sabah.³¹ Each fisheries district may also have several landing sites.

Similar to Indonesia, Malaysia also has a post-harvest industry. The bulk of caught marine fish are sold in fresh and chilled form while some fish are marketed live. Some fish are also dried, canned, processed in other forms, or converted into fishmeal. A large amount of exported shrimp and tuna are frozen and processed in big fish plants.³²

The Philippines

The Philippine fishing industry comprises three sub-sectors, namely, the municipal fisheries, commercial fisheries, and aquaculture. Municipal fisheries includes fishing conducted in coastal and inland waters, particularly within 15 kilometres from the coastline, with or without the use of boats of 3 GRT or less.³³ Commercial fisheries involve fishing with the use of passive or active gears³⁴ and fishing vessels with the capacity of more than 3 GRT.³⁵ This type of fishery may be classified into small, medium, or large-scale commercial fishing based on the capacity of the vessels. Small-scale commercial fishing involves fishing with passive or active gears and vessels with the capacity of 3.1 to 20 GRT.³⁶ Medium-scale commercial fishing involves fishing with active gears and vessels of 20.1 to 150 GRT.³⁷ Lastly, large-scale commercial fishing encompasses fishing utilising active gear and vessels of more than 150 GRT.³⁸

There are eight regional fish ports in The Philippines, three of which are located in the cities surrounding the Sulawesi Sea area—Zamboanga, Davao, and General Santos.³⁹

³¹ FAO, Official Website, *Fishery and Aquaculture Country Profile*, Malaysia, www.fao.org Accessed on 30 October 2007.

³² *Ibid.*

³³ Republic of the Philippines (Philippines), Republic Act (RA) 8550, *An Act Providing for the Development, Management and Conservation of the Fisheries and Aquatic Resources, Integrating all Laws Pertinent thereto, and for other Purposes*, also known as the Philippine Fisheries Code of 1998, *hereinafter referred to as RA 8550*, 25 February 1998, Sec. 4(57).

³⁴ A passive fishing gear is characterised by the absence of gear movements and/or pursuit of target species; such as, but not limited to, hook and line, fishpots, traps and gillnets across the path of fish. An active fishing gear, on the other hand, is a fishing device characterized by gear movement, and/or pursuit of target species by towing, lifting, and pushing the gears, surrounding, covering, dredging, pumping, and scaring the target species to impoundments, such as, but not limited to, trawl, purse seines, Danish seines, bag nets, *pa-aling*, drift gill net and tuna longline. *See RA 8550*, Sec. 4(40).

³⁵ *RA 8550*, Sec. 4(10).

³⁶ *RA 8550*, Sec. 4(10)(1).

³⁷ *RA 8550*, Sec. 4(10)(2).

³⁸ *RA 8550*, Sec. 4(10)(3).

³⁹ Philippine Fisheries Development Authority (PFDA). Official Website, www.pfda.da.gov.ph. Accessed on 03 December 2004.

These fish ports also contain post-harvest facilities to support the fish export markets in the Philippines.⁴⁰ Among these ports, only the Davao Fish Port Complex serves as an alternative transshipment point in Asia. Foreign fishing vessels use the facilities of Davao fish port in unloading, processing, and packaging their fish for export. Major tuna canneries are also found in the General Santos and Zamboanga cities.

Among the three States, The Philippines has the most developed tuna industry. The Southern Mindanao tuna sector output has steadily developed since the late 1980s when it began its canning industry. It is estimated that the General Santos fishing industry has an annual turnover of at least PhP3 billion or about USD74.7 million.⁴¹ The tuna canneries and processing plants in General Santos City, Philippines obtain about 70 per cent of their supplies from the Philippine waters and the remaining 30 per cent from Indonesian waters.⁴²

4.2 Marine Capture Production

Based on the fisheries statistics collected in Indonesia, Malaysia, and The Philippines, the total marine production for the Sulawesi Sea in 2002 and 2003 was about 1.15 million MT and 1.19 million MT respectively.⁴³ The value for such marine fisheries in 2003 was around USD718.35 million.⁴⁴ There are also other estimates that suggest that the daily catch of tuna alone is about 1,000 MT while annual export revenues is about USD400 million.⁴⁵ Figure 3 shows the total marine fisheries production in the Sulawesi Sea.

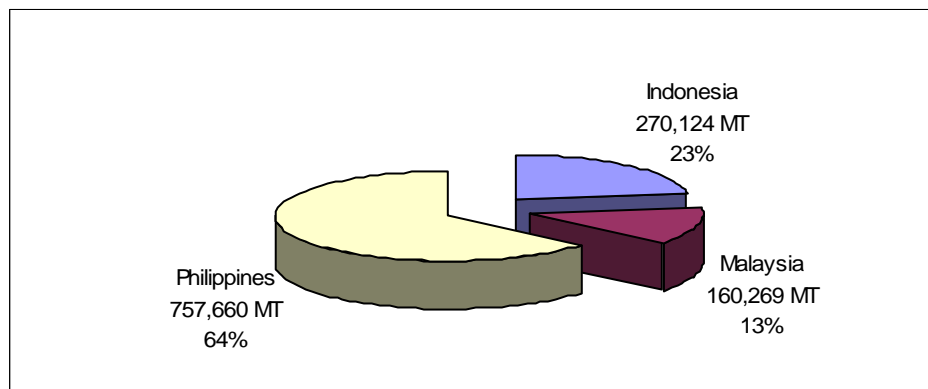


Figure 3. Total Marine Fisheries Production in the Sulawesi Sea, 2003

Based on official fisheries statistics (catch landing only) of the three economies.

Note: (1) The Philippine marine fisheries production is an aggregate of the catch statistics for administrative regions IX, XI, XII, and ARMM; (2) The Indonesian marine fisheries production include the statistics for East Kalimantan and North Sulawesi; (3) The Malaysian marine fisheries production includes the total marine fisheries production for Sabah.

⁴⁰ PFDA Official Website.

⁴¹ Roberto Tiglao. "A Good Catch," *Far Eastern Economic Review*, 10 February 1994, page 44.

⁴² Beverly T. Nativida and Romer S Sarmento, "Tuna industry stakeholders upbeat on extension of pact with Indonesia," *BusinessWorld*, 8 September 2005, page 1.

⁴³ Only data for 2002 and 2003 are commonly available for Indonesia, Malaysia, and the Philippines. Data for other years are available for Malaysia and the Philippines.

⁴⁴ The foreign currency is converted using the historic rate for 30 June of the corresponding year. This conversion method is followed throughout this case study.

⁴⁵ Nativida and Sarmento, *Tuna industry stakeholders upbeat on extension of pact with Indonesia*.

The most common and highest value species caught in the area are shrimps, tunas, mackerels, sardines, scads, and anchovies.

Figure 3 further illustrates that while most of the Sulawesi Sea falls under the jurisdiction of Indonesia, the marine production in the Philippines is significantly higher. The primary reason for this is that Indonesia is yet to fully develop its fishing capacity. Since Indonesia allows foreign fishing vessels, including Filipino vessels, to utilise its resources through bilateral access agreements, some of the marine catches in Indonesian waters are landed in other States. However, due to inadequate fisheries data, it is difficult to ascertain how much catches in Indonesian waters are not included in the official statistics. Similarly, there are no adequate data on what portion of the total marine fisheries production in The Philippines comes from Indonesian waters. The marine fisheries production in each littoral State of the Sulawesi Sea is elaborated in the succeeding sub-section.

Indonesia

According to the fisheries data provided by the Ministry of Marine Affairs and Fisheries,⁴⁶ the total production of marine fisheries in the Indonesian share of the Sulawesi Sea in 2002 was 280,328 MT which is about 8 per cent of the total marine fisheries production in Indonesia.⁴⁷ In 2003, the fisheries production by Indonesia in the Sulawesi Sea slightly decreased to 270,124 MT.⁴⁸ The total value for the fisheries production in both years was Rp1.6 trillion or about USD171.25 million.⁴⁹ This is about 3 per cent of the total value of fisheries production in all of the Indonesian waters.

Among the many species caught in Indonesia, 70 are documented as being caught and landed in large volume in Indonesia.⁵⁰ Among these species, the most common fish caught in East Kalimantan and North Sulawesi are shrimps, skipjack and eastern little tunas, mackerels, sardines, scads, red snappers, mullets, threadfins, and jelly fishes.⁵¹ Scads and tunas are two of the most valuable species in the region and are caught in massive quantity in the North Sulawesi area.⁵²

Malaysia

In Sabah, Malaysia,⁵³ inshore fisheries landings in 2000 was 196,891 MT in and in 180,910 MT in 2005.⁵⁴ This volume of fish landing in Sabah alone is about 18 per cent

⁴⁶ These fisheries data are based on the available statistics provided by the Research Centre for Capture Fisheries of the Ministry of Marine Affairs and Fisheries for 2002 and 2003.

⁴⁷ Based on MMAF, *Marine fisheries production by species and province 2002 and 2003*, Jakarta: MMAF, 2004.

⁴⁸ *Ibid.*

⁴⁹ Based on MMAF, *Value of marine fisheries production by species and province 2002 and 2003*, Jakarta: MMAF, 2004.

⁵⁰ Based on MMAF, *Marine fisheries production by species and province 2002 and 2003*.

⁵¹ *Ibid.*

⁵² *Ibid.*

⁵³ Only four districts in the province of Sabah are situated in the Sulawesi Sea area: Tawau, Semporna, Kunak, and Lahad Datu.

⁵⁴ These fisheries data are based on the annual fisheries statistics published by the Department of Fisheries Malaysia.

of the total national inshore fisheries production.⁵⁵ The value for these fisheries in 2005 is RM600,464,247 or about USD158 million.⁵⁶ In the case of marine fisheries landing, statistics show an increasing trend from 1996 to 1999, a decline in fish landing from 2000 to 2003, and a steady increase since then until 2005. In 2005, the volume of marine fish landing in Sabah is 187,067 MT or about 16 per cent of the total volume of marine fish landing for Malaysia.⁵⁷ The value of such fisheries in 2005 was RM620,900,145 or about USD 163.4 million.⁵⁸ Table 1 presents marine fisheries landing in Sabah from 1996 to 2005.

Table 1. Volume and Value of Marine Fish Landing in Sabah, 1996-2005

Year	Volume (MT)	Value (RM)
1996	180,143	503,880,156
1997	174,265	569,163,500
1998	196,227	660,078,990
1999	207,213	698,314,950
2000	202,857	729,547,000
2001	178,046	634,942,564
2002	175,121	701,634,634
2003	160,269	459,410,690
2004	188,597	581,063,719
2005	187,067	620,900,145

Source: Department of Fisheries Malaysia, Annual Fisheries Statistics, 1996-2005.

In Malaysia, several groups of pelagic fish and only two groups of demersal fish dominate the catches.⁵⁹ Shrimps, Indian mackerels, roundscads, squids, tunas, threadfin breams, and anchovies are the major species caught in Malaysian waters.⁶⁰

The potential yields for the marine resources in the waters around the province are as follows: 67,000 MT for coastal demersal fisheries; 8,000 MT for deep-sea demersal resources; 7,000 MT for coastal pelagic fisheries; 14,000 MT for deep-sea pelagic resources; and 19,500 MT for tuna resources.⁶¹ Amongst these fisheries, Sabah promotes deep-sea fishing as a major sector for fisheries development.⁶² Sabah also continues to encourage investment in its fisheries.

The Philippines

In The Philippines, the commercial and municipal fisheries production around the Sulawesi Sea increased from 1997 to 2005. From 529,178 MT of fish in 1997, the total production in the Sulawesi Sea increased to 796,561 MT or about 35.1 per cent of the

⁵⁵ Based on DOF Malaysia, *Annual Fisheries Statistics*, "Inshore Fisheries Landings in Sabah by Volume and Value 2005," Kuala Lumpur: Department of Fisheries, 2006.

⁵⁶ *Ibid.*

⁵⁷ Based on DOF Malaysia, *Annual Fisheries Statistics*, "Marine Fish Landing in Sabah 2005," Kuala Lumpur: Department of Fisheries, 2006.

⁵⁸ *Ibid.*

⁵⁹ Fisheries is categorised into over 100 groups for statistical purposes. Each group may include over 10 species of fish. See FAO, Fishery and Aquaculture Country Profile Malaysia. www.fao.org. Accessed on 27 November 2007.

⁶⁰ FAO Website, *Fishery and Aquaculture Country Profile Malaysia*.

⁶¹ Department of Fisheries Sabah, *Investment Prospects and Potential in the Fisheries Sector in Sabah, Malaysia*, www.fishdept.sabah.gov.my. Accessed on 08 February 2008.

⁶² *Ibid.*

total production of The Philippines in 2005.⁶³ The value of such fisheries in 2005 was PhP27.9 billion or about USD498 million.⁶⁴ Furthermore, in 2005, marine municipal fisheries production in certain areas of the Sulawesi Sea such as the Moro and Davao Gulfs accounted for 13 per cent of the total production in The Philippines while the commercial fisheries production was about 11.6 per cent of the total production.⁶⁵ Table 2 provides the trend in the volume of fisheries production in the Philippine part of the Sulawesi Sea.

Table 2. Commercial and Municipal Fish Production in the Sulawesi Sea, The Philippines, 1997-2005 (in MT)

Year	Commercial Fisheries Production (MT)	Municipal Fisheries Production (MT)	Total Fisheries Production for Sulawesi Sea, Philippines
1997	287,254	241,924	529,178
1998	307,176	232,106	539,282
1999	354,794	239,623	594,417
2000	365,265	253,061	618,326
2001	385,012	262,041	647,053
2002	428,639	262,188	690,827
2003	483,231	274,429	757,660
2005	520,928.73	275,631.97	796,560.70

Source: Bureau of Fisheries and Aquatic Resources, Philippine Fisheries Profile 1997-2005.

Note: This table comprises fish production data for Administrative Regions IX, XI, XII, and ARMM; No data collected for 2004.

The major commercial fisheries species caught in Philippine waters are roundscads, Indian sardines, skipjack tunas, frigate tunas, fimbriated sardines, yellowfin tuna, anchovies, slipmouths, big-eyed scads, and Indian mackerels.⁶⁶ These species are caught around the Sulawesi Sea area of The Philippines. Domestic tuna fisheries are concentrated in the southern Philippines where the Sulawesi Sea is, including oceanic tuna (skipjack, yellowfin, and bigeye) and neritic tuna (frigate, bullet, and eastern little).⁶⁷

4.3 Fishing Vessels and Fishers

Fishing vessels in the Sulawesi Sea range from small non-powered vessels used for artisanal and inshore fisheries to large commercial fishing vessels used for fishing on the high seas. Most recent data collected from Indonesia, Malaysia, and The Philippines suggest that there are 150,370 registered fishing vessels in the Sulawesi Sea. Only about 4 per cent of these are large commercial fishing vessels. These large-scale fishing vessels mostly fly the flag of the Philippines. In terms of the number of fishers, there are 170,970 people involved in fishing activities in Indonesia and Malaysia alone.⁶⁸ Figure 4 presents the total number of fishing vessels operating in the Sulawesi Sea.

⁶³ See Philippines, Department of Agriculture (DA), Bureau of Fisheries and Aquatic Resources (BFAR), *Philippine Fisheries Profile, 2005*, Quezon City: DA-BFAR, 2006.

⁶⁴ *Ibid.*

⁶⁵ *Ibid.*

⁶⁶ *Ibid.*

⁶⁷ Noel Barut, "Status of the Stocks (Philippines)," Presentation at the *Philippines-Indonesia Bilateral Workshop to Combat IUU Fishing in the Sulawesi Sea*, 13-14 June 2006, Hyatt Hotel, Manila, Philippines.

⁶⁸ No data on the total number of fishers in the Sulawesi Sea are available for the Philippines.

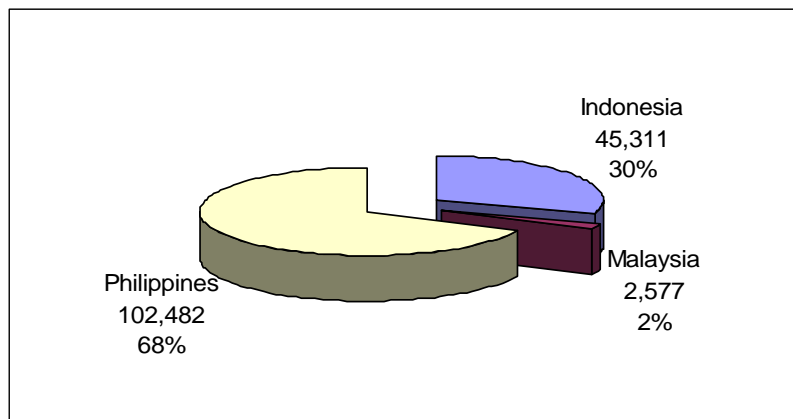


Figure 4. Number of Fishing Vessels in the Sulawesi Sea

Based on official fisheries statistics of the three economies.

Note: In Indonesia, less than 100 vessels are larger than 100 GRT while in The Philippines, more than 100,000 vessels are less than 3 GRT.

The succeeding subsections presents information on the fishing vessels and fishers in Indonesia, Malaysia, and The Philippines.

Indonesia

Fishing vessels in East Kalimantan and North Sulawesi provinces consist of non-powered boats and boats with outboard and inboard motors. In 2002, the total number of fishing vessels in these provinces was 39,203, which was largely composed of dugout boats, vessels with outboard motors and powered vessels of less than 5 GRT.⁶⁹ This number has increased to 45,311 vessels in 2003.⁷⁰ Of these, only about 100 vessels are more than 100 GRT. The number of Indonesian fishing vessels around the Sulawesi Sea is 4.4 per cent of the total number of vessels in the economy.⁷¹

Indonesian fishers are divided into full time⁷², part-time major,⁷³ and part-time minor,⁷⁴ fishermen. In 2002, the total number of Indonesia fishers around the Sulawesi Sea was 226,547, which is composed of 85,093 full-time Indonesian fishers, 92,148 part time major fishers, and 49,306 par time minor fishers.⁷⁵ These numbers decreased by 27 per cent in 2003. The total number of fishers in that year was 165,683 comprising of 78,845

⁶⁹ Based on MMAF, *Number of marine fisheries fishing boats by size of boat and province*, 2002, Jakarta: MMAF, 2004.

⁷⁰ Based on MMAF, *Number of marine fisheries fishing boats by size of boat and province*, 2003, Jakarta: MMAF, 2004.

⁷¹ *Ibid.*

⁷² A full time fisherman is defined as a fisher whose sole source of income comes from fishing activities. See Yamamoto, Tadashi, *1973 Fishery Census of Indonesia, Survey Methods, Mode of Analysis And Major Findings*. A Report Prepared for the Fisheries Development and Management Project, Indonesia. Rome, FAO, 1980. FI:DP/INS/72/064, Field Document 5.

⁷³ *Ibid.* A part time major fisherman is defined as a fisher whose major source of income comes from fishing activities.

⁷⁴ *Ibid.* A part time minor fisherman is defined as a fisher whose minor source of income comes from fishing activities.

⁷⁵ Based on MMAF, *Number of marine fishers by size of category fishers and province*, 2002, Jakarta: MMAF, 2004.

full time fishers, 51,747 part time major fishers and 35,091 part time minor fishers.⁷⁶ In terms of composition of fishers between East Kalimantan and North Sulawesi, there were more fishers in East Kalimantan than in North Sulawesi in 2002. However, statistics show that the number of fishers have significantly dropped in East Kalimantan and increased for North Sulawesi in 2003.

Malaysia

There are currently 2,577 licensed fishing vessels in the Malaysian four districts surrounding the Sulawesi Sea, comprising about 7 per cent of the total number of Malaysian fishing vessels.⁷⁷ In terms of the number of fishers, 5,287 fishers were recorded in the Malaysian part of the Sulawesi Sea as of 2005.⁷⁸ This number is composed of 2,036 fishers in Tawau, 1,781 fisheries from Semporna, 669 fishers in Kunak, and 801 fisheries in Lahad Datu.⁷⁹ Out of the total fishing population of 89,453 in Malaysia, 29,845 are situated in Sabah.⁸⁰ The fishers are mostly Malay, although a small number are Chinese and Indians.⁸¹

The Philippines

The total number of Filipino commercial fishing vessels around the Sulawesi Sea area in 2006 was 2,321, comprising 1,131 catcher vessels, 527 carrier vessels, and the rest are support vessels.⁸² This number has significantly increased from the recorded 961 commercial fishing vessels in 1999 or 68,920 GRT.⁸³ The commercial fishing vessels operating around the Sulawesi Sea area of The Philippines reach about 26 per cent of the total number of commercial vessels and total gross tonnage in the entire economy.⁸⁴ The registered number of municipal fishing vessels in the Sulawesi Sea region also increased from 91,837 in 1980 to 100,161 in 2000,⁸⁵ representing 21.3 per cent of the total number of municipal fishing vessels in the area.

4.4 Fishing Gears and Methods

The types of fish species caught in the Sulawesi Sea dictate the fishing gears deployed in the area. Vessels from Indonesia, Malaysia, and The Philippines utilise common fishing gears such as drift and gill nets, purse seines, hooks and lines, and other types of nets and traps. Fish aggregating devices (FADs) are also used in the Sulawesi Sea and have been known to increase the catch of tuna, particularly yellowfin and skipjack tunas. However,

⁷⁶ Based on MMAF, *Number of marine fishers by size of category fishers and province*, 2003, Jakarta: MMAF, 2004.

⁷⁷ Based on DOF Malaysia, *Annual Fisheries Statistics*, "Number of Fishermen in Sabah 2000-2005," Kuala Lumpur: Department of Fisheries, 2006.

⁷⁸ *Ibid.*

⁷⁹ *Ibid.*

⁸⁰ FAO Website, *Fishery and Aquaculture Country Profile Malaysia*.

⁸¹ *Ibid.*

⁸² Personal interview with Atty Annaliza Vitug, Chief of Fisheries Regulatory and Quarantine Division, Bureau of Fisheries and Aquatic Resources (BFAR), 10 November 2007, DA-BFAR, Quezon City.

⁸³ See Philippines, Department of Agriculture (DA), Bureau of Fisheries and Aquatic Resources (BFAR), *Philippine Fisheries Profile, 2000*, Quezon City: DA-BFAR, 2006.

⁸⁴ DA-BFAR, *Comprehensive National Fisheries Industry Development Plan, Final Version*, July 2006, (Unpublished), page 54.

⁸⁵ DA-BFAR, *Philippine Fisheries Profile, 2000*.

the governments have yet to account for the total number of FAD units in the Sulawesi Sea.

Indonesia

Various fishing gears and methods are used around the Indonesian area of the Sulawesi Sea. These fishing gears include shrimp nets, pelagic Danish seines, beach seines, purse seines, different types of gill nets, trammel nets, boat or raft nets, *bagan*, scoop nets, other lift nets, tuna longline, other drift longlines, set longlines, skipjack pole and line, other pole and lines, troll line, guiding barrier, stow nets, portable traps and other traps, *muro-ami*,⁸⁶ and harpoons.⁸⁷ Among these types of fishing gears, the most commonly used in East Kalimantan are drift gill nets, traps, pole and line, and raft nets. In North Sulawesi, the most common fishing gears are pole and line, troll line, set gill nets, and draft gill nets. In 2002, there were 54,745 units of these types of fishing gears.⁸⁸ This number has considerably increased to 173,089 units in 2003.⁸⁹

Malaysia

Fishing gears used by Malaysian vessels around the Sulawesi Sea are trawl nets, purse seines and other seines, drift and gill nets, lift nets, stationary traps, hooks and lines, and barrier nets.⁹⁰ These are also the most common gears used around Malaysia. Most fishers operate driftnets, trawlers, and purse seines while a significant number operates hooks and lines.⁹¹ In 2005, marine fish caught using trawl nets reached 71,784 MT; 51,426 MT for purse seines; and 27,447 MT for hook and lines.⁹²

The Philippines

There are different types of fishing gears used by Filipino vessels operating in the Sulawesi Sea. A total of 165 ring nets, 456 handlines, 39 modified Danish seine, 159 purse seine, 79 bagnets, 3 trawls, 18 drift longlines, and 6 gillnets are registered in the Philippine Department of Agriculture Bureau of Fisheries and Aquatic Resources (DA-BFAR) for use by these commercial fishing vessels.⁹³ These fishing gears target pelagic resources such as tuna. Fish aggregating devices in The Philippines called *payao* have been singled out as the most important factor contributing to the growth of the tuna fishing industry in the economy.⁹⁴ The effectiveness and efficiency of *payaos* in

⁸⁶ *Muro-ami* is a Japanese fishing method used in reef fishing consisting of a movable bagnet, detachable wings and scarelines having plastic strips and iron/steel/stone weights, effecting fish capture by spreading the net in an arc around reefs or shoals and, with the use of the scarelines, a cordon of fishermen drive the fish towards the waiting net while pounding the corals by means of heavy weights like iron/steel/stone or rock making it destructive to the corals.

⁸⁷ Based on MMAF, *Number of marine fishing units by type of fishing gear and province*, 2003, Jakarta: MMAF, 2004.

⁸⁸ Based on MMAF, *Number of marine fishing units by type of fishing gear and province*, 2002, Jakarta: MMAF, 2004.

⁸⁹ Based on MMAF, *Number of marine fishing units by type of fishing gear and province*, 2003.

⁹⁰ FAO Website, *Fishery and Aquaculture Country Profile Malaysia*.

⁹¹ *Ibid.*

⁹² Based on DOF Malaysia, *Annual Fisheries Statistics*, "Number of Licensed Gears and Fish Caught (MT) in Sabah, 2002-2005," Kuala Lumpur: Department of Fisheries, 2006.

⁹³ Personal interview with Atty Vitug, DA-BFAR.

⁹⁴ *Payao* is a fish-aggregating device consisting of a floating raft anchored by a weighted line with suspended materials such as palm fronds to attract pelagic and schooling species common in deep waters.

attracting tuna has greatly reduced the time spent and searching and fishing for unusually large volumes of tuna.⁹⁵ At the same time, the intensified use of *payaos* has also resulted in the depletion of the stocks. Demersal fishes are mostly caught by trawls and Danish seines. Municipal fishing vessels⁹⁶ commonly use handlines.

4.5 Overall Assessment of the Fish Stocks

The current status and the long term sustainability of the fisheries in the Sulawesi Sea region are not well understood because of inadequate and inaccurate data.⁹⁷ However, stock assessments, fisheries statistics, and secondary literature suggest that most fisheries resources in the Sulawesi Sea are overfished. Coral reefs around the Sulawesi Sea are heavily overfished, with clear indications of trophic fishing.⁹⁸ In Indonesia and The Philippines, fisheries statistics have shown that while the yields of some species have increased, the catch per unit effort has steadily declined, suggesting overfishing.⁹⁹ There is also evidence of overcapacity in the artisanal and commercial fishing fleets. In Malaysia, it is generally well accepted that the coastal fisheries have been fully exploited.¹⁰⁰

Previous regional studies show that landings of tuna from the Sulawesi Sea in 1998 exceeded the maximum sustainable yield, indicating severe overexploitation.¹⁰¹ A significant increase in effort for pelagic fisheries has also caused severe overexploitation of sharks, tuna, billfish, and other pelagic species. The Global International Waters Assessment on the Sulu-Sulawesi Sea reveals that the uncontrolled exploitation of fisheries resources is causing the destruction of habitats in the area. Population pressure in the local fishing communities, poverty, and the lack of economic alternatives also put additional pressure on the sustainability of the fisheries resources.¹⁰²

5. IUU Fishing in the Sulawesi Sea

The rich biodiversity of the Sulawesi Sea is not only threatened by overfishing and overcapacity but also by IUU fishing. IUU fishing has significant economic, ecological, environmental, and social impacts on the littoral States, particularly the coastal communities which depend on fisheries for food security. This section of the Report examines the economic cost of IUU fishing in the Sulawesi Sea, the nature and extent of IUU fishing in the area, the factors contributing to the problem, and the ecological and socio-economic impacts of the IUU activities.

⁹⁵ Virginia L. Aprieto, *Philippine Tuna Fisheries: Yellowfin and Skipjack*, Quezon City: University of the Philippines Press, 1995, page 112.

⁹⁶ Municipal fishing vessels are vessels of three gross tons or less. *See* RA 8550, Sec 57.

⁹⁷ DeVantier, et al. *The Sulu-Sulawesi Sea: Environmental and Socioeconomic Status*, page 92.

⁹⁸ *Ibid.*, page 90.

⁹⁹ *Ibid.*, page 92.

¹⁰⁰ FAO Website, *Fishery and Aquaculture Country Profile Malaysia*.

¹⁰¹ UNEP, Global International Waters Assessment, Regional assessment 56: Sulu-Celebes (Sulawesi) Sea, Kalmar: University of Kalmar, 2005, page 23. Available at www.giwa.net. Accessed on 02 October 2007.

¹⁰² *Ibid.*

5.1 Economic Cost of IUU Fishing

There are various estimates of IUU fishing around the Sulawesi Sea. In 2003, it was estimated that illegal fishing cost Indonesia about Rp882 billion or USD103.3 million.¹⁰³ According to the Directorate General of Surveillance and Control of the Indonesian Ministry of Marine Affairs and Fisheries, the total cost of IUU fishing in the Sulawesi Sea conducted only by purse seine and longline vessels catching large pelagics is Rp1.45 billion or about USD153,604.¹⁰⁴ This amount is composed of financial loss due to non-payment of fishing fee, value of the fuel subsidy provided to such vessels, and the actual value of IUU catch.¹⁰⁵ In addition, the cost to Indonesia of cyanide fishing is around USD46 million annually, threatening the annual economic benefit from reef fisheries of USD1.6 billion.¹⁰⁶ It is also estimated that the economic cost of blastfishing to Indonesia over the next 20 years is around USD3 billion or USD306,800 per square kilometre of bombed reef.¹⁰⁷

In The Philippines, some estimates suggest that around 80,000 MT of fish and other marine resources are taken annually by illegal foreign fishing in Philippine waters.¹⁰⁸ The Philippine Navy estimates that the average annual revenue loss due to illegal fishing by both local and foreign fishers in the Sulu-Sulawesi Sea alone is around PhP74 million or about USD1.6 million.¹⁰⁹ This figure does not take into account the economic cost of excess fishing in the member economy which is conservatively estimated at about PhP6.25 billion or about USD125 million per year.¹¹⁰ These estimates exclude the revenue lost from undocumented IUU fishing activities in the area.¹¹¹

No estimates of the economic cost of IUU fishing are currently available for Malaysia. However, from the various assessments provided for Indonesia and The Philippines alone it is estimated that the financial loss due to IUU fishing in the Sulawesi Sea is about a third of the total annual value of marine fisheries in the Sulawesi Sea (i.e. USD 227 million IUU fishing cost out of the USD718.35 million value of marine fisheries for 2003).¹¹²

¹⁰³ “107 Foreign fishing boats impounded,” *Antara*, 10 October 2003, page 1.

¹⁰⁴ Personal interview with Dr Purwanto, Director of Fisheries Surveillance, Directorate General of Surveillance and Control of Marine Resources and Fisheries and Mr Budi Iskandar Prisantoso, Researcher, Research Centre for Capture Fisheries, Ministry of Marine Affairs and Fisheries, Indonesia, 05 November 2007, Jakarta, Indonesia.

¹⁰⁵ *Ibid.*

¹⁰⁶ DeVantier, et al. *The Sulu-Sulawesi Sea: Environmental and Socioeconomic Status*, page 91.

¹⁰⁷ This economic loss includes loss of the protection function of the coral reef, foregone benefits of tourism, and foregone benefits of non-destructive fisheries. See C. Pet-Soede, H.S.J. Cesar, and J.S. Pet, “An economic analysis of blast fishing on Indonesian coral reefs,” *Environmental Conservation* 26:2, page 83.

¹⁰⁸ Based on the data provided by the Office of the Deputy Chief of Coast Guard Staff for Intelligence Security and Law Enforcement (ISLEN), Philippine Coast Guard, 11 November 2007.

¹⁰⁹ Data provided by the Office of the Chief of Navy Staff for Intelligence, Philippine Navy, 24 October 2007.

¹¹⁰ S.J. Green, A.T. White, J.O. Flores, M.F. Carreon III, and A.E. Sia, *Philippine Fisheries in Crisis: A Framework for Management*, Coastal Resource Management Project of the Department of Environment and Natural Resources, Cebu City, Philippines, 2003, page 8.

¹¹¹ Data provided by the Philippine Navy.

¹¹² See Section 4.2 of the case study.

5.2 Nature and Extent of IUU Fishing

There are different types of IUU fishing in the Sulawesi Sea. The IUU activities common to all littoral States of the area are: fishing without a licence, fishing with a fake licence, fishing without or with fake vessel registration papers, vessels carrying more than one flag, use of destructive fishing gears and methods such as cyanide fishing and blastfishing, landing of fish in an area other than the authorised port of landing, and non-reporting, misreporting, or under-reporting of catch. These IUU fishing activities are mostly conducted by fishing vessels flying the flags of Indonesia, Malaysia, and The Philippines, and those of other neighbouring and distant water fishing States such as Thailand, Viet Nam, People's Republic of China, and Chinese Taipei.



Photos courtesy of the Ministry of Marine Affairs and Fisheries, Indonesia.

An example of two different fishing vessels having the same name and number and carrying the same license.

IUU vessels in the Sulawesi Sea target tuna, particularly yellowfin and skipjack, billfishes and other pelagic fishes. Sharks are also caught as bycatch in the trawl fishery and tuna longline fishery.¹¹³ The most common gears used by IUU fishing vessels in the Sulawesi Sea are purse seines and handlines. Reef fishes, such as Napoleon wrasses are also targeted by IUU fishing vessels in the Sulawesi Sea because of the lucrative live fish trade. Aside from fish, corals and marine mammals are also targeted by IUU fishers.

Available apprehension records of the Indonesia, The Philippines and Malaysia showed that a total of 25,729 kilograms of fish and 200 sacks of corals valued at USD76,789 were confiscated from IUU fishers in the Sulawesi Sea in the last five years.¹¹⁴ These apprehensions included 968 fishing vessels from 30 GRT to 2,000 GRT, as well as 3,690 crew of various nationalities.¹¹⁵ These statistics appear to be grossly underestimated because they do not include undocumented cases of illegal fishing activities and other confiscated fish and fishing gear. An unknown proportion of the total fish catch in the Sulawesi Sea, particularly by the traditional fishing sector, is actually unreported, thus contributing to the existing gaps in both biological and socioeconomic data.

¹¹³ UNEP, *GIWA Regional assessment 56: Sulu-Celebes (Sulawesi) Sea*, page 43.

¹¹⁴ Consolidated from the data provided by the Indonesian Ministry of Marine Affairs and Fisheries, Philippine Navy, Philippine Coast Guard, Philippine Maritime Group, and Philippine Department of Agriculture Bureau of Fisheries and Aquatic Resources. Breakdown of the total values is provided in the discussions for each economy in this section.

¹¹⁵ *Ibid.*

Local fishers normally unload their illegally caught fish and other marine products in various fish ports in Southern Philippines.¹¹⁶ These fish and fish products are then brought to local markets while some are shipped to neighbouring States. Some local fishers sell their catches directly to crew of foreign vessels.¹¹⁷ Tropical fish caught by means of cyanide are concealed in cartons with plastic and oxygen before they are loaded on wooden vessels for transport to Manila. Some dynamited fish are mixed with legal catches for delivery to the local markets.¹¹⁸ In the Sulawesi Sea part of Indonesia, some of the fish are brought to Bitung port then exported to other economies.¹¹⁹ Some fish catches are brought directly from the fishing grounds around Maluku and Tomini Bay to the General Santos port.¹²⁰

The sections below present the views of Indonesia, Malaysia, and The Philippines on the nature of IUU fishing within their respective Sulawesi Sea jurisdictions.

Indonesia

According to the Indonesian Ministry of Marine Affairs and Fisheries, the major types of IUU fishing in the Sulawesi Sea are fishing without a licence, fishing with a fake licence, vessels carrying two flags (the Philippines and Indonesia), landing of fish caught in Indonesian waters without authorisation, and unreported fishing (non-reporting or mis-reporting, under-reporting of fish catch).¹²¹ IUU fishing vessels in the Sulawesi Sea are generally domestic and Philippine-flagged fishing vessels using purse seines and handlines. The target fisheries for IUU fishing vessels are yellowfin and skipjack tuna.

In 1997, it was reported that the Indonesian Navy arrested at least 50 boats poaching fish in Maluku and North Sulawesi.¹²² Most of these fishing vessels were from 30 GRT to 2,000 GRT and flagged to The Philippines or Chinese Taipei. At the time of apprehension, these fishing vessels did not have proper authorisations to fish.¹²³

In 2002, there were 15 reported incidents of unlicensed fishing activities by foreign and national fishing vessels in the Celebes Sea.¹²⁴ Most of these vessels were handline fishing vessels from The Philippines. It is estimated that approximately 70 per cent of all tuna catches by Filipino vessels in the Indonesian EEZ are landed in The Philippines without being reported to designated Indonesian ports. Another form of illegal fishing in the Sulawesi Sea is non-compliance with fisheries regulations, such as the use of prohibited high impact fishing methods, including drift-netting, small mesh sized nets, scare nets, and FADs.¹²⁵

In 2003, Indonesian authorities impounded 107 foreign fishing vessels for fishing illegally in the Sulawesi Sea.¹²⁶ These vessels carried the flags of Thailand, The

¹¹⁶ Data provided by the Philippine Navy.

¹¹⁷ Based on the data provided by the Philippine Coast Guard.

¹¹⁸ *Ibid.*

¹¹⁹ Personal interview with Dr Purwanto, Ministry of Marine Affairs and Fisheries, Indonesia

¹²⁰ *Ibid.*

¹²¹ *Ibid.*

¹²² Indon Navy Nabs 50 Foreign Fishing Boats in Sulawesi Waters, *Antara*, 14 January 1998, page 1.

¹²³ *Ibid.*

¹²⁴ Sodik, Combating Illegal, Unreported and Unregulated Fishing in Indonesian Waters, page 181.

¹²⁵ *Ibid.*

¹²⁶ 107 Foreign fishing boats impounded, *Antara*, 10 October 2003, page 1.

Philippines, People's Republic of China, and Viet Nam.¹²⁷ In 2004, through the Trisila marine operation task force of Indonesia, 10 fishing vessels without proper fishing permits were impounded.¹²⁸ In addition, two illegal Thai fishing vessels were arrested around the Sulawesi Sea.¹²⁹ In 2005, Indonesian authorities arrested nine Malaysian fishing vessels poaching in east Kalimantan waters.¹³⁰ The fishing vessels were using Indonesian flags but were found to have Malaysian crew and owners.¹³¹ In 2007, the Indonesian Navy apprehended two Philippine-flagged fishing vessels close to Ambalat in the Sulawesi Sea.¹³² These vessels were carrying 10 MT of fish and a crew of 18 Filipinos, and believed to be leased by a Malaysian company.¹³³

There are other destructive fishing gears used by Indonesian fishers around the Sulawesi Sea. These fishing gears include *bubu* or bamboo mesh traps; *rarape* or gillnets staked into the coral with pieces of coral weights; *cang* or the use of palm fronds to strike coral under the water by a diver; *soma udang* (lobster net) which is weighed down over openings in the reef with coral; *igi nare* traps placed over holes in the reef and camouflaged with living coral pieces; and *sero* (fish weirs) constructed directly on the reef.¹³⁴

Anecdotal evidence also suggests that a large number of Indonesian fish catches are unreported. It is estimated that the tuna catch in Indonesia is 125,000 MT greater than what is provided in official statistics.¹³⁵ For example, based on trade data, Japan's shrimp imports from Indonesia in 2000 was 11 per cent greater than the reported shrimp export for Indonesia.¹³⁶ Similarly, data from Japan's tuna imports from Indonesia in the same year was 45 per cent higher than the data provided by Indonesia.¹³⁷ It is believed that in the Sulawesi Sea part of Indonesia, data from landing sites do not represent the actual catch and effort in the area.¹³⁸

Malaysia

There is limited information on IUU fishing in Malaysian part of the Sulawesi Sea. Officials from the Malaysian Department of Fisheries generally believed that IUU fishing activities in the Sulawesi Sea are conducted by vessels of the three littoral States of the area and those flying the flags of distant water fishing nations.¹³⁹ Illegal fishing methods

¹²⁷ *Ibid.*

¹²⁸ Two Thai Fishing Vessels Confiscated for the State, *Antara*, 20 May 2004, page 1.

¹²⁹ *Ibid.*

¹³⁰ Govt to step up fishing operations Ambalat waters, *Antara*, 7 March 2005, page 1.

¹³¹ *Ibid.*

¹³² Indonesian Navy nabs tow Philippine fishing boats near Ambalat, *Antara*, 24 April 2007.

¹³³ *Ibid.*

¹³⁴ D. Hopely and Suharsosno, "The Status of Coral Reefs in Eastern Indonesia," *Global Coral Reef Monitoring Network, 2000*, www.reefbase.org. Accessed on 15 November 2007.

¹³⁵ Ety Agoes, "Indonesia's Fisheries Legislation: Conditions of Access," *Presentation at the Bilateral Indonesian-Philippines IUU Fishing Workshop*, Singapore, 21-23 May 2001.

¹³⁶ *Ibid.*

¹³⁷ *Ibid.*

¹³⁸ "Fisheries Management Issues in Indonesia," *Presentation at the Bilateral Indonesian-Philippines IUU Fishing Workshop*, Singapore, 21-23 May 2001.

¹³⁹ Personal interview with Mr Mohd Ghazali B Mohamad Taib, Head of the Legal Division, Mr Abdul Khalil Abdul Karim, Director of Resource Protection Division, and Ms Tan Geik Hong, Head of International Relations Section, Planning, Development and International Division, Department of Fisheries, Malaysia, 07 November 2007, Kuala Lumpur, Malaysia.

in the area include cyanide fishing and use of explosives by large vessels.¹⁴⁰ One of the groups of people specifically identified to be involved in widespread IUU fishing in the Sulawesi Sea are the *Badjaos*.¹⁴¹ They are known to use hook and lines and explosives and mainly fish for subsistence. The *Badjaos* move from one place to another making it difficult for the Malaysian Government to combat their illegal fishing activities.

The Philippines

IUU fishing in the Sulawesi part of The Philippines is conducted by national and foreign fishing vessels. Blastfishing is the most common type of IUU fishing in the Sulawesi Sea conducted by Filipino vessels and fishermen. Other types of illegal fishing include the use of poisonous substances such as sodium cyanide, longline fishing, trawl fishing and purse seine fishing in municipal waters, use of superlights, use of fine mesh nets, *pa-aling fishing*,¹⁴² and *hulbot-hulbot*¹⁴³ fishing.¹⁴⁴ A variety of fish species, sea turtles, marine mammals and corals are targeted using different fishing gears and methods. Many coral reefs in the Sulawesi Sea (and the adjacent Sulu Sea) have also been damaged as a result of the lucrative live fish trade in grouper and Napoleon wrasse to Hong Kong, China and People's Republic of China and other ornamental reef fishes sold in the international aquarium trade.¹⁴⁵

Official apprehension records show that the Philippine Navy apprehended a total of 67 Philippine-flagged IUU fishing vessels in the Sulawesi Sea and the corridor to the adjacent Sulu Sea between 2003 and 2007. A total of 2.93 MT of fish, PhP1.35 million or about USD29,242 worth of corals and seashells and PhP0.8 million or about USD17,329 worth of ammonium nitrate were seized in the waters of Tawi-Tawi, Zamboanga Sibugay and Zamboang del Sur in that period.¹⁴⁶ Local IUU fishing vessels and crew come from the provinces of Tawi-Tawi, Zamboanga del Sur, Sulu, Lanao del Sur, Sultan Kudarat, South Cotabato, and Sarangani.¹⁴⁷ Some IUU fishers also come from Navotas in Metro Manila.¹⁴⁸

Records of the Philippine National Police Maritime Group also show a significant number of illegal fishing incidents around the Sulawesi Sea, mostly within the territorial waters of

¹⁴⁰ *Ibid.*

¹⁴¹ The *Badjaos* are an indigenous group living in Southern Philippines, Sabah, Brunei and Sarawak and are sometimes known as Sea Gypsies for dwelling on boats and living off the sea by trading and subsistence fishing.

¹⁴² *Pa-aling* refers to a fishing gear consisting of a net set at coral/shoal reef areas whereby fish are driven towards the net by means of air bubbles produced by compressors. See Department of Agriculture, Fisheries Administrative Order (DA-FAO) 190, *Regulations Governing "Pa-aling" Fishing Operation in Philippine Waters*, 24 February 1994, Sec. 1(a).

¹⁴³ *Hulbot-hulbot* refers to a fishing gear consisting of a conical shaped net with a pair of wings, the ends of which are connected to two ropes with buri, plastic strips or any similar materials to serve as scaring/herding device with hauling ropes passing through a metallic ring permanently attached to a tom weight when hauled into a fishing boat. See Department of Agriculture, Fisheries Administrative Order (DA-FAO) 164, 31 October 1987, Sec. 1(a).

¹⁴⁴ Based on the data provided by the Philippine Coast Guard.

¹⁴⁵ *Ibid.*

¹⁴⁶ Data provided by the Philippine Navy.

¹⁴⁷ *Ibid.*

¹⁴⁸ Based on the data provided by the Philippine Coast Guard.

The Philippines. From November 2000 to September 2007,¹⁴⁹ a total of 1,485 Filipinos were arrested, including 160 Philippine-flagged fishing boats. A total of 10,678 kilograms valued at PhP928,868 or USD17,915¹⁵⁰ were seized. A total of 623 fishers, involving 83 fishing vessels and 2,121 kilograms of fish were seized in 2006 and the first three quarters of 2007.¹⁵¹ The amount of seized fish during this period alone was estimated at PhP634,899 or USD12,303.¹⁵² Aside from more than 200 sacks of corals and pebbles, the Philippine Maritime Group also confiscated 298 blasting caps, 32 bottles of homemade dynamites, more than 600 kilos of ammonium nitrate.

Foreign fishing vessels are also known to be involved in illegal fishing activities in The Philippines part of the Sulawesi Sea, using explosives and poisonous substances like sodium cyanide.¹⁵³ These vessels also engage in extracting corals and in catching rare and endangered marine species. From 2003 to 2007, the Philippine Navy apprehended 357 illegal foreign fishing vessels with a total of 2,217 crew.¹⁵⁴ These illegal foreign fishing vessels come from a number of economies, including: Malaysia, People's Republic of China, Viet Nam, and Indonesia.

Data from the Philippine Coast Guard apprehension records also show that in 2007 alone, 121 vessels were arrested for illegal fishing in the Sulawesi Sea.¹⁵⁵ These vessels carried the flags of Malaysia and People's Republic of China, using Malaysian, Chinese, Chinese Taipei, Indonesian, and Filipino crews. Recorded sightings of illegal fishing activities by the Philippine Coast Guard totalled 100 foreign fishing vessels and 81 Filipino vessels in 2007.¹⁵⁶ Most of the apprehended foreign fishing vessels are known to be repeat offenders. Some of these illegal fishing vessels are taken to the DA-BFAR for filing of appropriate charges in court. In 2007, DA-BFAR has filed six administrative cases against six foreign vessels and 60 Indonesian and Chinese nationals caught fishing illegally in Philippine waters.¹⁵⁷ Three of these cases are still pending in court while the other three were settled following payment of administrative fine.¹⁵⁸

5.3 Factors Contributing to IUU Fishing

Several factors attribute to the prevalence of IUU fishing in the Sulawesi Sea. The demand for fish is considered a major factor in contributing to IUU fishing. At the global scale, Asia contributes about 61 per cent to the world supply of fish and about 30 per cent to the world's export of fish.¹⁵⁹ The annual per capita consumption in Asia of fish and other marine products is about 27 kilograms per person, which is higher than the average

¹⁴⁹ Based on the data provided by the PNP Maritime Group on the following periods: November-December 2000, June-December 2001, January-December 2002, January-August 2003, September-December 2004, January-September 2005, January-December 2006, and January-September 2007. See PNP, Maritime Group Monthly Accomplishment Report, Illegal Fishing Apprehensions.

¹⁵⁰ Based from PNP Maritime Group Monthly Accomplishment Reports on Illegal Fishing Apprehensions.

¹⁵¹ *Ibid.*

¹⁵² *Ibid.*

¹⁵³ Data provided by the Philippine Navy.

¹⁵⁴ *Ibid.*

¹⁵⁵ Based on the data provided by the Philippine Coast Guard.

¹⁵⁶ *Ibid.*

¹⁵⁷ Data provided by the Legal Division, Bureau of Fisheries and Aquatic Resources, 11 November 2007.

¹⁵⁸ *Ibid.*

¹⁵⁹ Madan Mohan Dey and Yolanda T. Garcia, "Demand for fish in Asia: a cross country analysis," in B. Johnson, *Economics and market analysis of the live reef-fish trade in the Asia-Pacific region*, ACIAR Working Paper No 63, page 13, www.aciar.gov.au. Accessed on 03 March 2008.

of 18 kilograms.¹⁶⁰ The continuous population growth in Asia and demand for fish puts tremendous pressure on marine resources.

Related to the increase in population is the increase in the number of fishers, brought about by migration of people to areas known to have rich fisheries resources. A study conducted on the effects of human migration on resource use in North Sulawesi concluded that decline in catches is mostly associated with the increasing number of Indonesian fishers in the area.¹⁶¹ The presence of foreign fleets around North Sulawesi is also a potential source of overfishing in the area.¹⁶²

The high demand for aquarium and exotic fishes in foreign and domestic markets adds to the pressure on fisheries resources in the Sulawesi Sea and contributes to IUU fishing. The marine aquarium trade is an international, multimillion dollar industry with 36 per cent of the global trade coming from Asia.¹⁶³ The Philippines alone supplies 80 per cent of the world's ornamental fish which translates to an estimated USD10 million.¹⁶⁴ This provides a high incentive for fishers to resort to the use of poisonous chemicals such as sodium cyanide. Prices of reef fish have also increased, with prime live reef fish costing USD100 per kilogram.¹⁶⁵

Another major factor in the proliferation of IUU fishing in the Sulawesi Sea is the potential for gaining high profits.¹⁶⁶ The operating costs of firms involved in illegal fishing are generally lower than those of the average fishing firms operating legally. The financial rewards of blastfishing are also attractive and increase with the size of fishing operation.¹⁶⁷ Some form of corruption is also prevalent among local government and law enforcement officials to protect IUU fishing operations of local and foreign fishing vessels.¹⁶⁸

Weak MCS capabilities have been specifically identified by Indonesia, Malaysia, and The Philippines as one of the main causes of IUU fishing in the region.¹⁶⁹ At present, penalties for owners, operators, captains and crew of IUU vessels in the three economies include the imposition of very minimal fine and loss of fishing boats.¹⁷⁰ In the unlikely

¹⁶⁰ *Ibid.*

¹⁶¹ R.A. Kramer and S.M.H. Simanjutak, "Human Migration and Resource Use in Sulawesi Fishing Communities," Proceedings 9th International Coral Reef Symposium Vol 2, 23-27 October 2007, Bali, Indonesia, page 741.

¹⁶² *Ibid.*

¹⁶³ DeVantier, et al. *The Sulu-Sulawesi Sea: Environmental and Socioeconomic Status*, page 91.

¹⁶⁴ See D.A Parras, M.F Portigo and A.T. White, *Coastal Resource Management in Olango Island: Challenges and Opportunities*, Tambuli 4:1-9, 1998.

¹⁶⁵ DeVantier, et al. *The Sulu-Sulawesi Sea: Environmental and Socioeconomic Status*, page 91.

¹⁶⁶ Based on the data provided by the Philippine Coast Guard.

¹⁶⁷ Pet-Soede and Erdmann, *Blast Fishing in Southwest Sulawesi, Indonesia*, page 7.

¹⁶⁸ Based on the data provided by the Philippine Coast Guard; Brian Fegan, "Plundering the Sea," *Inside Indonesia*, Jan-March 2003, www.insideindonesia.org. Accessed on 14 February 2006.

¹⁶⁹ FAO, *Report of the FAO Regional Workshop on the Elaboration of National Plans of Action to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated Fishing-Southeast Asia Subregion*, Penang, Malaysia, 10-14 October 2004, FAO Fisheries Report No 757, Rome: FAO, 2005, Annex; Personal interview with Dr Purwanto and Mr Budi Iskandar Prisantoso, Ministry of Marine Affairs and Fisheries, Indonesia.

¹⁷⁰ Based on the data provided by the Philippine Coast Guard.

Examples of administrative penalties applied to illegal fishing activities by foreign vessels are: a fine of Rp500 million (or about USD55,000) for not stowing fishing gears and not having a valid license while transiting the Indonesian EEZ, See Law of the Republic of Indonesia No 31 of 2004, Art 97; a fine of

event that a foreign fishing vessel is arrested, the owner usually demands the release of a vessel or the respective embassy intervenes on his or her behalf.¹⁷¹ There are also difficulties encountered in the prosecution of fisheries offenders. For example, a fishing vessel was arrested for illegal fishing in Labuan, North Sabah.¹⁷² Although the enforcement agencies confiscated 70 kilograms of fish from the vessel, it was released for lack of sufficient evidence particularly in relation to the beneficial ownership of the vessel.¹⁷³ Indonesia, The Philippines and Malaysia also reported difficulties in relation to the detention of vessels and crew as a result of the lack of availability of detention facilities.¹⁷⁴ Jurisdictional conflicts over the management of fisheries resources also exist not only between local governments but also between the national and local governments.¹⁷⁵ This encourages fishing vessels to conduct cross-border fishing operations without appropriate licenses or in contravention of fishing license conditions.

The fourth major issue related to IUU fishing in the Sulawesi Sea is poor economic and social conditions among the coastal communities. This has been exacerbated by increase in the coastal populations.¹⁷⁶ There is a continuous lack of job opportunities or livelihoods among coastal residents and fishermen and alternative livelihoods for fishers. There are also not enough educational campaigns regarding the consequences of illegal fishing activities.¹⁷⁷ In some areas around the Sulawesi Sea, small fishers continuously depend on middlemen for their fishing operations and livelihood. This dependence has forced some of the small fishers to increase their catch by using poisonous substances.¹⁷⁸

Other factors contributing to IUU fishing include the easy availability of substances used in dynamite-making, such as ammonium nitrate and blasting caps; chemicals such as sodium cyanide,¹⁷⁹ and lack of maritime boundary agreement among the APEC economies bordering the Sulawesi Sea.¹⁸⁰ The illegal trade of noxious substances go unchecked because of differing policies among the littoral States. Similarly, the territorial and maritime boundary disputes in the Sulawesi often result in conflicts among the littoral States. In 2007, Indonesian vessels believed to be fishing illegally in Malaysian waters were driven away by Malaysian warships and airplanes. This incident has led Indonesian authorities to protest against the enforcement actions taken by Malaysia claiming that the Indonesian vessels were conducting fishing activities within their jurisdiction and has further accused the Malaysian patrol vessels and airplanes of violating Indonesian airspace and waters.¹⁸¹

USD100,000 and confiscation of catch, fishing equipment, and fishing vessel for illegal fishing in Philippine Waters, *See* RA 8550, Sec 87; and a maximum fine of RM1 million (or about USD317,000) for failing to comply with the provisions of the Act, *See* Fisheries Act 1985 (Act 317), Sec 25.

¹⁷¹ *Ibid.*

¹⁷² Personal interview with Mr Mohd Ghazali B Mohamad Taib, Mr Abdul Khalil Abdul Karim, and Ms Tan Geik Hong, Department of Fisheries, Malaysia.

¹⁷³ *Ibid.*

¹⁷⁴ Personal interview with Atty Roberto M Buazon, Officer-in-Charge, Legal Division and Mr Charlie Cariño, Legal Officer, Legal Division, Bureau of Fisheries and Aquatic Resources, 11 November 2007, Quezon City, Philippines.

¹⁷⁵ S. Puna and A. Cottrell, "Conflicts of Coastal Management in North Sulawesi," *Proceedings 9th International Coral Reef Symposium*, 23-27 October 2000, Bali, Indonesia, page 794.

¹⁷⁶ Based on the data provided by the Philippine Coast Guard.

¹⁷⁷ Data provided by the Philippine Navy.

¹⁷⁸ Cyanide fishing and reform in Sulawesi, Indonesia, *Environment*, October 1998, 40:8, page 33.

¹⁷⁹ Data provided by the Philippine Navy.

¹⁸⁰ Based on the data provided by the Philippine Coast Guard.

¹⁸¹ Malaysian warships chase away Indonesian fishermen from Ambalat, *Antara*, 6 March 2007, page 1.

5.4 Impacts of IUU Fishing

IUU fishing activities have negative impacts not only on the fisheries resources, but also on the environment and the socio-economic lives of coastal communities. IUU fishing reduces the supply of fish, thereby contributing to loss of food sources. It also contributes to the loss of employment and livelihood for fishers which lead to a potential increase in conflicts between user groups for shared resources.

IUU fishing further reduces economic returns and loss of species. In general, destructive fishing, including blasting, *muro-ami*, and poison fishing damage and destroy more than 70 per cent of the coral reefs.¹⁸² A coral reef that has been destroyed by destructive fishing methods can only produce four tons of fish or other edible products per square kilometre every year, compared to 20 tons that a healthy coral reef can produce.¹⁸³ Dynamites or explosive blast shatter delicate corals and completely destroy an area of about one to one and a half metres.¹⁸⁴ It takes at least 38 years for a dynamited reef to recover 50 per cent of its hard coral cover, and in some areas of The Philippines, there had been no significant recovery observed for up to ten years.¹⁸⁵

Cyanide kills corals and reef invertebrates along with many non-target fish. The use of cyanide likewise has negative effects on coastal ecosystems and degrades the marine environment. It has been estimated that over one million kilograms of sodium cyanide has been used on the Philippine reefs since the 1960s.¹⁸⁶ Even though live reef fish trade is a lucrative industry, much of the fish do not make it to their markets because of half of the poisoned fish die on the reef while 40 per cent of the fish that survive die even before they reach the aquariums.¹⁸⁷ Studies have also shown that the economic benefits of small fishers who engage in cyanide fishing for the live reef fish trade are minimal. For example, Filipino fishers only earn USD50 a month.¹⁸⁸ The use of non-selective fishing gears has also resulted in an alarming rate of increase of bycatch.¹⁸⁹

IUU fishing also has the potential to negatively affect diplomatic relations between neighbouring States of the Sulawesi Sea. For example, in January 2003, it was reported that an Indonesian warship sunk four Filipino fishing boats which tried to flee after illegally fishing in Indonesian waters. The vessels carried 49 Filipino crews who were detained after the apprehension. The report further stated that the Indonesian navy seized a total of 12 Filipino fishing boats prior to the sinking of the four boats.¹⁹⁰ However, no such incident occurred. The Office of the Philippine Consulate General in Manado

¹⁸² DeVantier, et al. *The Sulu-Sulawesi Sea: Environmental and Socioeconomic Status*, page 92.

¹⁸³ See A.T White, H.P. Vogt, and T. Arin, "The Philippine Coral Reefs Under Threat: The Economic Losses Caused by Reef Destruction," *Marine Pollution Bulletin* 40(2000): 598-605.

¹⁸⁴ Lida Pet-Soede and Mark V. Erdmann, "Blast Fishing in Southwest Sulawesi, Indonesia," *The ICLARM Quarterly*, April-June 1998, page 6.

¹⁸⁵ White, et.al., *The Philippine Coral Reefs Under Threat*, page 601.

¹⁸⁶ White, et.al., *The Philippine Coral Reefs Under Threat*, page 601.

¹⁸⁷ *Ibid.*

¹⁸⁸ DeVantier, et al. *The Sulu-Sulawesi Sea: Environmental and Socioeconomic Status*, page 91.

¹⁸⁹ Naniel Aragonés, Emmanuel S. Bate, Ramon I. Miclat, A. Rex F. Montebon, and Johanna Pe-Montebon, "The Coral Reef Ecosystem," in Johanna Pe-Montebon, Evangeline F.B. Miclat, and Jose Noel Dumaup, eds. *A Biophysical Assessment of the Philippine Territory of the Sulu-Sulawesi Marine Ecoregion*, Manila: WWF Philippines, May 2003, page 126.

¹⁹⁰ "Indon Navy Sinks 4 RP Fishing Boats." *Philippine Daily Inquirer* 30 January 2003. page A20.

clarified that Filipino fishing boats believed to be illegally fishing in Indonesian waters were indeed apprehended by the Indonesian navy but no sinking occurred. However, the incident created some tension between the two economies while the report was being clarified.

6. Efforts Undertaken by Littoral States to combat IUU Fishing in the Sulawesi Sea

This section describes some of the major measures that Indonesia, Malaysia, and The Philippines are implementing, either individually or collectively, to address IUU fishing in the Sulawesi Sea.

6.1 National Level

There are different systems of government in Indonesia, Malaysia, and The Philippines. Malaysia uses a top-down centralised form of governance while the Philippines and Indonesia have decentralised some of its government functions, including fisheries. The latter two economies also promote community-based management of resources. Hence, the management of fisheries in the Sulawesi Sea is mostly focused on local governments such as provinces, cities, and municipalities.

Various measures are implemented by the littoral States of the Sulawesi Sea to combat IUU fishing in areas under their jurisdiction. These measures include the registration and licensing of fishing vessels, imposition of penalties against fisheries offenders, implementation of boarding and inspection schemes, and enforcement of fisheries laws and policies. These measures are consistent with the obligations of these economies under the United Nations Convention on the Law of the Sea and the measures adopted under the FAO Code of Conduct for Responsible Fisheries and the International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU). The implementation of such measures at the national level is explained further below.

Indonesia

The main fisheries law in Indonesia is *Law No. 31 of 2004 Concerning Fisheries*. This law encourages the sustainable development of fisheries resources. Article 7 of *Law No. 31* provides for the power of the Minister of Fisheries to establish fisheries management plans, allocate fisheries resources, determine the total allowable catch, determine the types, quantity, and positions of fishing gears and zones and period or seasons of fishing, designate protected fish species and sea areas, and implement a vessel monitoring system (VMS). The principal agency involved in fisheries management in Indonesia is the Ministry of Marine Affairs and Fisheries, although a number of other government agencies also have fisheries-related functions, such as the Indonesian Navy and the Ministry of Environment. Some fisheries management functions such as licensing and enforcement are also devolved to local governments.

In order to ensure that only licensed vessels are allowed access to the fisheries resources, Indonesia has adopted a registration and licensing system for fishing vessels. The Indonesian Government issues fishery business licenses, fishing licenses, and fish carrier licences. License conditions include the fish hold capacity, name and address of vessel

master, number of crew, type and number of fishing gear, vessel identification marks, intended fishing ground, port and place of catch reporting, and conditions of catch.¹⁹¹

The Central Government issues these licenses to Indonesian and foreign fishing vessels under bilateral agreements with gross tonnage of 30 GRT and more and engine power of 90 horsepower (hp). The provincial government is given the power to issue licenses to vessels between 10 GRT to 30 GRT and/or vessels with less than 90 hp, with outboard or inboard engines and without foreign workers and capital. District governments are given the power to issue licenses to non-motorised fishing vessels of less than 10 GT and/or vessels with less than 30 GT, without outboard or inboard engines and without foreign workers and capital.

More concrete measures have been undertaken since 2000 to control fishing vessel licensing. These measures include the re-registration of fishing licences (2001-2002), verification of vessel ownership and nationality and flag (2001-2005), computerisation of the licensing system, including the administration process, logistic control, license database, and reporting system (2001-2004), improvement of mechanisms and standard operational procedure for licensing (2001-2005), and development of staff capability to undertake licensing service (2001-2004).¹⁹²

Articles 84 and 85 of *Law No. 31 on Fisheries* provide for stringent penalties to deter fisheries-related offences. For example, the penalty for possessing, controlling, and using illegal fishing gears is a five-year maximum imprisonment. Similarly, the use of destructive fishing methods in Indonesian fishing areas attracts a penalty of up to ten years maximum imprisonment and a fine of up to Rp1.2 billion or about USD131,600. The vessel master and crew are equally liable if they are found guilty of committing offences under *Law No. 31 on Fisheries*. In 2004, through the Trisila marine operation task force of Indonesia, 10 fishing vessels without proper fishing permits were impounded.¹⁹³ In addition, two illegal Thai fishing vessels were arrested around the Sulawesi Sea. The vessels were confiscated, the captain of one of the vessels was sentenced to jail for two years, and the owner of the other vessel was fined Rp24 million or USD2,500.¹⁹⁴

There has been a significant improvement in the monitoring and control components of the Indonesian MCS system, particularly through measures such as the re-assessment of fishery resources (1997-1998 and 2001), as well as an evaluation of fishing intensity (2001-2005).¹⁹⁵ Indonesia has increased its activities and developed its capacity for fisheries surveillance, including as sea, air, port, and community-based surveillance mechanisms.¹⁹⁶ Increased surveillance activities also include observer programs and joint

¹⁹¹ Indonesia, *Law No. 31 of 2004 Concerning Fisheries*, Art. 11.

¹⁹² Personal interview with Dr Purwanto, Director of Fisheries Surveillance, Directorate General of Surveillance and Control of Marine Resources and Fisheries Ministry of Marine Affairs and Fisheries, Indonesia, 05 November 2007, Jakarta, Indonesia.

¹⁹³ Two Thai Fishing Vessels Confiscated for the State, *Antara*, 20 May 2004, page 1.

¹⁹⁴ *Ibid.*

¹⁹⁵ Personal interview with Dr Purwanto, Ministry of Marine Affairs and Fisheries, Indonesia; *See also* Dr Purwanto, "MMAF Indonesia: Monitoring, Control, and Surveillance," Presentation at the *Philippines-Indonesia Bilateral Workshop to Combat IUU Fishing in the Sulawesi Sea*, 13-14 June 2006, Hyatt Hotel, Manila, Philippines.

¹⁹⁶ *Ibid.*

sea surveillance with the Navy and Marine Police, and the Air Force.¹⁹⁷ According to the Ministry of Marine Affairs and Fisheries, the intensified naval operations alone have successfully reduced illegal fishing in Indonesian waters by 40 per cent.¹⁹⁸

Surveillance activities in ports include establishing Technical Implementation Units for Fisheries Surveillance (FS-TIU) in areas where fisheries violations mostly occur. The FS-TIUs were initially set up in five locations and are now supported by Fisheries Surveillance Post (FSP) in 58 locations.¹⁹⁹ Indonesia has further increased the number and capability of Fisheries Surveillance Officers (FSO) and Fisheries Investigators. There are currently 225 FSOs and Fisheries Investigators. It is estimated that Indonesia will need 5,000 FSOs to undertake effective fisheries surveillance activities. Indonesia has also established fisheries courts in areas where there are high levels of fisheries violations and a national coordinating forum involving relevant government institutions to increase the effectiveness of fisheries law enforcement.²⁰⁰

Indonesia implements VMS through the *Decision of the Minister of Marine Affairs and Fisheries No. 29 on the Implementation of the Fishing Vessels Monitoring System 2003*. The objectives of the VMS are to enhance fisheries management through monitoring and surveillance, fishing fleet management, compliance of fishing vessels with existing laws and regulations, and accurate data and information on fishing vessel activities. All Indonesian and foreign-flagged vessels over 100 GRT are required to carry and operate a transmitter and to activate the transmitter from within 200 nautical miles before entering the Indonesian EEZ. There are 1,500 fishing vessels equipped with VMS transmitters since 2006.²⁰¹ Indonesia aims to have VMS equipment installed in all fishing vessels greater than 60 GRT by 2008.²⁰² VMS and radar facilities will also be integrated in order to support fisheries surveillance at sea.²⁰³

Another means of enhancing MCS in Indonesia is through the community-based based fisheries surveillance system. This system works with communities to undertake observation at sea and land, and to report suspected people and vessels conducting illegal fishing. The number of community groups and locations involved in fisheries surveillance increased from 237 in 2003 to 708 in 2006.²⁰⁴

Indonesia further requires fishing vessels to maintain daily logbooks containing data on the position of the vessel, catch and effort, and other relevant information such as reports of landing or transshipment of catch. Indonesia also implements *Decision of the Minister of Marine Affairs and Fisheries No. 02 of 2002 on Fisheries Control Guidance*. Under these regulations, fisheries control officers are given the power to collect reliable and accurate information, through monitoring, observations, inspections, and investigation, for purposes of fisheries management and enforcement.²⁰⁵

¹⁹⁷ *Ibid.*

¹⁹⁸ Indon Navy Nabs 50 Foreign Fishing Boats in Sulawesi Waters, *Antara*, 14 January 1998, page 1. s

¹⁹⁹ Personal interview with Dr Purwanto, Ministry of Marine Affairs and Fisheries, Indonesia.

²⁰⁰ *Ibid.*

²⁰¹ *Ibid.*

²⁰² *Ibid.*

²⁰³ *Ibid.*

²⁰⁴ *Ibid.*

²⁰⁵ Indonesia, *Decision of the Minister of Marine Affairs and Fisheries No. 02 of 2002 on Fisheries Control Guidance*, Art. 2(2).

Malaysia

The principal fisheries legislation of Malaysia is *Fisheries Act 1985* (No. 317 of 1985). This Act provides the legal framework for the management of fisheries resources and aquaculture in Malaysia. The *Fisheries Act of 1985* contains provisions on fisheries management plans, licensing, fisheries offences, and fishing access of foreign fishing vessels. The Act applies to Malaysian fisheries waters, which includes the internal waters, territorial sea, and the EEZ. It also applies to riverine waters within the jurisdiction of each of the States in Malaysia and of the Federation in respect of the Federal Territories of Kuala Lumpur and Labuan.

The Federal Minister for Fisheries is given the primary responsibility for all matters relating to fisheries, including the conservation, management and development of estuarine fishing and fisheries in Malaysian waters, turtles, and inland fisheries in the Federal Territories of Kuala Lumpur and Labuan. In particular, the Minister may establish regulations with respect to fishing vessel registration and licensing, closed seasons, endangered fish species, minimum mesh size of nets, limitation on quantity, size and weight of fish, manning of fishing vessels, prohibited fishing areas and fishing gears, landing of fish and control of fishing ports, prohibition or control of importation and exportation of live fish, and collection of fisheries information.

In Sabah, because of its federal set-up, the state-level Ministry of Fisheries is the main government agency responsible for fisheries management. The Ministries of Tourism, Culture and the Environment also promote the protection of fauna within their habitat. Sabah has its own fisheries ordinance and Fisheries Act.²⁰⁶ The Department of Fisheries Sabah issues licences for fishing gears and handles fisheries apprehension and prosecution.²⁰⁷ The Marine Department issues licences for fishing vessels.²⁰⁸

For the purpose of regulating fishing activities and efforts in Malaysian waters, the waters are divided into four fishing zones. Zone A is measured from the shoreline to 5 nautical miles out and is generally reserved for small vessels operating traditional fishing gears.²⁰⁹ Commercial fishing operations, such as trawling and purse seining, are not allowed in this zone. Zone B is the area from five to 12 nautical miles from the shoreline. Commercial fishing activities such as trawling and purse seining begin from Zone B. However, only vessels below 40 GRT are allowed to operate in this zone. Zone C1 is the area from 12 to 30 nautical miles and used for the operations of vessels below 70 GRT. Zone C2 is the area beyond 30 nautical miles and is used for the operation of the fleet of offshore vessels with 70 GRT and above. The optimum number of fishing vessels in each zone is based on the maximum sustainable yield. A limited number of licences for offshore vessels are being issued annually.²¹⁰

Fisheries Act 1985 provides for a general licensing scheme for both national and foreign fishing vessels fishing within Malaysian waters.²¹¹ Licenses are issued by the Director-

²⁰⁶ *Fisheries Act of 1963*.

²⁰⁷ Personal interview with Mr Mohd Ghazali B Mohamad Taib, Mr Abdul Khalil Abdul Karim, and Ms Tan Geik Hong, Department of Fisheries, Malaysia.

²⁰⁸ *Ibid.*

²⁰⁹ FAO Website, *Fishery and Aquaculture Country Profile Malaysia*.

²¹⁰ *Ibid.*

²¹¹ Malaysia, *Fisheries Act 1985* (No. 317 of 1985), Parts IV and VI.

General with respect to any fishing stakes, fishing appliance, or fish aggregation devices.²¹²

Fishing by foreign fishing vessels is not allowed in Malaysian fisheries waters unless authorised under a fisheries agreement between the Government of Malaysia and another State or an international organisation²¹³ and a corresponding fishing permit is issued by the Director-General of Fisheries.²¹⁴ Similarly, no foreign fishing vessel may load or unload fish, fuel or supplies, or tranship any fish in Malaysian waters without the approval of the Director-General.²¹⁵ The conditions of a foreign fishing license include: the areas within which fishing is authorised; the period during which fishing is authorised; the species, age, length, weight, and quantity of fish that may be retained on board the foreign fishing vessel, landed in Malaysia or transhipped; the methods by which fish may be taken; and the types, sizes and numbers of fishing appliances that may be used or carried by a foreign fishing vessel.²¹⁶ Other conditions also apply with respect to the transfer, transshipment, landing, and processing of fish taken; entry by the foreign fishing vessel into Malaysian ports; the statistical information required to be given by the foreign fishing vessel; placing of observers on board; permanent marking of fishing vessels; and carriage onboard of communications equipment.²¹⁷ Breach of any condition of the fishing license may result in the cancellation or suspension of the fishing license or payment of administrative fines.²¹⁸

The *Fisheries Act 1985* also provides for enforcement actions against local and foreign fishing vessels operating in the Malaysian waters. These actions include boarding, searching, and inspecting fishing vessels concerning the seaworthiness of vessels, fish and fishing equipment, and documents.²¹⁹ Similar enforcement actions may be taken against local and foreign fishing vessels operating in Malaysian waters and in ports. Aside from boarding, search, and inspection of fishing vessels, enforcement officers also have the powers of entry, seizure and arrest.

Malaysia undertakes more specific measures to address IUU fishing. First, fisheries enforcement functions between the navy, marine police, fisheries, and customs are being consolidated into the Maritime Enforcement Agency, which has only been operational for two years.²²⁰ The Maritime Enforcement Agency conducts regular patrols, joint exercises or operations among government agencies, and detention of fishing vessels. Malaysia provides exit plans to fishers to assist them in finding alternative sources of livelihood, such as the 1,000 hectares given to *Badjaos* to culture seaweeds. Malaysia also implements the *Restrict Residence Act* which bans people from certain places for a particular period of time (e.g. 5 years) if they are caught conducting illegal fishing activities. There is also a national IUU fishing awareness campaign aimed at publishing the negative impacts of IUU fishing.²²¹

²¹² *Fisheries Act 1985*, Art 11.

²¹³ *Fisheries Act 1985*, Art 15(1).

²¹⁴ *Fisheries Act 1985*, Art 19.

²¹⁵ *Fisheries Act 1985*, Art 15(2).

²¹⁶ *Fisheries Act 1985*, Art 19(4).

²¹⁷ *Fisheries Act 1985*, Art 19(4).

²¹⁸ *Fisheries Act 1985*, Art 19(5) and 21.

²¹⁹ *Fisheries Act 1985*, Part X.

²²⁰ Personal interview with Mr Mohd Ghazali B Mohamad Taib, Mr Abdul Khalil Abdul Karim, and Ms Tan Geik Hong, Department of Fisheries, Malaysia.

²²¹ *Ibid.*

The Philippines

The utilisation, conservation, and management of fisheries resources in The Philippines are primarily governed by three laws: the *Philippine Fisheries Code 1998*, the *Agriculture and Fisheries Modernisation Act 1997*,²²² and the *Local Government Code 1991*.²²³ The *Philippine Fisheries Code 1998* provides the basic fisheries management framework; the *Agriculture and Fisheries Modernisation Act 1997* addresses fisheries development as a component of the agricultural sector; and the *Local Government Code 1991* provides the framework for local autonomy and decentralisation which includes fishery functions. There are also regulations implementing the Philippine Fisheries Code in the form of Implementing Rules and Regulations²²⁴ and Fisheries Administrative Orders issued by the Department of Agriculture.

The basic objectives of the *Philippine Fisheries Code 1998* are the conservation and protection of fisheries and aquatic resources, alleviation of poverty, utilisation of offshore and deep sea resources, improvement of aquaculture, and the upgrade of post-harvest technology.²²⁵ The *Philippine Fisheries Code* implements general fisheries management principles such as the setting of the total allowable catch based on maximum sustainable yield,²²⁶ temporal and spatial limitations such as the establishment of closed seasons, closed areas, fish refuges, and sanctuaries,²²⁷ and user fees and other fishery charges based on resource rent.²²⁸ The *Philippine Fisheries Code* also implements the basic policies on the protection of subsistence fisheries in the use of communal fishing areas²²⁹ and limitation of fishery access in Philippine waters to the exclusive use and enjoyment of Filipinos.²³⁰ These policies and principles serve as a basis for the allocation of fisheries resources in The Philippines.

Aside from the Department of Agriculture Bureau of Fisheries and Aquatic Resources (DA-BFAR) the implementation of the *Philippine Fisheries Code 1998* involves numerous other organisations, the major government agencies of which are the Department of Environment and Natural Resources, Maritime Industry Authority, the Philippine Fisheries Development Authority, the National Fisheries Research and Development Institute, and Bureau of Agriculture Statistics. Enforcement agencies

²²² Philippines, Republic Act 8435, *An Act prescribing Urgent Related Measures to Modernise the Agriculture and Fisheries Sectors of the Country in Order to Enhance Their Profitability, and Prepare Said Sectors for the Challenges of the Globalisation Through an Adequate, Focused and Rational Delivery of Necessary Support Services, Appropriating Funds Therefore and for other Purposes*, also known as the Agriculture and Fisheries Modernisation Act of 1997, hereinafter referred to as RA 8435, 22 December 1997.

²²³ Philippines, Republic Act 7160, *An Act Providing for a Local Government Code of 1991*, also known as the Local Government Code of 1991, hereinafter referred to as RA 7160, 10 October 1991.

²²⁴ Philippines, Department of Agriculture (DA) Administrative Order 3, *Implementing Rules and Regulations Pursuant to RA 8550: "An Act Providing for the Development, Management and Conservation of the Fisheries and Aquatic Resources, Integrating all Laws Pertinent thereto, and for other Purposes,"* hereinafter referred to as DA Admin. Order 3, 21 May 1998.

²²⁵ RA 8550, Sec. 2(g).

²²⁶ RA 8550, Sec. 7.

²²⁷ RA 8550, Sec. 9 and 23.

²²⁸ RA 8550, Sec. 6.

²²⁹ RA 8550, Sec. 2(d).

²³⁰ RA 8550, Sec. 2(b).

include law enforcement officers of DA-BFAR, Philippine Coast Guard, Philippine Navy, Philippine National Police Maritime Group.²³¹

The *Local Government Code 1991* provides the framework for local autonomy to the territorial and political subdivisions of The Philippines.²³² Through this Code, fisheries management functions and enforcement are decentralised to local government units, comprising provinces, cities, municipalities, and *barangays*.²³³ Local Government Ordinances enacted under the *Local Government Code* regulate fisheries matters at the local level. In the Sulawesi Sea, the local governments of the four administrative regions around the area are primarily responsible for implementing fisheries management measures within their respective jurisdictions.

Aside from these basic fisheries-related laws, Philippine national policies are also part of the general framework for sustainable fisheries management and are relevant in addressing IUU fishing. These include the Draft Philippine National Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing (NPOA-IUU).²³⁴ The Draft Philippine NPOA-IUU was formulated in 2005 to implement paragraph 25 of the IPOA-IUU on the development and implementation of national plans of action to address IUU fishing. The Draft Philippine NPOA-IUU is in the process of review by the Director of Bureau of Fisheries and Aquatic Resources for endorsement as a policy document.²³⁵

More specific measures are being implemented in The Philippines to address IUU fishing. The economy implements a fishing vessel registration and licensing system. There are two separate processes for the registration and licensing of municipal and commercial fishing vessels. Municipal fishing vessels and municipal fishers are required to be registered before acquiring fishing licenses. In the case of commercial fishing vessels, a Certificate of Vessel Registry, Certificate of Inspection, and Permit to Operate are obtained before a Certificate of Fishing Vessel and Gear License and International Fishing Permit may be acquired. In order to strengthen the fishing vessel registration and licensing of The Philippines, the Bureau of Fisheries and Aquatic Resources has started implementing ocular inspections of fishing vessels, particularly longliners, in order to ensure the authenticity of their licenses.²³⁶ These inspections are jointly carried out by the Fisheries Regulatory and Quarantine and the Legal Divisions of DA-BFAR.²³⁷

The Philippines has also enacted *Republic Act 9379* or *The Handline Fishing Law*, which provides for the regulations of handline fishing vessels (or pumpboats), including their registration and licensing, manning, construction, and compliance with other vessel safety regulations.²³⁸ The Philippines is in the process of formulating regulations on the

²³¹ RA 8550, Sec. 124.

²³² RA 7160, Sec. 2.

²³³ *Barangays* are the basic political unit in the Philippines and serve as the primary planning and implementing unit of government policies, programs, projects, and activities in the community. See Title I, Chapter 1, Section 384 of Republic Act 7160, also known as the *Local Government Code of 1991*.

²³⁴ Philippines, *Draft National Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported, and Unreported (IUU) Fishing, hereinafter referred to as Draft Philippine NPOA-IUU*, July 2005.

²³⁵ Personal interview with Atty Vitug, DA-BFAR.

²³⁶ Personal interview with Atty Roberto M Buazon and Mr Charlie Cariño, DA-BFAR.

²³⁷ *Ibid.*

²³⁸ Philippines, RA 9379, *An Act Defining Handline Fishing, Providing Effective Regulations therefore and for other purposes*, March 8, 2007.

implementation of the *Handline Fishing Law*. The Philippines has also been implementing measures to manage the handline fishery more effectively by controlling the capacity of the pumpboats through regulations on mesh sizes, improving post-harvest methods, and capacity building. As a result, the regions around the Sulawesi Sea have already seen a dramatic decrease in the number of handline fishing vessels and increase in compliance by such vessels. The *Handline Fishing Law* is seen as an effective means to further address the IUU fishing activities conducted by pumpboats in the Sulawesi Sea.²³⁹

The Philippines implements a detailed boarding, inspection, and apprehension procedure.²⁴⁰ This boarding and inspection procedure only applies to foreign fishing vessels believed to be fishing illegally in Philippine waters.²⁴¹ Aside from regular patrols and enforcement activities, The Philippines also implements a Coastwatch System which integrates law enforcement functions and assets to address transnational crime, including illegal fishing by foreign fishing vessels.²⁴² However, The Philippines has yet to implement a VMS.

Sanctions for infringements of Philippine fisheries laws and regulations include imprisonment, monetary penalties, forfeiture of vessels, fishing equipment, and catch, and suspension or revocation of fishing permits and vessel registration. Most of the penalties for fisheries violations by commercial fishing vessels apply to natural or juridical persons such as the owners, operators, boat captains, master fishers, and officers. There is an automatic revocation of license for the captain or three highest officers of the commercial fishing vessel if they engage in unauthorised fishing.²⁴³ In case of a violation by a fishing vessel owned by a fishing corporation, the penalty is imposed on the chief executive officer, while in the case of a partnership, the managing partner is held liable.²⁴⁴ For foreign fishing vessels, The *Philippine Fisheries Code 1998* and *DA-FAO 200* provides that mere entry by foreign fishing vessels in the economy's waters is considered *prima facie* evidence that the vessel is engaged in illegal fishing in Philippine waters, except in cases of *force majeure* and exercise of the right of innocent passage.²⁴⁵ This presumption in the law is strengthened by the imposition of a fine of USD100,000, in addition to confiscation of catch, fishing equipment, and fishing vessel.²⁴⁶ An administrative fine ranging from USD50,000 to USD200,000 can also be imposed for this violation.²⁴⁷ Some of the illegal fishing cases in the Sulawesi Sea have been brought to court and the crew have been released from custody after brief interrogations.²⁴⁸ In the case of Filipino vessels illegally fishing in Indonesian waters, Indonesian authorities turn them over to the

²³⁹ *Ibid.*

²⁴⁰ Philippines, Department of Agriculture Fisheries Administrative Order 200, *Guidelines and Procedures in Implementing Section 87 of the Philippine Fisheries Code of 1998*, 21 August 2000, Sec. 6.

²⁴¹ RA 8550, Sec. 87; *See also* Philippine Constitution, 02 February 1987, Art. XII, Sec. 2. According to Section 1(a) of DA-FAO 200, poaching means "fishing or operating any fishing vessel in Philippine waters, committed by any foreign person, corporation, or entity, provided that this does not include foreigners engaged in leisure or game fishing as may be defined by the Department pursuant to Section 86.1 of DAO No. 3, Series of 1998."

²⁴² Personal interview with Lt Commander Joey Velarde, Philippine Coast Guard.

²⁴³ RA 8550, Section 86.

²⁴⁴ RA 8550, Section 90(2).

²⁴⁵ RA 8550, Sec. 87; Philippines, Department of Agriculture, FAO 200, *Guidelines and Procedures in Implementing Section 87 of the Philippine Fisheries Code of 1998*, 06 September 2000, Sec. 3.

²⁴⁶ RA 8550, Sec. 87; DA-FAO 200, Sec. 8.

²⁴⁷ RA 8550, Sec. 87; DA-FAO 200, Sec. 8.

²⁴⁸ Indon Navy Nabs 50 Foreign Fishing Boats in Sulawesi Waters, *Antara*, 14 January 1998, page 1.

Philippine Consulate in Manado for repatriation.²⁴⁹ In 1997, the Philippine Consulate repatriated about 400 illegal Filipino fishers.²⁵⁰ This also involved the confiscation of Filipino fishing vessels and their paraphernalia by Indonesian authorities.²⁵¹ The illegal fishing activities of Filipino fishers in Indonesian waters not only cost the Philippines a substantial amount of money due to repatriation but also threaten the smooth relations between the two economies.

In the Sulawesi Sea, DA-BFAR has intensified patrol operations in the territorial waters of the Autonomous Region in Muslim Mindanao. In early 2007, BFAR conducted a workshop intended to draft a manual of operation for its multi-agency regional anti-illegal fishing joint response team called the Inter-Agency Monitoring, Control and Surveillance team. This team consists of representatives of the Office of the Regional Governor, Department of Agriculture and Fisheries, Department of Interior and Local Government, Department of Transportation and Communications, Department of Environment and Natural Resources, Regional Ports management Authority, Regional Telecommunications Commission, Maritime Industry Authority, Philippine National Police, PNP Maritime Group, Philippine Coast Guard, Regional Fisherfolk Council, Intelligence and Security Service, and the BFAR Autonomous Region for Muslim Mindanao. The Regional MCS team was created pursuant to *Executive Order No. 16 on the Fisheries Act of the Autonomous Mindanao*²⁵² and has four operating task forces. Task Force Central is responsible for securing the contiguous ARMM water territories of Maguindanao, Shariff Kabusuan, and Lanao del Sur. The other task forces are Task Force Basilan, Task Force Sulu, and Task Force Tawi-Tawi. Each task force is headed by a provincial fishery officer and assisted either by Regional Ports Management Authority, Philippine Coast Guard, Philippine National Police, or Philippine Navy.

6.2 Bilateral Level

The most concrete and successful bilateral efforts to combat IUU fishing in the Sulawesi Sea are those undertaken by Indonesia and The Philippines. The two economies have long-established ties on fisheries, recognise the need to address IUU fishing in common waters, and have taken actions towards strengthening bilateral cooperation.

Indonesia-Philippines Cooperation on Fisheries Matters

The cooperation that has developed between The Philippines and Indonesia over the years can be considered as one of the key factors in deterring the illegal fishing activities in the Sulawesi Sea. In the latter part of the 1990s, Filipino vessels were identified as one of the major illegal fishers in Indonesian waters. Filipino fishing vessels were known to use explosives, poisonous substances, and illegal trawls, which not only deplete the fisheries resources in the area but also cause damage to the coral reefs and marine habitats.²⁵³ It was believed that illegal fishing is largely encouraged by the complicated and time-consuming procedure of obtaining work permits and chartering of foreign fishing vessels.

²⁴⁹ Illegal fishing by Pinoys in south threatens RP-Indonesia relations, *BusinessWorld*, 26 May 1997; *See also* Filipino fishing crews deported from Manado, *Antara*, 17 January 2003, page 1.

²⁵⁰ Illegal fishing by Pinoys in south threatens RP-Indonesia relations, *BusinessWorld*, 26 May 1997.

²⁵¹ *Ibid.*

²⁵² Based on the data provided by the Philippine Coast Guard.

²⁵³ HNSI: Bureaucracy delays progress of fishing industry, *Antara*, 29 August 1996.

There was also a lack of cooperation between the governments and the fishing industry.²⁵⁴

These problems prompted the governments of Indonesia and The Philippines to negotiate an agreement to legalise the access of Filipino fishing vessels in Indonesian waters through access arrangements.²⁵⁵ Indonesia also introduced legislation prohibiting charter arrangements and ensuring that only Indonesian flagged vessels are allowed to operate in the Indonesian EEZ,²⁵⁶ in order to easily determine the owners and operators responsible for the fishing vessels. Joint ventures have further been entered into between Indonesian and Filipino fishing companies. These partnerships provide mutual benefits to both economies in terms of access to resources and transfer of capital and technology.

With the conclusion of the bilateral fishing access agreement between The Philippines and Indonesia in 2002, a total of 255 fishing vessels and 300 Filipino lightboats were allowed access to a defined area of the Indonesian EEZ and designated ports.²⁵⁷ Of the total number of fishing vessels allowed to operate in the Indonesian EEZ, only 54 catcher vessels (38 vessels under 250 GRT) and 11 single purse seiners (all >250 GRT) were endorsed to fish in Indonesian waters.²⁵⁸ Most of the catch by these vessels were unloaded in Philippine ports and some at Philippine operated canneries in Bitung, Sulawesi.²⁵⁹ The canneries in Manado and Bitung, North Sulawesi require at least USD12 million cross-border investment and an additional 6,000 to 7,000 jobs for the residents of North Sulawesi.²⁶⁰ Cooperation between The Philippines and Indonesia in the Sulawesi Sea has also been crucial to the success of the fishing industry in both economies. Almost half of the tuna processed in General Santos comes from the Indonesian jurisdiction of the Sulawesi Sea.²⁶¹

Despite the conclusion of the bilateral fishing access agreement between The Philippines and Indonesia, the two economies continuously implement the general memorandum of understanding on marine and fisheries cooperation. Under this framework, a technical committee was formed to draft guidelines to address IUU fishing in the shared waters of Indonesia and The Philippines. In May 2007, Indonesia and The Philippines expressed strong commitments to maintain good relations and cooperation between the two economies and agreed to continue to strengthen cooperation in fisheries including marine capture fisheries.²⁶² The two economies also agreed to resume meetings to discuss how to

²⁵⁴ *Ibid.*

²⁵⁵ *Arrangement between the Department of Agriculture of the Republic of the Philippines and the Ministry of Marine Affairs and Fisheries of the Republic of Indonesia on the Utilization of Part of the Total Allowable Catch in the Indonesian Exclusive Economic Zone, hereinafter referred to as RP-RI Fisheries Arrangement*, 10 January 2002.

²⁵⁶ See Republic of Indonesia, Minister of Agriculture, Number 957/KPTS/IK.120/96 Regarding Utilization of Foreign Registered Fishing Boat by Way of Chartering for the Purpose of Catching Fish in RI EEZ, 27 December 1996.

²⁵⁷ *RP-RI Fisheries Arrangement*, Appendix 3.

²⁵⁸ Noel Barut and Elaine Garvilles, 'Fishery Report-Philippines,' *1st Meeting of the Scientific Committee of the Western and Central Pacific Fisheries Commission*, Noumea, New Caledonia, 8-19 August 2005, WCPFC-SC1 FR WP-8, 2005, page 5.

²⁵⁹ *Ibid.*

²⁶⁰ Katherine Z. Turnos, GenSan traders eye opportunities in Indonesia, *BusinessWorld*, 26 April 2004, page 1; RP-Indon Traders Forge Joint Tuna Venture, *Antara*, 7 April 2004, pag 1.

²⁶¹ Roberto Tiglaio, "A Good Catch," *Far Eastern Economic Review*, 10 February 1994, page 44.

²⁶² MMAF, *Indonesia-Philippines Strengthen the Bilateral Cooperation in Marine and Fisheries Sector*, 03/05/07 Press Release, No.30/PDSI/V/2007.

further promote fisheries cooperation with participation of the private sectors and explore the possibility of continuing the access of Filipino fishing vessels in Indonesian waters.

Permanent Joint Working Group on Maritime and Ocean Concerns

The Philippines and Indonesia established a Permanent Joint Working Group on Maritime and Ocean Concerns in 2002 under the Republic of the Philippines-Republic of Indonesia Joint Commission for Bilateral Cooperation to discuss a range of maritime and ocean concerns pending maritime boundary agreement between the two economies.²⁶³ The Permanent Working Group is composed of Filipino and Indonesian experts and technical people knowledgeable in maritime and ocean matters. One of the initiatives under this forum is the establishment of an effective region-wide MCS system.²⁶⁴ The regional MCS system is envisioned to have multi-purpose application such as monitoring of fisheries resources, combating piracy and maritime terrorism, search and rescue operations, and marine environment protection.²⁶⁵ The work of the bilateral meetings on marine fisheries cooperation is integrated with the work of the permanent working group.

ACIAR-funded projects on IUU Fishing

Two projects related to IUU fishing, involving The Philippines and Indonesia with the University of Wollongong, Australia, have been funded by the Australian Centre for International Agricultural Research (ACIAR). The first ACIAR project aimed at identifying researchable options which would assist in the development of policy and management frameworks to combat IUU fishing in Indonesian and Philippine waters.²⁶⁶ This project raised awareness of IUU fishing issues in both economies and provided facilitated the formation of national working groups to discuss options for research on IUU fishing.

The second ACIAR project provided an audit of IUU fishing in Indonesia and The Philippines, assisted in the development of national plans of action to combat IUU fishing, and proposed regional measures to address the problem in shared waters of the two economies.²⁶⁷ The research identified gaps in the national fisheries policy and regulatory frameworks against the requirements of the International Plan of Action to Prevent, Deter, and Eliminate IUU Fishing. It also generated national awareness on IUU fishing in the two economies, particularly on the negative impacts of IUU fishing and the need to adopt a holistic approach to address the problem.

The second ACIAR project resulted in The Philippines and Indonesia identifying the Sulawesi Sea as an area where cooperation is required to address IUU fishing. It was agreed that the common IUU fishing issues in the Sulawesi Sea include fishing without a

²⁶³ Philippines, Department of Foreign Affairs, Philippines and Indonesia Hold First Permanent Joint Working Group Meeting On Maritime and Ocean Concerns, 04 December 2003, www.dfa.gov.ph. Accessed on 08 March 2008.

²⁶⁴ *Ibid.*

²⁶⁵ *Ibid.*

²⁶⁶ Martin Tsamenyi, Ron West, and Sali Bache, *The Identification of Researchable Options for the development of policy and management frameworks to combat illegal, unreported and unregulated (IUU) fishing activities in Indonesian and Philippine Waters*, Final Report on ACIAR Project No FIS/2000/163, March 2002.

²⁶⁷ ACIAR, *Management and Policy Frameworks for Illegal, Unreported and Unregulated (IUU) Fishing in Indonesian and Philippine waters*, Project Document FIS/2002/019, page 5.

valid license, fishing beyond allowed zone, fishing in overlapping maritime zones, unreported catch, trade in substances used in destructive fishing practices such as cyanide, and illegal fishing by foreign nationals and vessels.²⁶⁸

The bilateral workshop conducted by Indonesia and The Philippines to combat IUU fishing in the Sulawesi Sea adopted a list of specific recommended actions for consideration by the technical committee responsible for formulating guidelines on IUU fishing within the framework of the MOU on Marine and Fisheries Cooperation.²⁶⁹ Recommendations were made on two areas: first on addressing fisheries management issues in the Sulawesi Sea, and the second on combating IUU fishing.

To address general fisheries management issues in the Sulawesi Sea, the following actions were proposed to be undertaken by The Philippines and Indonesia:

- Create an ad hoc committee on data sharing within the Republic of the Philippines-Republic of Indonesia Working Group on Fisheries;
- Develop guidelines for data sharing, including the type of data to be shared and confidentiality requirements;
- Develop compatible systems of data collection;
- Improve the reliability of fisheries data;
- Conduct regular joint stock assessment in the area;
- Collect information related to the management of fishing effort and fish aggregating devices;
- Develop awareness on the status and biology of stocks in the Sulawesi Sea;
- Undertake an assessment of fishing capacity in the area;
- Conduct risk assessment on targeted resources and feasibility study on certification for certain types of fisheries; and
- Explore the possibility of using Part IX of the UN Convention on the Law of the Sea on semi-enclosed seas as basis for developing management objectives for the Sulawesi Sea.²⁷⁰

In the case of combating IUU fishing in the Sulawesi Sea, the following bilateral actions were proposed:

- Formulate a regional plan of action to combat IUU fishing;
- Exchange and disseminate relevant laws and regulations (e.g. vessel markings, permitted fishing zones);
- Conduct coordinated surveillance and law enforcement;
- Exchange data and information on vessels and catch landings;
- Implement vessel marking regulations;
- Speed up the process of maritime boundary delimitation;
- Develop common procedures for catch verification;
- Enforce fishing logbook requirements;

²⁶⁸ *Proceedings of the Philippines-Indonesia Bilateral Workshop to Combat IUU Fishing in the Sulawesi Sea*, Hyatt Hotel, Manila, Philippines, 13-14 June 2006, Wollongong: Centre for Maritime Policy, 2006, page 14.

²⁶⁹ *Proceedings of the Philippines-Indonesia Bilateral Workshop to Combat IUU Fishing in the Sulawesi Sea*, page 14.

²⁷⁰ *Ibid.*

- Investigate the full nature of the problem on trade in substances used in destructive fishing practices such as cyanide in the Sulawesi Sea and seek cooperation of all relevant agencies to address the problem;
- Formulate a common position on the trade in substances used in destructive fishing practices before the international community;
- Identify States flagging foreign illegal fishing vessels and jointly approaching the flag States to seek their cooperation in preventing IUU fishing; and
- Formulate a common position against IUU fishing at the international fora.²⁷¹

Draft RP-RI Memorandum of Agreement on IUU Fishing

As part of the fisheries cooperation between The Philippines and Indonesia, the two States have drafted memoranda of agreement on four areas: marine capture fisheries, aquaculture, post-harvest production, and IUU fishing. The purpose of the draft memorandum of agreement for IUU fishing was to establish cooperative measures to address common IUU fishing problems in the two economies.²⁷² The draft MOA adopted the definition of IUU fishing under the IPOA-IUU and contains provisions on the responsibilities of each State to control the activities of their respective nationals, measures to cooperate in implementing MCS measures, port State measures and market-related measures. The draft MOA also provides for the exchange of information on IUU fishing vessels and activities in Indonesian and Philippine waters. If the MOA is signed it will become the first bilateral agreement on IUU fishing in the Asia Pacific region.

6.3 Regional Level

There are a number of regional initiatives involving Indonesia, Malaysia, and The Philippines that address IUU fishing in the Sulawesi Sea. These include the Sulu-Sulawesi Marine Ecoregion Programme of the World Wide Fund for Nature (WWF), the Regional Plan of Action to Promote Responsible Fishing, including Combating IUU Fishing, joint patrol exercises, and cooperation among local businesses around the area.

The Sulu-Sulawesi Marine Ecoregion Programme

The Sulu-Sulawesi Marine Ecoregion (SSME) Programme was launched by WWF in 1999 with two-pronged goals of biodiversity conservation and sustainable development. During the ecoregion planning process, a Biodiversity Vision for the SSME was formulated which reflected conservation goals for 50 years. The Biodiversity Vision identified 58 priority conservation areas, which, when implemented, will ensure the maintenance of biodiversity and productivity of the marine ecoregion. Following this Biodiversity Vision, a Memorandum of Understanding was signed among the governments of Indonesia, Malaysia, and The Philippines on the adoption of the Conservation Plan for the SSME. In order to implement this MOU, an Ecoregion Plan was designed for the SSME. The SSME is a comprehensive blueprint for the conservation action which sets out the 10 to 15 year goals, based on the Biodiversity Vision, and identifies the actions needed to achieve them. As part of the national implementation of

²⁷¹ *Ibid.*

²⁷² *Draft Memorandum of Agreement Between the Republic of the Philippines and the Republic of Indonesia on Illegal, Unreported and Unregulated (IUU) Fishing, 2003.*

the Ecoregion Plan, Indonesia, Malaysia, and The Philippines adopted their respective SSME national plans.

The SSME Conservation Plan promotes guardianship of resources in the immediate environment through stakeholder participation in the planning and monitoring of resources.²⁷³ One of the six factors identified in the SSME Conservation Plan that threatens SSME's biodiversity is the overexploitation of fisheries resources and use of illegal fishing practices.²⁷⁴ The SSME Conservation Plan also identified the causes of biodiversity loss such as weakness in management capability, lack of reliable information needed for decision-making, weak law enforcement, poverty, and market demand.²⁷⁵

A fisheries management programme was established to implement the Ecoregion Conservation Plan. The objectives of this program are to:

- Improve the status and management of fishery resources in critical sites and marine protected areas;
- Enable stakeholders to build their capacity for fisheries management;
- Stop illegal, unreported, unregulated, and destructive fishing;
- Develop and operate a mechanism to address transboundary fisheries issues in the SSME;
- Develop financing mechanisms for sustainable conservation;
- Increase public awareness; and
- Generate and use information for better management of fisheries and their habitats.²⁷⁶

The SSME Fisheries Management Program adheres to principles such as stakeholder-based formulation and planning, adaptive management strategy, and precautionary approach to fisheries.²⁷⁷ The tasks under the SSME Fisheries Management Program include policy review and formulation, advocacy, information/education campaigns, and monitoring and evaluation.²⁷⁸ The development and implementation of management initiatives are at the local sites and coordinated at the ecoregion level.²⁷⁹

A tri-national working group on fisheries was established in order to achieve the objectives of the SSME Fisheries Management Program. The main function of the working group is to serve as a steering body to act on fisheries issues of transboundary nature.²⁸⁰ In order to avoid the creation of a new regional body, the SSME Program decided to use the Brunei-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA) as a platform for the tri-national group.²⁸¹

²⁷³ WWF, Conservation Plan for Sulu-Sulawesi Marine Ecoregion: Abridged, Quezon City: WWF Sulu-Sulawesi Marine Ecoregion Program, 2003, page 19.

²⁷⁴ *Ibid.*, page 21.

²⁷⁵ *Ibid.*

²⁷⁶ WWF, SSME Fisheries Management Program: Conserving biodiversity through sustainable fisheries management. www.wwf.org. Accessed on 08 January 2008.

²⁷⁷ Jose A. Ingles and James Ballesteros, "Using the Ecoregion Approach to Manage Fisheries: A Case Study for the Sulu-Sulawesi Marine Ecoregion (SSME) Fisheries Program," *International Tropical Marine Ecosystems Management Symposium 2*, Manila, Philippines 2003, page 7.

²⁷⁸ WWF Website, SSME Fisheries Management Program.

²⁷⁹ *Ibid.*

²⁸⁰ Ingles and Ballesteros, Using the Ecoregion Approach to Manage Fisheries, page 7.

²⁸¹ *Ibid.*

National committees in the three littoral States were also formed under the SSME Ecoregion Plan. The agencies composing the national committee on Indonesia are the Ministries of Environment, Ministry of Marine Affairs and Fisheries, Kehati Foundation, Ministry of Foreign Affairs, Bunaken National Park, The Nature Conservancy, the Development Planning Agencies of the Provinces of North Sulawesi and East Kalimantan, and WWF Indonesia.²⁸²

In Malaysia, the national committee is composed of the Department of Fisheries Sabah, Sabah Parks, Sabah Wildlife Department, Ministry of Tourism, Culture and the Environment, Universiti Malaysia Sabah, Department of Town and Regional Planning Sabah, Federal Department of Fisheries, Federal Ministry of Science, Technology, and the Environment, and WWF Malaysia.²⁸³

The members of the Philippine national committee are the Secretaries of the three departments (Environment and Natural Resources, Agriculture and Interior and Local Government), the Governor of the Autonomous Region of Muslim Mindanao (ARM)), and the Director of the Philippine Council for Aquatic and Marine Research and Development (PCAMRD), Presidential Assistant for Mindanao, and WWF Philippines.

The Brunei-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA) Working Group on Fisheries Cooperation

The SSME Fisheries Program is recognised as a priority one under BIMP-EAGA.²⁸⁴ The Working Group on Fisheries Cooperation is one of the working groups formed to oversee regional economic cooperation among the identified sectors of the BIMP-EAGA. The thrust of the WG is the fostering of closer economic ties between and among the fisheries private sectors of the member regions of BIMP-EAGA.²⁸⁵ The use of BIMP-EAGA to implement the SSME Fisheries Program is an advantage because of links the regional body with the private sector.²⁸⁶

Regional Plan of Action to Promote Responsible Fishing, including Combating IUU Fishing in the Region

The Regional Plan of Action (RPOA) to Promote Responsible Fishing Practices including Combating illegal, unreported, and unregulated Fishing in the Region was approved by the Ministers of Republic of Indonesia, Australia, Brunei Darussalam, Cambodia, Malaysia, Papua New Guinea, The Philippines, Singapore, Thailand, Timor-Leste and Viet Nam on 5 May 2007 at Bali, following three meetings of Senior Officials in Jakarta, Indonesia on 29-30 November 2006, in Canberra, Australia on 22-23 March 2007, and in Bali, Indonesia on 2-3 May 2007. The objective of the RPOA is to enhance and strengthen the overall level of fisheries management in the region, in order to sustain fisheries resources and the marine environment, and to optimise the benefit of adopting responsible fishing practices. The actions adopted under the RPOA cover conservation of fisheries resources and their environment, managing fishing capacity, and combating IUU

²⁸² WWF, Conservation Plan for Sulu-Sulawesi Marine Ecoregion: Abridged, page 31.

²⁸³ *Ibid.*

²⁸⁴ The BIMP-EAGA was established in 1994 to increase trade, tourism and investments in the growth area.

²⁸⁵ Philippines, Office of the President, Mindanao Economic Development Council, Working Groups, Fisheries Cooperation, www.medco.gov.ph. Accessed on 04 March 2008.

²⁸⁶ Ingles and Ballesteros, Using the Ecoregion Approach to Manage Fisheries, page 7.

fishing in three areas: the South China Sea, the Arafura-Timor Seas, and the Sulu-Sulawesi Seas.

The RPOA is a voluntary and non-legally binding instrument that draws on core principles from already established international fisheries instruments for promoting responsible fishing practices, including the United Nations Convention on the Law of the Sea, UN Fish Stocks Agreement, Food and Agriculture Organisation (FAO) Compliance Agreement, and the FAO Code of Conduct for Responsible Fisheries. The RPOA is consistent with existing treaties, agreements and arrangements and all other plans and programmes relevant to the sustainable management of the region's living marine resources. The RPOA also draws upon the FAO International Plan of Actions (IPOAs), namely the IPOA for the Conservation and Management of Sharks, the IPOA for the Management of Fishing Capacity, the IPOA to Prevent, Deter and Eliminate IUU Fishing, and the IPOA for Reducing the Incidental Catch of Seabirds in Longline Fisheries, and the FAO Model Scheme on Port State Measures to Combat IUU Fishing.

Some of the actions under the RPOA are to:

- Collaborate to compile an overview of artisanal and industrial fishing, the current status of fish stocks, trade flows and markets;
- Work toward ratification, and/or acceptance and full implementation, of LOSC and the UN Fish Stocks Agreement;
- Work towards ratification and/or acceptance of regional fisheries management instruments;
- Work toward acceptance and full implementation of relevant regional and multilateral arrangements;
- Collaborate to improve data collection systems; share information about vessels, fishing effort, catch levels, fish landings and sales of fish and fish products; develop a regional approach to identify, compile and exchange information on any vessel connected to fisheries activities;
- Assessing the status of their fishery resources and fishing fleet capacity;
- Introduce management measures to prevent over-fishing and plan to reduce over-capacity;
- Cooperate to manage straddling stocks;
- Assist traditional, artisanal and small-scale fisheries;
- Implement flag State responsibilities;
- Adopt port State measures based on the FAO Model Scheme on Port State Measures to Combat IUU Fishing;
- Standardise catch and landing documentation and implement trade certification schemes for high value product;
- Check trade discrepancies regarding export of fish and fish product and take action or report to the flag State;
- Develop core competencies for fisheries research, management and compliance, including MCS systems;
- Seek technical and financial assistance from relevant international development agencies and donors;
- Strengthening MCS systems;
- Enter into appropriate sub-regional MCS arrangements to promote the elimination of IUU fishing within the region; and
- Monitor and control the transshipment of fisheries resources.

Under the RPOA, it was agreed to establish a Coordination Committee composed of officials from participating States. Regular meetings are held to discuss and monitor the implementation of the RPOA.

Other Forms of Cooperation in the Sulawesi Sea

Other forms of cooperation have been forged by various stakeholders in the Sulawesi Sea. As an example, the business sectors of South Cotabato, Mindanao and Manado, North Sulawesi have agreed to set up mechanisms to support common economic and development goals.²⁸⁷ Fishery linkages have been established in the two cities which include establishment of canneries in Bitung, North Sulawesi and shipment of excess tuna to processing plants in General Santos from Indonesia.²⁸⁸

Indonesia, Malaysia, and The Philippines, along with Brunei Darussalam, have agreed to hold regular joint patrols in border areas around the Sulawesi Sea, comprising all of Brunei; Malaysia's Sabah and Sarawak states and the Malaysian federal territory of Labuan; Indonesia's Sulawesi, Maluku, Irian Jaya and Kalimantan; and Mindanao and Palawan in The Philippines.²⁸⁹ The purpose of the joint patrols is to promote security in the area against terrorism and other transnational crimes and in so doing, protect investments in the area.²⁹⁰ This form of cooperation is not fisheries specific, but it can be utilised to extend to joint fisheries enforcement in the Sulawesi Sea.

The littoral State of the Sulawesi Sea are also part of the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security which is being established to bring together six governments and NGOs in a multilateral partnership to conserve marine life in the region. The Coral Triangle covers all or parts of the EEZs of Indonesia (Central and Eastern), East Timor, the Philippines, Malaysia (part of Borneo), Papua New Guinea and the Solomon Islands.²⁹¹ This area includes the Sulawesi Sea. Defined by areas containing 500 or more species of coral, the Coral Triangle, sometimes referred to as the Amazon of the Seas, is the epicenter of marine life abundance and diversity on the planet. It has more than 600 coral species in some areas (more than 75 per cent of all known coral species), 53 per cent of the world's coral reefs, 3,000 fish species, and the greatest extent of mangrove forests of any region in the world.²⁹²

The Coral Triangle Initiative intends to ensure that proper environmental, political and socio-economic management are established towards building a sustainable live reef food fish trade, promoting sustainable tuna fisheries, creating an international marine protected area network for turtles, and reducing the impacts of climate change and tourism. This initiative was endorsed in the Sydney APEC Leaders' Declaration on Climate Change,

²⁸⁷ Cotabato businesses hoping for better ties with Sulawesi, *BusinessWorld*, 23 April 2001, page 1.

²⁸⁸ *Ibid.*

²⁸⁹ "Philippines, Malaysia, Indonesia, Brunei Agree to Joint Patrols in Border Areas," *The Jakarta Post*, 13 December 2005, www.thejakartapost.com. Accessed on 08 March 2008.

²⁹⁰ *Ibid.*

²⁹¹ WWF, *The Coral Triangle: The Centre of Marine Biodiversity*, www.panda.org. Accessed on 29 May 2008.

²⁹² *Ibid.*

Energy Security and Clean Development and has also gained financial support by a number of countries and international organisations.²⁹³

7. Conclusion

This case study analysed the nature and extent of IUU fishing in the Sulawesi Sea, the factors contributing to the problem, and the economic, social, and environmental impacts of such activities. Although the exact economic cost of IUU fishing cannot be determined due to lack of more accurate information, it was evident from various estimates that the littoral States of the Sulawesi Sea are suffering from substantial financial loss due to IUU fishing. Such economic loss has yet to include the social and environmental costs of loss of future access to the fisheries resources brought about by continuous destruction of fisheries habitats in the area. There are also undocumented cases of IUU fishing in the Sulawesi Sea.

Although the lack of agreed maritime boundary has been identified as one of the factors contributing to IUU fishing, the good neighbourly relations between Indonesia, Malaysia, and The Philippines have led to the collective implementation of practical measures to address fisheries, biodiversity, and environmental management problems in the area, such as in the Sulu Sulawesi Marine Ecoregion Programme. Therefore the key to addressing IUU fishing in the shared waters of the Sulawesi Sea is to strengthen the existing cooperation among the littoral States. There are national, bilateral, and regional measures currently in place to combat IUU fishing in the area. However, cooperation on fisheries matters is much stronger at the bilateral level, particularly between The Philippines and Indonesia. There is a need for these two APEC economies to institute cooperative mechanisms that will enable Malaysia to participate in the management and enforcement activities around the Sulawesi Sea. Any measure adopted should also not only address specific IUU fishing problems but also take into account the unique nature of fisheries in the area. An increased level of cooperation among the three APEC economies will significantly contribute to the sustainable fisheries management in the Sulawesi Sea.

Aside from sparse information on the economic costs of IUU fishing, there are other areas where future research may be necessary in order to provide a more accurate information on the full extent of the problem in the Sulawesi Sea. An example of this research is on the types of fisheries and IUU fishing in the Malaysian part of the Sulawesi Sea. Existing studies in Southeast Asia have also focused on the Sulu-Sulawesi Sea as a large marine ecosystem; hence, obtaining information on Sulawesi Sea alone has been challenging. Substantial time and effort will be needed in order to acquire first-hand information the IUU fishing-related issues confronted by numerous provinces and cities around the Sulawesi Sea.

8. Recommendations

There are a number of measures that may be undertaken in order to address IUU fishing in the Sulawesi Sea more effectively. At the national level, such measures include strengthening existing mechanisms such as fishing vessel registration and licensing,

²⁹³ See Global Environment Facility Website, *GEF Commits \$63 Million to Help Preserve Coral Triangle*, www.gefweb.org. Accessed on 29 May 2008; Embassy of the United States in Jakarta Website, *UN Protects Biodiversity in Coral Triangle with \$4.35 Million in Funding*, 11 December 2007, www.usembassyjakarta.org. Accessed on 29 May 2008.

enhancing enforcement capabilities, and applying more stringent sanctions against IUU fishers, combined with more effective prosecution of fisheries offenders. The effective implementation of these measures may assist the Indonesia, Malaysia, and the Philippines in improving their MCS systems for fisheries. Strengthening cooperation among national agencies involved in fisheries policy-making, data collection, enforcement, and other fisheries-related functions is also necessary in order to address IUU fishing within national jurisdiction.

At the regional level, the most crucial element in dealing with IUU fishing in the Sulawesi Sea is effective regional cooperation among the littoral States. It was noted earlier in this Report that under the ACIAR funded IUU fishing project, Indonesia and The Philippines identified a number of joint actions to be implemented, including coordinated surveillance and law enforcement, documentation, exchange of data and information on vessels and catch landings, vessel marking and fishing logbook systems, and common procedures for catch documentation. It is important that The Philippines and Indonesia develop appropriate policies and implementation plans to put into effect the outcomes of the ACIAR-funded IUU fishing project. Indonesia and The Philippines would also need to engage the participation and cooperation of Malaysia in order to address IUU fishing issues in the Sulawesi Sea in a holistic manner. These APEC Economies would further need to look into the adoption of market and port State measures to ensure that only legally-caught fish are landed and traded. These measures would need to be applied in a fair, transparent, and non-discriminatory manner.

Another proposal to manage the fisheries in the Sulawesi Sea more effectively is through an ecoregional approach to fisheries management. An ecoregion approach to fisheries management provides an avenue to address issues of transboundary nature, such as IUU fishing and trade of noxious substances.²⁹⁴ It also addresses the imbalance between human pressures on biological resources and the capacity of ecological systems to maintain their viability or ensure recovery.²⁹⁵

The small to medium scale nature of most of the fisheries in the Sulawesi Sea calls for the use and enhancement of community-based management and enforcement. This includes empowering local government units, non-government organisations, and coastal communities in the enforcement of fisheries laws,²⁹⁶ particularly in areas of coral reef conservation and sustainable fisheries production.²⁹⁷ Some of the more specific measures that may lead to a successful community-based fisheries management and enforcement are to enhance stewardship in the management of the fisheries resources and achieving an ecosystem approach to fisheries.²⁹⁸ Co-management interventions may also require training of volunteers and designated community enforcement personnel in order to

²⁹⁴ *Ibid.*

²⁹⁵ Evangeline F.B. Micalat, Jose A. Ingles, and Jose Noel B. Dumaup, "Planning across boundaries for the conservation of the Sulu-Sulawesi Marine Ecoregion," *Ocean and Coastal Management* Vol 49, 2006, page 606.

²⁹⁶ Capt Tirso Danga, "Community Based Coastal Resource Management: The Philippine Navy Experience," Presentation at the Bilateral Indonesian-Philippines IUU Fishing Workshop, Singapore, 21-23 May 2001.

²⁹⁷ Brian R Crawford, Audrie Siahainenia, Christovel Rotinsulu, and Asep Sukmara, "Compliance and Enforcement of Community-based Coastal Resource Management Regulations in North Sulawesi, Indonesia," *Coastal Management* 39, 2004, page 39.

²⁹⁸ Porfirio Alino, "Philippine Fisheries: the Significance of Undocumented and Illegal Fishing Activities," Presentation at the Bilateral Indonesian-Philippines IUU Fishing Workshop, Singapore, 21-23 May 2001.

ensure that actions taken against illegal fishers are undertaken in accordance with the law and that no abuse of power occurs.

Empowering local fishers is also necessary to promote sustainable fisheries, including making marginal fishers competitive in the fishing industry²⁹⁹ and developing a social marketing strategy that will convince municipal fishers to change from their current destructive fishing practices to more sustainable forms of fishing.³⁰⁰ These measures have been proven to be effective as seen in the documented case of Indonesian fishers whose dependence on middlemen for their livelihood forced them to increase their catch by using cyanide.³⁰¹ In order to assist small fishers to refrain from using poisonous substances in fishing, the International Marinelife Alliance conducted a training programme for these fishers to show them new techniques in fishing, such as using barrier nets.³⁰² Today, Indonesian fishers in the Sulawesi Sea use barrier nets in fishing and have moved away from using poisons in their fishing activities. Providing alternative livelihood for fishers is also an element that will assist in relieving the increasing pressure on fisheries resources in the Sulawesi Sea. Aquaculture is seen as a potential source of alternative livelihood for fishers employing destructive fishing practices.³⁰³ There is also a need to institute reforms in local governance to address various forms of corruption and resolve conflicts between municipal and commercial fishers.³⁰⁴

²⁹⁹ Capt Danga, *Community Based Coastal Resource Management: The Philippine Navy Experience*.

³⁰⁰ *Ibid.*

³⁰¹ "Cyanide fishing and reform in Sulawesi, Indonesia," *Environment*, October 1998, 40:8, page 33.

³⁰² *Ibid.*

³⁰³ See Matthew R P Briggs, "Destructive Fishing Practices in South Sulawesi Island, East Indonesia and the Role of Aquaculture as a Potential Alternative Livelihood: Improving Coastal Livelihoods through Sustainable Aquaculture Practices," A Report to the Collaborative APEC Grouper Research and Development Network (FWG/01/2001), www.apec.org. Accessed on 01 March 2008.

³⁰⁴ Capt Danga, *Community Based Coastal Resource Management: The Philippine Navy Experience*.

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