

REVIEW OF CURRENT INFORMATION ON INLAND CAPTURE FISHERIES IN ASEAN COUNTRIES

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1.0 Introduction

The purpose of this report is to make a review on the current information of inland capture fisheries in ASEAN countries. Only five countries have submitted their country reports on inland capture fisheries and the information below consists of a compilation of inland capture fisheries for Cambodia, Malaysia, Myanmar, Philippines and Viet Nam.

2.0 General Description of Inland Fisheries

Table 1: General Description of Inland Fisheries in Four ASEAN Countries (Cambodia, Malaysia, Phillipines and Viet Nam).

No.	Country	Topography
1.	Cambodia	<ul style="list-style-type: none"> • Main fishing grounds: Central floodplains of Cambodia, comprising wide range of different habitat types (marshes/swamps, flooded grasslands, flooded forest, flooded shrub land and rice fields). • Flood regime influences the extent of floodplain area, covering an area of 23,400 km² during rainy season and only 4,111 km² during dry season.
2.	Malaysia:	Inland Capture Fisheries refers to landing of fish from public water bodies i.e. rivers, lakes, ex-mining pools and reservoirs. The river systems consist of 1,800 rivers with a total length of 38,000 km.
	Peninsular Malaysia	<ul style="list-style-type: none"> • 100 river systems, the longest is Pahang River (475 km) • 46 reservoirs in Peninsular Malaysia, ranging in size from 10 ha (Mahang Dam) to 36,900 ha (Kenyir Dam)
	Sabah	<ul style="list-style-type: none"> • Inland capture fisheries is mainly from rivers and very little from lakes, reservoirs and flood plains • 27 river systems, the biggest and longest river is Kinabatangan River (>560 km) • 3 reservoirs

		<p>and 116,290 km², respectively. The systems contribute significantly to inland capture fisheries, followed by lakes (mainly oxbow lakes), flood plains and man-made reservoirs.</p> <ul style="list-style-type: none"> • 2 man-made reservoirs: Batang Ai HEP reservoir (about 8,700 ha) in the Sri Aman Division and the upcoming Bakun HEP dam (about 695 km²) in the Kapit Division • Major rivers systems: Rajang, Baram, Lupar, Kemena, Saribas, Limbang, Sadong and Oya. Baram River is the only river system that has the greatest number of oxbow lakes.
3.	Myanmar	<ul style="list-style-type: none"> • Major river systems: Ayeyerwady (2,150 km), Chindwin (a tributary of the main Ayeyerwady: 844 km), Sittaung (563 km) and huge Thalwin (2,400 km, started from China). The river systems and tributaries cover an area of 737,800 km² and contribute eight major basins • Two major lakes: Indawgyi Lake in the northern part of Myanmar (18 miles long and 6 miles wide) and Inle Lake (11 miles long and 4 miles wide) • About 220 dams and reservoirs with 4.3 millions acres foot of water bodies • Potential total surface water is approximately 1,081,885 cubic km/ annum and 1 million acres of swampland • One fifth of the country has turned into floodplain during four to five months of monsoon and post monsoon periods.
4.	Philippines	<ul style="list-style-type: none"> • Inland fisheries consist mainly of lakes, rivers, reservoirs, swamps, marshes and small water impoundments • It occupies an area of approximately 330,000 hectares • The origin of most lakes is closely related to volcanic and seismic activity, or a combination of both.
5.	Viet Nam	<ul style="list-style-type: none"> • Inland capture fisheries in South Viet Nam consists of large delta of the Mekong River, with an area of approximately 39.000 km² and covers 12 provinces • The Mekong river system made up of two branches, Mekong River and Bassac river, with the length of 230 km each • Flood from Mekong River caused immense flood plains along the mainstream with the total area of about 1,632,000 hectares • In the Northern part of Viet Nam, especially in Red River and Central part of the country, the river systems has disappeared due to human activities and agricultural developments.

3.0 Inland Fisheries Resources

3.1 Status and Contribution of Inland Capture Fisheries to Economy

Table 2: Status and Contribution of Inland Capture Fisheries to Country's Economy.

No.	Country	Status	Contribution
1.	Cambodia	<ul style="list-style-type: none"> • Inland fisheries cover about one third of the country area and the people live close to Mekong River. • About 85% are rural farmers and most of them are full or part time fishers. Fishing is an all-year round activity whereas farming activities are mainly from February to August. • At least 2.3 million people are engaged in fisheries-related activities. 	<ul style="list-style-type: none"> • Inland fisheries contributed 90% of the total fish production. • Annual income from inland fish catch is around USD 200 millions with average production of about 430,000 tons. • Contributes 16% to the national GDP. • Export fish is estimated at 50,000 tons year⁻¹
2.	Malaysia:		
	Peninsular Malaysia	<ul style="list-style-type: none"> • The production from inland capture fisheries shows an increase since 1999 with landing at 3,446 tones in 2001. This contributes only 0.24% to the total fish production (1,408,308 tones) • No significant variation in catch throughout the year. 	<ul style="list-style-type: none"> • Fish production is insignificant and accounts for less than 1% of the country's total fish production.
	Sabah	<ul style="list-style-type: none"> • Landings from inland capture fisheries have decreased from 1,700 tones in 1994 to only 74.45 tones in 2002. 	<ul style="list-style-type: none"> • Fish production is insignificant and accounts for less than 1% of the country's total fish production • It plays an important role in the socio-economic conditions of the rural people through generation of employment, income and a higher source of protein.
	Sarawak	<ul style="list-style-type: none"> • In 1999, 3.17% of the population has engaged in inland capture fishery. 	<ul style="list-style-type: none"> • Inland fish resources provide cheap sources of food and protein to the inland

		<ul style="list-style-type: none"> • In Batang Ai HEP reservoir, the catch was highest in 1985 (the first year of impoundment) with an average of 270 kg of fish per day. In the last three years of impoundment, it was between 30 and 300 kg of fish per day. 	<p>population but its contribution to total fish production and export value is very insignificant.</p> <ul style="list-style-type: none"> • Local market of inland fishes is estimated to be more than RM100, 000 per year.
3.	Myanmar	<ul style="list-style-type: none"> • Production from freshwater fisheries showed an increase of more than 3.5 times from 143 tones in 1992 to 530 tones in 2002. 	<ul style="list-style-type: none"> • Contribution to total fish production has increased from 19.6% in 1992 to 33.8% in 2002. • There is an increasing trend of export of freshwater fish such as rohu, catfish, sheath fishes and hilsa to India, Bangladesh and Middle East, generating income for the country.
4.	Philippines	<ul style="list-style-type: none"> • Inland fisheries production is in decreasing trend. • More than 60% of the landings consist of molluscs, followed by finfish species (35%) and crustaceans (5%). • More than 90% of the molluscs consist of freshwater snails (suso). 	<ul style="list-style-type: none"> • Inland municipal waters has contributed minimal amount to the national fish production, with contribution decreased by 8.8% (229,673 tones) in 1992 to 4.0% (131,644 tones) in 2002. • In term of value, it remains stable from 1994 to 2001.

5.	Viet Nam	<ul style="list-style-type: none"> • Production of inland capture fisheries is less than 300,000 tones year⁻¹ as compared to 1,700,000 tones year⁻¹ of marine capture fisheries. • In An Giang and Tra Vinh provinces, the production is about 194,000 tones year⁻¹ and 70,000 tones year⁻¹, respectively. • About 58-66% of farmer in the Mekong Delta are involved in fisheries activities, with capture production of 136 - 675 kg household⁻¹ year⁻¹. • Only 4 - 7% of the fishers are full-timer and their captured production may reach to 5 tones household⁻¹ year⁻¹. • The yields from reservoir fisheries range from 30 - 40 kg ha⁻¹ year⁻¹. 	<ul style="list-style-type: none"> • No official report of the contribution of inland fisheries to the economy of the country. • The contribution of inland fisheries is not high but it is considered the most accessible and inexpensive source of protein for rural communities in the Mekong Delta of Viet Nam.
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3.2 Species Compositions

Table 3: Species Compositions of Inland Capture Fisheries in Four ASEAN Countries (Cambodia, Malaysia, Phillippines and Viet Nam).

No.	Country	Descriptions
1.	Cambodia	<ul style="list-style-type: none"> • 500 fish species have been identified • 100 fish species commonly caught every year in the Tonle Sap floodplains • Fish composition and catch level change seasonally with flood regime. The water of the Mekong River floods from May to October and brings along larvae and juvenile from spawning grounds in upstream to the down stream floodplain of the Tonle Sap Great Lake until October. • Fishing season started when the water get the reversed flow from the Tonle Sap Lake and floodplain to the main Mekong channel and downstream.

2.	Malaysia:	
	Peninsular Malaysia	<ul style="list-style-type: none"> • Common species caught are river catfish, cyprinids, snakehead, carps, freshwater prawns, marble goby, eels, Wallago spp. and tilapia.
	Sabah	<ul style="list-style-type: none"> • 168 species of freshwater fish species have been identified • Major commercially important freshwater species caught during rainy season are giant freshwater prawn (<i>Macrobrachium rosenbergii</i>), river catfish (<i>Pangasius</i> spp.), <i>Wallago maculatus</i>, <i>Mystus</i> sp., and during the dry season are <i>Puntius</i> spp., <i>Kryptopterus parvanalis</i>, catfish (<i>Clarias</i> spp.), and <i>Tor duoronensis</i>. • Other commercially important species include <i>Kryptopterus</i> sp., <i>Leiocassis</i> spp., marble gobby (<i>Oxyeleotris marmorata</i>), Snakehead (<i>Ophicephalus</i> spp.) and Tilapia (<i>Tilapia</i> spp.).
	Sarawak	<ul style="list-style-type: none"> • Fish fauna of Borneo is made up of 99 families, 394 species and nearly 40% are endemic. • A total of 249 species of freshwater fishes from the mouth of the rivers to the interiors of Sarawak and Brunei was recorded. • The Lanjak-Entimau Wildlife Sanctuary (LEWS) contains 82 fish species from 31 genera and 8 families. • The Bentuang-Karimun to Lanjak-Entimum (LEWS) Biodiversity area contains 127 fish species and 12 families. • Species composition varied along the river stretch and it is closely associated with habitat types and habits of particular species. For example, <i>Tor</i> species are commonly found in the upper reaches of the river but <i>Mystus</i> spp. tolerate in less favorable conditions of muddy and slow flowing water in the lower part of the river system.
3.	Myanmar	Common species caught are catfish, snakehead, perch, carps, freshwater prawns, goby and eels.
4.	Philippines	Common species caught are silver perch, white goby, ornate sleeper, snakehead, eleotrids, gouramy, freshwater sardines, tilapia, climbing perch, carp and freshwater prawn.
5.	Viet Nam	<ul style="list-style-type: none"> • More than 250 species, consisting of various ecological groups (swamp fish or “black fish”, riverine fish or “white fish”, brackish water fish, anadromous fish) have been identified in the Mekong Delta. • About 50 species are commercially important species due to big catch, large size or high selling price.

3.3 Fishing Gears

Table 4: Fishing Gears and Methods Used in Exploiting Inland Fisheries Resources in Four ASEAN Countries (Cambodia, Malaysia, Philippines and Viet Nam).

No.	Country	Descriptions
1.	Cambodia	Fishing gears range from stationary to fixed gears operating in flowing and stagnant water bodies and categorized as follows: <ul style="list-style-type: none"> • Large-scale (industrial) fisheries - using fishing lot and bagnet fisheries in limited access area • Middle-scale (artisanal) fisheries - using about 200 fishing gears in open access area and during open season • Family (subsistence) fisheries - operating in open access area all year round, during closed fishing season in limited access area and also in flooded rice fields.
2.	Malaysia:	
	Peninsular Malaysia	Common fishing gears are seine net, gill net, barrier net, stow net, cast net, and trap.
	Sabah	Common fishing gears are gill net, trammel net, portable trap, hook and line and the use of destructive methods of fishing such as electrical and poison fishing (rotenone).
	Sarawak	Common fishing gears are cast net and gill net. Other types include “selambau”, lift nets, hooks and lines, fish guns and spears. Destructive fishing methods are also being practiced.
3.	Myanmar	Common fishing gears are angling and other hook fishing, drift and float nets, plain (straight) fixed nets, casting and drop nets, pushing, scooping or dipping equipments, pouch or big nets, anchored entrapments, fishing enclosures and artificial fish shelters, entrapment structures, traps and fish fences.
4.	Philippines	Common fishing gears are gillnet, fish trap, longline, cast net and snail dredge for freshwater snails.
5.	Viet Nam	Common fishing gear in the Mekong Delta is bamboo trap. For reservoirs, the most popular fishing gears are gill net, fence net, lift net, cast net, hook and lines.

3.4 Per Capita Fish consumption

Table 5: Per Capita Fish Consumption of Inland Fisheries Resources in Four ASEAN Countries (Cambodia, Malaysia, Phillipines and Viet Nam).

No.	Country	Descriptions
1.	Cambodia	Average per capita fish consumption for the central Cambodia is 67 kg year ⁻¹ and fishing community may consume up to 76 kg year ⁻¹ . Fish contributes about 75% of the total animal protein intake.
2.	Malaysia:	Information on per capita fish consumption of freshwater fish species is not available for the country.
3.	Myanmar	Fish is major source of easy and affordable animal protein to the rural people. Average consumption of fish per capita per year has increased from 17.30 kg in 1990 to 26.18 kg in 2002 and contributing 70% of total animal protein. Meat consumption is only 9.85 kg year ⁻¹ .
4.	Philippines	Consumption of fish and fishery products is 36 kg capita ⁻¹ year ⁻¹ , which is broken down as 24 kg fresh and cooked fish; 4 kg dried; 4 kg processed (paste, sauce, smoke, canned) and 4 kg crustaceans and mollusc. Supply and consumption of fish and fishery products has showed a decreasing trend from 31 kg capita ⁻¹ year ⁻¹ in 1995 to 27 kg capita ⁻¹ year ⁻¹ in 1997 with an average of 29 kg capita ⁻¹ year ⁻¹ .
5.	Viet Nam	The inland fisheries have an important role in providing main animal protein source to the people's diet in the Mekong Delta. Average fish consumption in An Giang and Tra Vinh provinces is about 59 kg capita ⁻¹ year ⁻¹ , accounting for 62 - 75% of total animal protein.

3.5 Fish Price

Table 6: Fish Price of Major Commercial Species of Inland Fisheries Resources in Four ASEAN Countries (Cambodia, Malaysia, Phillipines and Viet Nam).

No.	Country	Descriptions
1.	Cambodia	Fish is generally very cheap around 0.10 USD/Kg for small sized fish. But for commercially important species such as <i>Oxyeleotris mamorata</i> , the price is expensive.
2.	Malaysia: Peninsular Malaysia	Market prices vary according to species, locality, season, consumer demand and relative quality and quantity available for sale. Prices ranging from as low as USD 1.0 kg ⁻¹ to as high as USD 45 kg ⁻¹ . The most favored and high valued fish is River catfish (Family: Pangasiidae - 'Patin Muncong' (<i>Helicophagus</i> cf. <i>waandersii</i>) which can fetch more than USD 50 kg ⁻¹ .
	Sabah	No information is available
	Sarawak	Prices ranging from as low as USD 0.90 kg ⁻¹ to as high as USD 40.0 kg ⁻¹ . The most favored and high valued species are cyprinid species such as <i>Tor tambroides</i> , <i>Tor duoronensis</i> and <i>Puntius schwanenfeldii</i> . The high prices are also favored for species that are more than one kg in weight and freshly caught. In the early 1960s and 1970s, the fish price ranged from USD 0.35 - USD 0.70 kg ⁻¹ but during logging industry in the 1980s, the much-favored species was fetched up to more than USD 30.0 kg ⁻¹ .
3.	Myanmar	Price of the fish varies according to species, season, areas, demand and ready access to markets.
4.	Philippines	Price of fish varies according to fishing season and weather conditions. It is also determined by supply and demand of major species of fish that are sold in the market and exported to nearby countries, where the prices are much higher.
5.	Viet Nam	No information is available.

4.0 Environmental Conditions

Table 7: Environmental Conditions in Four ASEAN Countries (Cambodia, Malaysia, Philippines and Viet Nam).

No.	Country	Environmental Conditions
1.	Cambodia	NE monsoon occurs from November to March and brings relatively dry, cool air and little precipitation. The SW monsoon prevails from May to September with high precipitation. Most areas receive rainfall of more than 1,500 mm year ⁻¹ except at Tonle Sap floodplain that receives up to 5,000 mm year ⁻¹ . Precipitation is lower at less than 2,000 mm on the Mekong basin side, which is in the shadow of the Cardamom and Elephant hills.
2.	Malaysia:	
	Peninsular Malaysia	East Coast of Peninsular Malaysia (i.e. Kelantan, Terengganu, East Johore, and Pahang) experiences NE monsoon season in the months of November, December and January with maximum rainfall. June and July are generally the driest months in these states. In other states of the peninsula, rainy season occurs during two periods: October - November and April-May. In between these months, very little precipitation was observed. In the north-western region (Perlis & Kedah) the driest months occur in January-February and June-July and February (inter-monsoon months). The rainfall pattern in the Southwest coastal areas (West Johore and Malacca) is also affected by "Sumatra-rains" between May and August. In these areas, October and November are the wettest months and February the driest.
	Sabah	Average rainfall is 2,400 mm year ⁻¹ and not uniformly distributed throughout the year. The dry seasons are between February and April/May and the wet seasons are during NE and SW monsoons. The NE monsoon occurs from October to January/ February and brings heaviest rains to the eastern coast of Sabah. The SW monsoon occurs from May to August/ September and brings heavy rains to the western coast of Sabah.
	Sarawak	The wet season is from November to March and coincides with the NE monsoon. The dry and hot season is from April to October.
3.	Myanmar	Three seasons with monsoon season started during second week of May. During this season, the country experiencing rainy season with peak rainfall pattern occurred during the middle of the season. Annual rainfall records in the coastal areas is around 200 inches, 110 inches in delta region, 60 - 80 inches in the Northern and Eastern hilly and about 40 inches in the central dry zone.

4.	Philippines	<p>NE monsoon occurs from November to February and SW monsoon between July and September. The inter monsoon prevails during the rest of the year. The country has four climatological conditions/type:</p> <ul style="list-style-type: none"> • Type I - very pronounced season with dry season occurs from November to April and wet season during the rest of the year; • Type II - no dry season but with pronounced maximum rain between November and January; • Type III- seasons are not very pronounced, relatively dry from November to April and wet during the rest of the year • Type IV- rainfall is evenly distributed throughout the year with annual average rainfall at 236.9 mm, rainfall season from September to January.
5.	Viet Nam	<ul style="list-style-type: none"> • Rainy season occurs during SW season from May to November and dry season, during NE monsoon (December to April). During rainy season, rainfall accounts for 80 - 90 % of total annual precipitation and reaches two peaks in June and September. • An average temperature is between 26 - 28 °C with highest temperature between April and May at 27 - 29 °C, and lowest in December and January at 23 - 25 °C.

6.0 Socio-economy

Table 8: Socio-economic Information and Dependency of Inland Fisheries Resources in Four ASEAN Countries (Cambodia, Malaysia, Phillipines and Viet Nam).

No.	Country	Descriptions	Status of Information Available
1.	Cambodia	Family economy of the fishing community depend entirely on fisheries as a source of income. A household family engage in small-scale fishing activities may catch fish around 647 kg year ⁻¹ , and middle-scale about 3,319 kg year ⁻¹ . About 84% of the fresh fish is sold in local markets and the other 16% is processed as smoked fish, fish sauce, salted dry fish and fish paste. Women are more active in farming activities than in fishing.	Good accumulation of data. The first comprehensive socio-economic survey on small and medium scale fisheries was carried out in 1995/96. The estimate covered mainly the central part of Cambodia.
2.	Malaysia:		
	Peninsular Malaysia	Inland capture fisheries play insignificant role toward contribution of total fish production. The fish act as food source especially for rural people. Only small amount is for sale.	Data on socio-economy is still scanty due to scattered, remote areas and labor intensive to obtain them.
	Sabah	Inland fisheries contributed only 1% of the total state fish production (2001) and it plays an important role in the socio-economic conditions of rural people through generation of employment, income and source of protein. The demand for freshwater fish is high in the rural areas especially in two villages along the Kinabatangan River. The livelihood of the villagers depends on the income from the catches of the freshwater giant prawn <i>Macrobrachium rosenbergii</i> .	In-depth study on the socio-economy of the people involved in the inland capture fisheries has not been carried out.

	Sarawak	For the vast majority of the communities living near the inland water bodies, the fish resources are important sources of food, protein and side-income. Marine fish is difficult and expensive to obtain in these areas and therefore freshwater water fish is more preferred either as fresh or in preserved forms (salted, preserved wet or dried, smoked).	Very little statistics are available with respect to data on household consumption (e.g. per capita consumption, percentage of fish in diet, percentage of catch for sale and actual quantity sold). Data is very unlikely to be completed because of the part-time nature of the fishing activities.
3.	Myanmar	Almost all catch are sold in the market or in village after some portion has been reserved for family consumption and process. The head of the business is usually man but the business is diversified at lower level to the woman i.e. finance, market, processing, managers, brokers, etc. Wife or daughter is also involved in fishing activities using cast net, long line or gill net.	No thorough survey has been conducted yet.
4.	Philippines	High dependencies on capture fishing as their means of livelihood. In some large lakes, aquaculture (cage culture) is the major source of generating income. About 60% of the catches are marketed while 40% for family consumption. Fishing is mainly dominated by men (age between 30 -59 years old), with women involved in repairing/ mending fishing net; processing fish and fish trading in wet markets.	Well documented on socio-economic information.
5.	Viet Nam	Based on the household survey conducted in An Giang province, there are 59.6 % part-time fishers, 6.4 % full-time fishers, 14.6% aquaculturists, 10.5% involved in processing, 4.7 % as fish saler and 1.5% as labors. About 81% of the individuals involved in fishing activities are male and 65% of them are the household heads, having an average age of 46 years old.	Well documented on socio-economic information.

7.0 Statistical Data Collection of Inland Fisheries

Table 9: Statistical Data Collection of Inland Fisheries Resources in Four ASEAN Countries (Cambodia, Malaysia, Philippines and Viet Nam).

No.	Country	Responsible agencies
1.	Cambodia	<ul style="list-style-type: none"> • Statistical Section of the Department of Fisheries (DoF) • The Capture Fisheries Project in collaboration with MRC and DoF has carried out stratified sampling schemes to estimate fish catch and value by month, gear, season, district and province for large, medium and small-scale fisheries.
2.	Malaysia:	
	Peninsular Malaysia	<ul style="list-style-type: none"> • Statistical Section of the Department of Fisheries (DoF) • The state DoFs is divided into district offices and responsible to collect and compile data and information on monthly basis. The collection involves visual market surveys, enquiries and observations techniques without any format reporting or sampling. The estimates by species are made by production system: river, ex-mining pools, embankments /reservoirs/ dams and others.
	Sabah	<ul style="list-style-type: none"> • Statistical Section of Sabah Fisheries Department • Proper method of data collection has been carried out at fish market or landing sites and compiled in the district fisheries offices before they are submitted on monthly basis to the head office in Kota Kinabalu. • The yearly data are send to the DoF Malaysia, Kuala Lumpur.
	Sarawak	<ul style="list-style-type: none"> • Since 2001, Department of Agriculture, through its Inland Fisheries Division had initiated proper monthly data collection on freshwater fish landings at selected places. • The prices and quantity of each species offered for sale are also collected. • The data are compiled at respective divisional office and then submitted to the Headquarters for compilation on monthly basis.
3.	Myanmar	<ul style="list-style-type: none"> • Department of Fisheries under Ministry of Livestock • The department is divided into State and Division, Districts, Townships and villages and employed 110 out of 370 townships offices for fishery activities. All fishing license holders, lease holders, fish farmers and processors are obliged by regulation to report their catch, product and fishery related information to the township offices. • The township officer obtain reports approximately every two weeks and relay these reports to the head office through district, state and divisional offices. The local officers will check the reported data and actual status by visiting the fishery areas.

		<ul style="list-style-type: none"> • The annual reporting period used its fiscal year, from first April to the end of March, the following year.
4.	Philippines	<ul style="list-style-type: none"> • Collection on production by species for inland municipal sector has started in 1977 under the Bureau of Fisheries and Aquatic Resources until 1987. • From 1988 until present, Bureau of Agricultural Statistics (BAS) under the Department of Agriculture serves as the major agency for the collection, compilation and release of agricultural statistics.
5.	Viet Nam	<ul style="list-style-type: none"> • Regular statistics data are collected by two systems, namely, the statistical system of the Ministry of Fisheries and General Statistics Office. These two mechanisms have different methods and requirements for economic information and statistics data. • In the Ministry of Fisheries, the main agency for collecting fisheries statistics in the provinces is the Provincial Department of Fisheries (PDoF) for coastal provinces and Provincial Department of Agriculture & Rural Development (PDARD) for inland provinces. The data are produced by PDoF or PDARD on a quarterly, six-month and one-year basis and submitted to Fisheries Information Center (FICen) in Hanoi. • FICen also receives reports from the General Customs Department on the production and fisheries products exported through border gates and the center is responsible for processing and analyzing data submitted from the local authorities and other sources and submit on monthly, quarterly, six-month and annual reports to management and policy making bodies of MoFi and local authorities. • The General Statistics Office that belongs to the Prime Minister Cabinet also produces statistical data on fisheries sector with a network of Provincial Departments of Statistics, Bureaus of Statistics at district level and officials in charge of statistics work at commune level.

8.0 Inland Fisheries Management System

Table 10: System in the Management of Inland Fisheries in Four ASEAN Countries (Cambodia, Malaysia, Philippines and Viet Nam).

No.	Country	Management System of Inland Fisheries
1.	Cambodia	<ul style="list-style-type: none"> • Formerly, regulations based on French colonial legislation. • Nowadays, using regulation formulated by fishing community and approved by relevant local authorities. More than 200 fishing communities were established through out the country.
2.	Malaysia:	
	Peninsular Malaysia	<ul style="list-style-type: none"> • Development and management of inland water bodies are under the jurisdiction of the respective State Governments, which controls the issuance of licenses for inland fishing vessels and appliances. • Two levels of management systems: direct management techniques - control types and amounts of fish being caught; and secondly, by using water quality and river classification as basis for the protection of aquatic life and fisheries
	Sabah	<ul style="list-style-type: none"> • Management is under the responsibility of State Fisheries Department using new fisheries law: the Sabah Inland Fisheries and Aquaculture Enactment 2003. • The department has successfully implemented Community-Based Resource Management (CBRM) program on many rivers and it empowers local community to rehabilitate, restore and make rules of managing their riverine fish resources.
	Sarawak	<ul style="list-style-type: none"> • Management is under the jurisdiction of the State Ministry of Agriculture and Food Industries (MAFI), through the State Department of Agriculture (DoA). • The Inland Fisheries Division is the implementing arm of the State DoA in all matters relating to inland fisheries and using Sarawak Inland Fisheries Rules (SIFR) for regulating aquaculture activities and inland fisheries.
3.	Myanmar	<ul style="list-style-type: none"> • Ministry of Livestock and Fisheries and Department of Fisheries are the responsible agencies at ministerial and departmental levels. • Local authorities at division, district and township levels also take part in managing the fisheries resources and comply with administrative and legislative procedures. • Myanmar Fisheries Federation and non-government organization act as coordinator between the department, fishery communities and local authorities
4.	Philippines	<ul style="list-style-type: none"> • Bureau of Fisheries and Aquatic Resources (BFAR) is the main agency that involved in the conservation and

		<p>management of inland fisheries and aquatic resources of Philippines.</p> <ul style="list-style-type: none"> • Under new “Philippine Fisheries Code of 1998” or RA 8550, the jurisdiction over the management, conservation, development, protection, utilization and disposition of all fish and fishery aquatic resources in inland bodies of water, streams, lakes and tidal water shall be under the jurisdiction of the municipality or city government
5.	Viet Nam	<ul style="list-style-type: none"> • The central agencies involved in the management of inland fisheries under Ministry of Fisheries (MoFi) system are Department of Fisheries and Department for Fisheries Resources Conservation. • For the local management, Divisions for Fisheries Resources Conservation (FRC) of PDoF and PDARD are assigned to be responsible for management of the inland fisheries.

9.0 List of Publications Available on Inland Capture Fisheries in ASEAN Countries

Four countries namely Cambodia, Malaysia, Philippines and Viet Nam have responded in giving list of publications available on Inland Capture Fisheries in their respective countries. The publications are classified according to various subjects as listed in Table 11. Malaysia and Philippines are outnumbered in providing matters relating to Fish Taxonomy and Biology of freshwater species, respectively. Full list of the publications is tabulated in Table 12. A total of 133 articles on inland capture fisheries are compiled from four participating countries.

Table 11: List of Publications by Subjects on Inland Capture Fisheries in Four ASEAN Countries (Cambodia, Malaysia, Philippines and Viet Nam).

No.	Subjects	Cambodia	Malaysia	Philippines	Viet Nam
1.	Aquaculture	0	1	0	0
2.	Biology	0	6	16	2
3.	Biodiversity / Fish Communities	1	6	6	0
4.	Ecology	1	3	0	0
5.	Environmental Conditions	0	0	6	0
6.	Fish Taxonomy	1	12	4	1
7.	Fisheries	1	6	7	2
8.	Fisheries Resources	4	5	2	0

9.	Fishing Gears	0	3	0	0
10.	Fish Stocking	0	5	2	0
11.	Life history/ Fish Larvae	0	0	2	1
12.	Management	5	2	3	0
13.	Population / Stock Assessment	0	1	5	0
14.	Socio-economy	4	1	4	0
15.	Statistics	0	2	0	0
16.	Others	0	0	2	0
-	Total	16	53	58	6

Table 12: Compilation on List of Publications Available on Inland Capture Fisheries in Four ASEAN Countries (Cambodia, Malaysia, Philippines and Viet Nam).

No.	Subjects	Country	List of Publication
Aquaculture			
1.		Malaysia	1. Jothy, A.A. 1977. Aquaculture in tin mining pools in Malaysia. ASEAN 77/FA. EgA/Doc. WP22. Pp.123-4.
Biology			
2.		Malaysia	1. Tan, E.S.P. 1980. Some aspects of the biology of Malaysian riverine Cyprinids. Aquaculture, 20:281-289.
3.			2. Mohsin, A.K.M. and Law Ah Theem, 1978. Length-weight relationship and condition factor in ikan seluang, <i>Rosbora sumatrana</i> . Mal. Appl. Biol. 7(1):81-86.
4.			3. Teoh, H.C. 1978. The reproductive biology of <i>Puntius gonionotus</i> Bleeker. 101 p. "Tesis Ijazah Sarjana" University Malaya, Kuala Lumpur.
5.			4. Mohsin, A.K.M. 1977. Some aspects of biology of <i>Doryichthys artensii</i> (Peters) from Selangor. (Pisces - Syngnathidae). Mal. Appl. Biol.6 (1): 78-89.
6.			5. Ang, K.J. 1971. The reproductive biology of some Malaysian <i>Anabantids</i> with special reference to <i>Betta pynax</i> Cantor, 112 "Halaman Tesis Ijazah Sarjana", Universiti Malaya, Kuala Lumpur.
7.			6. William Chang Wei Say. Features of indigenous fish species having potential for aquaculture. 49 pages. Edited and compiled by Inland Fisheries Division, Dept. Of Agriculture, Sarawak.
8.		Philippines	1. G Galicia, Jr. A. M. and N.A. Lopez Feb. 2000. The Biology and Fishery of Indigenous Gobies of Lake

			Mainit, Philippines. In Reservoir and Culture-Based Fisheries: Biological Management edited by Sena S. De Silva, ACIAR proceeding no. 98.
9.			2. Aypa, S.M., A.M. Galicia, Jr. and E.S. Lapasaran. 1999. The reproduction biology and life cycle of the freshwater pelagic sardine <i>Harengula (Sardinella) tawilis</i> (Clupeidae) in the volcanic Lake Taal, Philippines. 1 - 14p. 1999; In Fish and Fisheries of Lakes and Reservoir in Southeast Asia and Africa, Edited by WLT Van Densen and ML Morris.
10.			3. Pauly D. and Felimon C. Gayanilo, Jr. 1997. "A Bee". An Alternative approach to estimating the Parameters of a length-weight relationship from length-frequency samples and their bulk weights. Copyright 1997. ICLARM, MC PO Box 2631, 0718 Makati City, Philippines.
11.			4. Galicia, A. M. Jr., L.L. Penolio and S.M. Aypa 1991. A Study on the Biology of Sinarapan (<i>Mistichthys Luzonensis</i>) in Lake Manapao, Camarines Sur, Bureau of Fisheries and Aquatic Resources, unpublished report.
12.			5. Millar F.J.D. and A.N. Vallejo, Jr. Jan.-Dec. 1987. A Contribution to the Biology of <i>Ophiocara aporos</i> (Bleeker). Fish. Res. J. Philipp.12: 1-2. 29-43p.
13.			6. Mercene, E.C. and Cabrera, L.P. 1985. Contribution to the Biology of "Ayungin", <i>Therapon plumbeus</i> (Kner). Philip. J. Fish. (1991) 22:79-85. 79-85p.
14.			7. Saji, A.P. 1987. A Contribution to the Biology of <i>Priacanthus eayenus</i> (Richardson. 1846) in Lingayen Gulf, M.S. Thesis University of the Philippines in the Visayas, Diliman, Q.C.
15.			8. Ingles, J. and D. Pauly. 1984. An atlas of the Growth, Mortality and Recruitment of Philippines fishes. ICLARM Tech. Rep. 13. 127 p. International Center for Living Aquatic Resources Management, Manila, Philippines.
16.			9. Escudero, P.T. et al 1980. Biological Studies of <i>Glossogobius giurus</i> (Hamilton & Buchanan)) and <i>Puntius sirang</i> (Herre) in Lake Lanao. Journal of Fisheries and Aquaculture 1 (1): 11 – 154. Univ. Research Center, MSU, Marawi City Philippines.
17.			10. Welch, Harold E. 1968. Use of modified diurnal curves for the measurement of metabolism in standing water. Limnol. Oceanogr. 13:679-687.
18.			11. Laevastu, T. 1965. Manual of Methods in Fisheries Biology. FAO Man. Fish Sci. (1) 10 fasc. Rome. 51p.
19.			12. Yapchiongco, J.V. and G.L. Enriquez. 1963. Notes on certain aspects in the biology of <i>Therapon plumbeus</i> (Kner). <i>Philipp. J. Sci.</i> 92(3): 265-290.
20.			13. Marquez, J. Sr. 1960. Age and Size at Sexual Maturity of goby, @ <i>Glossogobius giuris</i> @, a common fish species of Laguna de Bay, with notes on its food habits. <i>Philipp. J. Fish.</i> 8(1): 71-89.
21.			14. Enriquez, G.L. 1960. Studies on the spawning

			season, fecundity and age determination by the length frequency method of <i>Therapon plumbeus</i> (Kner), M.S. Thesis, U.P. Diliman, Q.C.
22.			15. Bertalanffy, L.Von. 1938. A quantitative theory of organic growth (Inquiries on growth laws II) Hum. Biol. 10(2): 181-231.
23.			16. Mane, Andres M. 1934. Spawning and Feeding Habits of ayungin, <i>Mesopristes plumbea</i> (Kner), a common theraponid fish in Laguna de Bay. <i>Philipp. Agric.</i> 23(6): 502-516.
24.		Viet Nam	1. Mekong River Commission Fisheries Programme. 2002. Fish migrations of the Lower Mekong River Basin: implications for development, planning and environmental management. MRC Technical Paper No.8, October 2002.
25.			2. Nguyen Thanh Tung, Tran Quoc Bao and Truong Than Tuan 1998. Fish Migration & Spawning Report in An Giang Province Vietnam Delta. (Field Trial from 1 st August to 1 st September). Vientiane: Assessment of Mekong Fisheries Project.
Biodiversity / Fish Communities			
26.		Cambodia	1. Smith, J.D. (Ed.) 2001. Biodiversity, the life of Cambodia- Cambodian Biodiversity status Report 2001. Cambodia Biodiversity Enabling Activity. Phnom Penh, Cambodia.
27.		Malaysia	1. Densen, W.L.T. van, Kechik, I.B.A., Baluyut, E.A., Chookajorn, T., Moreau J., Sarnita, A.S. & Yap, Y.S. 1999. Fish Production, catch composition and changes in the freshwater fish communities in ASEAN lakes and reservoirs. In: W.L.T. van Densen & M.J. Morris, 1999. Fish and Fisheries of Lakes and Reservoirs in Southeast Asia and Africa. Westbury Academic & Scientific Publishing.
28.			2. Yap, S.Y, 1999. Riverine and lacustrine fish communities in Southeast Asia. In: W.L.T. van Densen & M.J. Morris, 1999. Fish and Fisheries of Lakes and Reservoirs in Southeast Asia and Africa. Westbury Academic & Scientific Publishing.
29.			3. Zulkafli, A.R., W.L.T. van Densen and M.A.M. Machiels. 1999. A comparison of the fish communities and trophic relationships in Kenyir and Semenyih reservoirs, Peninsular Malaysia. In: W.L.T. van Densen & M.J. Morris, 1999. Fish and Fisheries of Lakes and Reservoirs in Southeast Asia and Africa. Westbury Academic & Scientific Publishing.
30.			4. Zulkafli Abd. Rashid. 1994. Distribution patterns and the reconstruction of size distributions of three major fishes in two Malaysian reservoirs. [MSc thesis] Department of Fish Culture and Fisheries, Wageningen Agricultural University, Wageningen. The Netherlands. 75p.
31.			5. Welcomme, R.L. 1981. Register of international fish transfer of inland fish species. FAO Tech. Pap. No.

			213, 120p.
32.		Philippines	1. Pinto, L. 1986. Use of ELEFAN programs for emigrating species. Fishbyte 4(1): 14-15.
33.			2. Vallejo, A. et al. 1985. Fishes of Taal Lake. Limnological Station Contribution No. 87001. Terminal Report, 18 p.
34.			3. Herre, A. W. 1933. The fishes of Lake Lanao: a problem in evolution. Amer. Nat 67:154-162.
35.			4. Herre, A. W. 1924. Distribution of the True. Freshwater Fishes in the Philippines. Phil. Jour. Sci. p. 24.
36.			5. Smith, H. 1902. How they discovered smallest fish, Times Journal, November 16, 1981.
37.			6. Mercene, E. C. and A.R. Alzona. Survey of Migratory Fishes in Pansipit River and Lake Taal. 89 - 95p.
Ecology			
38.		Malaysia	1. Ali, A.B. 1990. Some ecological aspects of fish populations in tropical ricefields. Hydrobiologia 190:215-22.
39.			2. Furtado, J.I. and S. Mori. (eds.) 1982. The ecology of a tropical freshwater swamp, the Tasek Bera. Monographiae Biologica. Netherlands: Dr. W. Junk, b.v. 482p.
40.			3. Mohsin, A.K.M. 1980. Ecology and morphology of freshwater fishes of Selangor. Part I. Cyprinoid fishes of the subfamilies Abraminae, Rosborinae and Garrinae and family Homalopteridae and Cobitidae. Mal. Nat. J.34 (2): 73-100.
41.		Philippines	1. Aypa, S. M., A. M. Galicia, Jr. and L. L. Penolio. 1993. The Present Status and Ecology of Sinarapan, (<i>Mistichthys luzonensis</i>) in Lake Buhi, Camarines Sur. In Lake Management in the Philippines, proceedings of the National Symposium-workshop on Lakes Fisheries Management Oct. 28-29, 1993 Los Baños, Laguna, Edited by R. B. Edra, E. V. Manalili and R. D. Guerrero III. Book series no. 19/1995.
Environmental Conditions			
42.		Philippines	1. Nacion A, D. Dimaporo and Daisom, 1997. Site Ecological Investigation and Hydrographic Survey of Lakewood, Zamboanga Del Sur. Unpublished report. 4 p.
43.			2. Gracia, D. 1985. Updated Information Data and Limnological Characteristics of Philippines lakes. Fisheries Newsletter 13:59-88.
44.			3. Villamater E.V. and Galicia A. M. Jr. 1985. Report on the Hydrobiological Investigation of Paoay Lake. Bureau of Fisheries and Aquatic Resources. 19 pages.
45.			5. Gracia, D.M. 1984. Hydrobiological Survey and Inventory of Fisheries Resources of Naujan Lake General Information Series, Bureau of Fisheries and Aquatic Resources Vol VIII No. 8, 8 pages.

46.			6. Castillo, B.B. and C.L. Gonzales. 1976. Hydrology of Lake Taal. <i>Fish Res. J. Philipp</i> : 1(2): 62-75.
47.			7. Martinez, M. R., Chakroff R.P. and Pantastico J.B. 1975. Note: Direct Phytoplankton Counting Techniques using Haemocytometer. <i>Philippine Agriculture</i> 59. June-July, 1975 Pp. 43-50
Fish Taxonomy			
48.		Cambodia	1. Rainboth, W. 1996. Fishes of the Cambodian Mekong. Species identification guides for fishery purposes. Rome: FAO.
49.		Malaysia	1. Inger, R.F. and Chin, P.K. (2002). The freshwater fishes of North Borneo. Natural History Publications (Borneo).
50.			2. Lim, K.P. 1993. Recent development in Peninsular Malaysian freshwater fish systematic, including notes on endemic species. Paper presented at AADCP-component 2 Workshop, 18-22 October 1993, Malacca, Malaysia.
51.			3. Mohsin, A.K.M. and Ambak, Mohd. Azmi. 1992. Freshwater Fishes of Peninsular Malaysia. Penerbit Universiti Pertanian Malaysia, 284p.
52.			4. Mohsin, A.K.M. and Ambak, Mohd. Azmi. 1982a. Cyprinoid fishes of the subfamily CYPRINIDAE in Selangor, <i>Malay Nat. J.</i> , 35:29-55.
53.			5. Mohsin, A.K.M. and Ambak, Mohd. Azmi. 1982b. Freshwater siluroid fishes of Selangor, <i>Malay Nat. J.</i> , 36:99-112.
54.			6. Mohsin, A.K.M., Ang Kok Jee and Hat Hoklai. 1977. A list of freshwater fishes of Selangor. <i>Mal. Appl. Biol.</i> 6(1): 75-78.
55.			7. Alfred, E.R. 1964. Notes on a collection of freshwater fishes from Penang. <i>Bull. Singapore Nat. Museum</i> , 32:143-154.
56.			8. Tweedie, M.W.F. 1952. Malaya names of freshwater fishes. <i>J. Malay. Br. Roy. Asiat. Soc.</i> 25,1:52-67.
57.			9. Tweedie, M.W.F. 1952. Notes on Malayan freshwater fishes. 3. The Anabantid fishes. 4. Some new and interesting records. 5. Malay names. <i>Bull. Raffles. Museum</i> 24:63-95.
58.			10. Soong, M.K. 1948. Fishes of the Malayan padi fields, 1- Sepat Siam. <i>Malay, Nat. J.</i> 3,2:87-89.
59.			11. Hora, S.L. 1941. Notes on Malayan fishes in the collection of Raffles Museum, Singapore. Parts 2 and 3. 2. Loaches of the family COBITIDAE. 3. Loaches of the family HOMALOPTERIDAE. <i>Bull. Raffles Museum</i> 17: 44-64.
60.			12. Fowler, F.W. 1938. A list of the fishes known from Malaya, <i>Fish. Bull. Singapore</i> , 1: 268 p.
61.		Philippines	1. Fisbase, 1998. Fishbase 98 CD-ROM. ICLARM, Manila
62.			2. Mercene, E.C. 1995. Freshwater Fishes of the Philippines. Paper presented in the First National Symposium Workshop on Aquatic Biology, R & D

			held on November 28-29, 1995 at Lakeview Resort Hotel, Los Baños, Laguna
63.			3. Herre, A.W. 1953. Checklist of Philippine fishes. US Fish and Wildlife Service Research Report 20, 975 p.
64.			4. Herre, A.W. 1927. The Gobies of the Philippines and the China Sea. Philippine Bureau of Science Monograph 23, 352 p.
65.		Viet Nam	1. Yen, M.D. 1992. Identification of freshwater fish in Southern Vietnam. Hanoi: Scientific and Technical Publishers, 351 pp.
Fisheries			
66.		Cambodia	1. van Zalinge, N. P., Nao Thuok and Sam Nuov, 2001. Status of the Cambodian Inland Capture Fisheries Sector with special reference to the Tonle Sap Great Lake. Inland Fisheries Research and Development Institute of Cambodia, <i>IFReDI Fisheries Technical Paper Series</i> , Volume III.
67.		Malaysia	1. van Densen W. L. T. and M.J. Morris, 1999. Fish and Fisheries of Lakes and Reservoirs in Southeast Asia and Africa. Westbury Academic & Scientific Publishing.
68.			2. Yap, S.Y., 1992. Inland capture fisheries in Malaysia. FAO Fish. Rep. No.458, suppl. pp.25-46.
69.			3. De Silva, S.S. 1987. Reservoir and lake fisheries. Arch. Hydrobiol. Beih. Ergebn. Limnol. 28:269-71.
70.			4. Khoo K.H., T.S. Leong, F.L. Soon., S.P. Tan, and S.Y. Wong. 1987. Riverine fisheries in Malaysia. Arch. Hydrobiol. Beih. Ergebn. Limnol. 28:261-8.
71.			5. Lelek, A. 1987. Freshwater and swamp fisheries on the Rajang River, Sarawak, Malaysia. Arch. Hydrobiol. Beih. Ergebn. Limnol. 28:247-60.
72.			6. Universiti Sains Malaysia (USM). 1983. Fisheries Project (1), Temengor Reservoir. Final Report. USM/TF/05. Penang, Malaysia. June 1983.
73.		Philippines	1. Mercene, E.C. Jan.-Feb. 1987. A survey of Laguna de Bay Open Water Fishery. Fish Res. J. Philipp. Vol. 12 Nos. 1-2. 17-29p.
74.			2. Mercene, E.C. and A. Alzona. 1984. A survey of Lake Naujan fisheries. Fish. Res. Jour. of the Phil. 9(1-2): 45-55.
75.			3. Vakily, J.M. 1982. Catch and Effort of the trawl Fishery of San Miguel Bay. In Pauly, D. and Mines (Eds). Smallscale Fisheries of San Miguel Bay, Phils. : Biology and Stock Assessment. ICLARM Tech. Rep. 7: 65-95. Manila Phils.
76.			4. Gracia, D. et al. 1962. Lake Mainit and Its Fisheries. Phil., Bureau of Fisheries and Aquatic Resources, Manila. 6 p.
77.			5. Gutierrez, P.C. 1961. The Fisheries of Paoay Lake. Fisheries gazette. BFAR Q.C.
78.			6. Manacop, P.R. 1937. The fisheries of Lake Mainit

			and of Northeastern Surigao, including the islands of Dumagat and Surigao. <i>Phil. J. Sci.</i> 4:341-355.
79.			7. Villadolid D.V. 1932. Notes on the Crustacean and Molluscan Fisheries of Taal Lake and Pansipit River. <i>Philippine Agriculture</i> Vol. 20 no. 10. 645-646.
80.		Viet Nam	1. AMFC 2002. Fisheries Baseline survey in Tra Vinh Province - Viet Nam. Technical report. 69 pages. April 2002
81.			2. AMFC, 2001. Fisheries Baseline survey in An Giang Province - Viet Nam. Technical report. 75 pages. April 2001.
Fisheries Resources			
82.		Cambodia	1. Baran, E., N. van Zalinge, Ngor Peng Bun, I. Baird and D. Coates. 2001. Fish resource and hydrological modelling approaches in the Mekong Basin. Mekong River Commission Secretariat, ICLARM The World Fish Centre, International Water Management Institute.
83.			2. Lieng Sopha and N. van Zalinge, 2001. Fish yield estimation in the floodplains of the Tonle Sap Great Lake and River, Cambodia. Inland Fisheries Research and Development Institute of Cambodia, <i>IFReDI Fisheries Technical Paper Series</i> , Volume III.
84.			3. Degen, P., F. van Acker, N. van Zalinge, Nao Thuok and Deap Loeung, 2000. Taken for granted. Conflicts over Cambodia's freshwater fish resources. Presented at the IASCP Common Property Conference, Indiana, USA, 31 May - 4 June 2000.
85.			4. Department of Fisheries Cambodia. 1999. Outcomes of National Seminars for ASEAN-SEAFDEC Conference on sustainable fishery for food Security in the New Millennium: Fish or the people, 19-24 November. 2001 Bangkok Thailand.
86.		Malaysia	1. E. Soedpadmo and Paul P.K. Chai. 2000. Development of Lanjak-Entimau Wildlife Sanctuary as a Totally Protected Area (264 pages). Phase 1 & Phase II. Scientific Report. Edited by A joint publication by Forest Department Sarawak and International Tropical Timber Organization.
87.			2. Dwight J. Watson and Uambat Jellie. 1978. Fisheries resource utilization survey of longhouses in the mid-Baram, Tutoh and Apoh rivers of Sarawak (25 pages, unpublished). Prepared by Baram Lake and Riverine Development Project, Sarawak Dept. Of Agriculture. Inland Fisheries Branch. November 1977.
88.			3. Welcomme, R.L. 1983. River basins <i>FAO Fish. Tech. Pap.</i> (202): 60p.
89.			4. Yap, S.Y. 1982. Fish resources of Bukit Merah Reservoir, Malaysia. Ph.D. Thesis. Department of Zoology, University of Malaya, Kuala Lumpur, Malaysia. 400p.
90.			5. Kumbang and Laing Budah. Indigenous riverine fisheries resources survey of Rejang river system. 20

			pages, excluding tables and appendices. Unpublished. Department of Agriculture Sarawak.
91.		Philippines	1. Darvain, L.C., De la Cruz, and H.L. Bolivar, 1984. A Survey of Lakes and Reservoir in Luzon, Fish Res. J, Philip. Vol. 9 Nos 1-2, 91-99
92.			2. Castillo, B.B., A.S. Castillo and C.L. Gonzales. 1975. Tawilis Fishery Resources Investigation of Lake Taal. Bureau of Fisheries and Aquatic Resources, 16.p.
Fishing Gears			
93.		Malaysia	1. Department of Fisheries Malaysia. 1989. "Peralatan Menangkap Ikan Di Malaysia". Ministry of Agriculture Malaysia, Kuala Lumpur, Malaysia.
94.			2. Dwight J. Watson and Umbat Jelie. July 1979. Traditional freshwater fishing gear of Sarawak. 22 pages, unpublished. Department of Agriculture, Sarawak. Inland Fisheries Branch.
95.			3. Michael G. Burke. 1978. Longhouse Fishing gear inventory. 25 pages, excluding appendices. Unpublished. Department of Agriculture, Sarawak. Inland Fisheries Branch.
Fish Stocking			
96.		Malaysia	1. Baluyut, E.A. 1999. Introduction and fish stocking in lakes and reservoirs in Southeast Asia: a review. In: W.L.T. van Densen & M.J. Morris, 1999. Fish and Fisheries of Lakes and Reservoirs in Southeast Asia and Africa. Westbury Academic & Scientific Publishing.
97.			2. Baluyut E. A. 1999. Introduction and fish stocking in lakes and reservoirs in Southeast Asia: a review. Westbury Academic & Scientific Publishing
98.			3. Ang, K.J., Gopinath, R. and Chua, T.E. 1989. The status of introduced fish species in Malaysia. Pp.71-82. In: S.S. De Silva (ed) Exotic Aquatic Organisms in Asia. Asian Fisheries Society. Spec. Publication No.3.
99.			4. Baluyut, E.A. 1983. Stocking and introduction of fish in lakes and reservoirs in the ASEAN countries. FAO Fish. Tech. Pap. No. 236. 82p.
100.			5. Baluyut, E.A. 1983. A review of inland water capture fisheries in Southeast Asia with special reference to fish stocking. FAO Fish. Rep. (288): 13-57.
101.		Philippines	1. Baluyut, E.A. 1983. Stocking and Introduction of fish in lakes and reservoirs in the ASEAN countries. FAO Fish. Tech. Paper, (236): 82p.
102.			2. Villamater E.V. and Galicia A.M. Jr. 1983. The Effects of Fish Stocking/Dispersal Activity in Paoay Lake. Bureau of Fisheries and Aquatic Resources. 8 pages.
Life History/ Fish Larvae			

103.		Philippines	1. Enriquez G.L. 1964. Life History Studies on Ayungin, <i>Therapon plumbeus</i> Kner. <i>U.R. Res. Dig.</i> 3(1): 25.
			2. Manacop, Porferio R. 1953. The Life History and Habits of the Goby, <i>Sicyoptenes extianeons</i> Herre (anga) Gobiidae with an Account of the Goby. Fry Fishery of Cagayan River, Oriental Misamis, Philippine Journal Fishery, Vol. 2, Manila Bureau of Printing.
104.		Viet Nam	1. Nguyen Thanh Tung, Truong Than Tuan and Tran Quoc Bao 1999. Composition and movement of Fish Larvae in the Bassac River, Vietnam, During June-July 1999. Paper presented at the 2. MRC Technical Symposium, Phnom Penh, December 13-14, 1999.
Management			
105.		Cambodia	1. van Zalinge, N., (2002). Fisheries Management in the Tonle Sap – data requirements, in "New Approaches for the Improvement of Inland Capture Fishery Statistics in the Mekong Basin" Udon Thani, Thailand, 2-5 September.
106.			2. Nao Thuok and Sonam. 2000. Cambodia's Freshwater fisheries Management-Current Status, Major issues and recommendations. Department of Fisheries Cambodia.
107.			3. van Zalinge, N., Nao Thuok, and Lieng Sopha, (Eds), 2000. Management aspects of Cambodia's freshwater capture fisheries, Phnom Penh, 27-28 January 2000. Mekong River commission Secretariat and Department of Fisheries, Phnom Penh.
108.			4. Sensereivorth, T., Diep Loeung and Nao Thuok. 1999. Freshwater capture fisheries data collection in 1998. p 40-44 In: Present Status of Cambodia's Freshwater Capture Fisheries and Management Implications. Nine presentations given at the Annual Meeting of the Department of Fisheries, Ministry of Agriculture, Forestry and Fisheries, 19-21 January 1999. Mekong River Commission and Department of Fisheries, Phnom Penh, Cambodia.
109.			5. van Zalinge, N., and T. S. Tana. 1996. Catch assessment and fisheries management in the Tonle Sap Great Lake and River. Presentation at the Workshop on Fishery Statistics, 18 September, 1996. Phnom Penh. Department of Fisheries.
110.		Malaysia	1. Wong, J.Z. (2002). An introduction to the Tagal system: A traditionally Community-based resource management on riverine fish resource in Penampang, Sabah, Malaysia. (Unpublished).
111.			2. Supplementary information on reports and recommendations to Dewan Undangan Negeri. Select Committee on flora and fauna in Sarawak. 78 pages. Unpublished. 1988. Prepared by the <i>Adhoc</i> subcommittee on fisheries, reptiles and amphibians
112.		Philippines	1. Gracia, D. M. 1981. Fishery Management in

			Camarines Sur. Why Sinarapan almost disappeared from Lake Bui. ICLARM Newsletter 4(3):3-5.
113.			2. Palma A.L., A.M. Galicia, Jr. and P.B. Regaspi. 1973. Management Plan for Aquaculture Development of Lake Sebu, Sebu South Cotabato, Bureau of Fisheries and Aquatic Resources unpublished report 12p.
114.			3. Soliman, V. S. 1991. Conservation and Management of Lake Manapao (Philippines). A "Sinarapan (<i>Mistichthys Luzunensis</i>) Sanctuary: Status, problems and solution, Bicol University, College of Fisheries, Tayhi, Tabacco Albay.
Population / Stock Assessment			
115.		Malaysia	1. Butterworth, A.J. 1999. A feasibility study of the application of hydro-acoustics to fish population assessment in Malaysian reservoirs. In: W.L.T. van Densen & M.J. Morris, 1999. Fish and Fisheries of Lakes and Reservoirs in Southeast Asia and Africa. Westbury Academic & Scientific Publishing.
116.		Philippines	1. Gayanilo, F. C. Jr., P. Sparre and P. Pauly. FAO-ICLARM. Stock Assessment User's Manual, Food and Agriculture Organization of the United Nations, Rome. 1996.
117.			2. Mercene, E.C. and M.P. Nasino. 1992. An Assessment of the Goby Fishery in Laguna de Bay, Philippines, The Phil Jour. of Fish. Vol: 23. 1-12p.
118.			3. Mercene, E.C. 1983. Assessment of the Capture Fisheries and Biology of Some Commercially Important Species. In: State of Development of the Laguna de Bay area. Summary Proceedings of Seminar/Workshop.
119.			4. Pauly, D. 1983. Some Simple Method for the Assessment of Tropical Fish Stocks. FAO Fish Tech. Paper no. 234 (FIRM/234).
120.			5. Gracia, D.M. 1975. Stock Assessment of Paoay Lake, Santra Abra River and Laoag River Basin system. BFAR Q.C. (Mimeographed report)
Socio-economy			
121.		Cambodia	1. van Zalinge, N.P., T. Nao, T. S. Touch and L. Deap, 2000. Where there is water, there is fish? Cambodian fisheries issues in a Lower Mekong Basin perspective, p. 37-48 In: M. Ahmed and P. Hirsch (eds.). Common property in the Mekong: issues of sustainability and subsistence. <i>ICLARM Studies and Reviews</i> .
122.			2. Yin Dara, Ly Vuthy, P. L. Huor , Thomas O. and Peter Degen. 2000. Time allocation of fisher-farmer households in Phlong in fishing lot # 14, Kampong Chhnang Province. 3 rd MRC Fisheries Program Technical Symposium, Phnom Penh 8-9 December 2000.
123.			3. Ahmed, M., N. Hap, V. Ly and M. Tiongco 1998. Socioeconomic Assessment of Freshwater Capture

			Fisheries of Cambodia. Report on household survey. Mekong River Commission Phnom Penh, Cambodia.
124.			4. Gregory, R., H. Guttman and T. Kekputhearith. 1996. Poor in all but fish. A study of the collection of ricefield foods from three villages in Svay Theap District, Svay Rieng, Cambodia. AIT AquaOutreach working paper
125.		Malaysia	1. Tan. C. E., A.J. Chong, H.K. Sier, and T. Moulton. 1973. A report on paddy and paddy-field fish production in Krian Perak. Ministry of Agriculture and Fisheries, Malaysia. Bulletin 128:58p.
126.		Philippines	1. Madan M. Dey, G.B. Bimbao, L yong, P.B. Regaspi, A.H.M Kolrimor, H. Pongthana and F.J. Paraguas. 2000. Current Status of Production and Consumption of Tilapia in Selected Countries. In; Aquaculture Economics and Management, Volume 4 nos. 1 & 2.
127.			2. Pauly, D., M. Small, R. Vore and M. Palomares. 1990. Fish yields and Morphoedaphic Index of Lake Mainit, Philippines. The second Asian Fisheries Forum, Asian Fisheries Society, Manila, Philippines. 991 p.
128.			3. Pauly, D. 1984. Fish Population Dynamics in Tropical Water Commodity, "A manual for use with Programmable calculators" ICLARM, Makati, Philippines.
129.			4. PCARR. 1981. State of the Art. Lakes and Reservoir Inland water Commodity, Research Fisheries Series No. 1 Phil. Council for Agriculture and Resource Research Development.
Statistics			
130.		Malaysia	1. Department of Fisheries Malaysia. 2001. Annual Statistics 2001, Vol. 1. Ministry of Agriculture Malaysia, Kuala Lumpur, Malaysia.
131.			2. Department of Fisheries Malaysia. 1989. Annual Statistics 1989, Vol. 1. Ministry of Agriculture Malaysia, Kuala Lumpur, Malaysia.
Others			
132.		Philippines	1. Davie, J.P. Magasaloy, R. Rigon, A. Mapalo and H. Gonzales. A Directory of Philippine Wetlands, Vol. II. Asian Wetlands Bureau, Phil. Foundation, Inc.
133.			2. Wolterack, R. 1940. Islands and Lakes of the Philippines. <i>Int. Rev. of Gen. Hydrobiol. and Hydro.</i> 41:37-176.