West Central Pacific Ocean

Peter Flewwelling and Gilles Hosch
FAO Consultants, Policy and Planning Division, Fisheries
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INTRODUCTION

In the early 1990s, FAO Members adopted many global fisheries mandates to bring fisheries under management. The new instruments focused heavily on the management of high seas and shared fisheries resources, and included:

- The Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, commonly called the UN Fish Stocks Agreement;
- The Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, commonly called the FAO Compliance Agreement;
- The Code of Conduct for Responsible Fisheries;
- A series of International Plans of Action (IPOAs) made under the Code of Conduct for Responsible Fisheries, ranging from bycatching seabirds in the longline fishery, managing fishing capacity and conserving and managing sharks, to deterring and eliminating illegal, unreported and unregulated (IUU) fishing.

Now, thirteen years after the approval of the Code of Conduct for Responsible Fisheries (1993), FAO is assessing the success of countries in implementing these instruments. The goal of this review is to provide an easy-to-read informative reference for the capture fisheries in the Western and Central Pacific Ocean.

Consequently, this Asian subsector of the Western and Central Pacific Ocean sector represents approximately one-twelfth of the world population, 6.4 percent of the world's exclusive economic zones (EEZs), 31.5 percent of the world fishers, 11.5 percent of the world's fish production, and 13.6 percent of the total world fisheries value. National fish production in Table 1 represents the total combined fish production from marine and inland capture fisheries, mariculture and aquaculture.

The countries in this sub-region represent some of the least developed countries in the world, as well as others that are more developed and committed to sustainable management of their fisheries resources, such as Malaysia. It is for this reason that a significant difference is shown in the various countries' capacities for developing and implementing sustainable fisheries management strategies.

POLICY FRAMEWORK

Fisheries policy in the sub-region is set by national management authorities, whether they be centralized or devolved to lower government or stakeholder levels. The policies reflect the resource use goals of these authorities. There appear to be three ways that fisheries policy is set in the sub-region:

- a formal, phased and participatory policy and management planning process involving input from stakeholders at all levels of government and industry;
- a national, centralized, top-down economic development and planning process; or
- a reactive process where legislation and regulations address resource management issues as they arise, either for sustainability or for the economic gain of investors (including fishers, fishing companies or vessel owners).

TABLE 1
General information on Asian countries in the Western and Central Pacific Ocean sector

Country	Population[a] (000's)	Land Area (000's km²)	Coast (000's km)	EEZ (000's km²)	Fishers[b] (000's)	Fish Production[c] (000's mt)	Value[d] (US$ millions)
Cambodia	13 384.20	181.04	0.443	55.60	525	112.5	80
Indonesia	217 825.40	1 919.44	81	3 100.00	4 600	4 395.73	4 200
Malaysia	24 014.20	329.75	4.81	475.6	79	1 462	1 546
Philippines	81 636	300	17.46	2 200	1 000	2 144.50	1 800
Thailand	63 392.60	514	2.624	394	726.506	3.47	2 400
Viet Nam	81 660.40	329.56	3.444	1 000	2 900	1 434	1 053
Sub-region	**468 529**	**3 393**	**109.338**	**7 170**	**9 306[e]**	**9 4340**	**10 999**
World	**6 324 547**	**510 072**		**108 929**	**29 500[j]**	**82 000[k]**	**81 000**

Notes:
[a] Source: World Population Clock, 2002; www.census.gov/cgi-bin/ipc/popclockw.htm
[b] Source: Country reviews, 2000 and 2001 – includes all fishers, capture and farmers
[c] Source: Country reviews, 2000 and 2001 – includes all production – capture and farmed fish
[d] All fisheries production value – capture and farmed in 2000 and 2001
[e] Source: FAO's The State of World Fisheries and Aquaculture (SOFIA), 2002. This includes inland fishers and aquaculture. Asian capture fishers = 65 percent of total; www.fao.org/sof/sofia/index_en.htm
[f] Source: World Population Clock, 2002; www.census.gov/cgi-bin/ipc/popclockw.htm
[g] Source: Country reviews, 2000 and 2001 – includes all fishers, capture and farmers.
[h] Source: Country reviews, 2000 and 20001 – includes all production – capture and farmed fish.
[i] All fisheries production value – capture and farmed, 2000 and 2001.
[j] Source: FAO SOFIA (2002). Approximately 7 132 000 of the total are aquaculture farmers.
[k] Due to inconsistencies in figures on China, China is excluded from this total. Approximately 72.3 to 78 million mt are from marine capture fisheries.

In this sub-region, many countries are becoming aware of the need for sustainable management of their marine resources, but considerable effort is still required to implement appropriate management regimes. Fisheries policy development in some of the countries with centralized authorities is responsive to issues as they evolve, such as growing pressures of poverty, unemployment and the need for food security. Other countries, such as Malaysia, have put in place a formal development process through their National Agricultural Plan of 1992-2010, of which the National Fisheries Development Plan is a part.

In terms of fishery policy formulation and implementing management processes, Malaysia is the most modern, progressive and advanced country in Asia.

Most other countries in the sub-region also react to the aforementioned pressures on fisheries resources with national, social and/or economic development planning exercises (Thailand), or mid-term fisheries management planning exercises (Philippines), but in general they lack the focus of those carried out in Malaysia. Input from stakeholders for this exercise is usually limited to government agencies or minimal feedback from local government units. In most countries assessed, policies are developed through a mandated, central government agency, with or without inter-agency or stakeholder input, then supported by draft legislation published through the media to stakeholders. Stakeholders' input comes as a reaction to the proposed legislation. Many of the countries thus use this "draft" legislation as the policy-setting and feedback mechanism to establish management strategies, thus missing the benefits from participatory stakeholder input.

It should be noted that there are professional fisheries bodies such as FAO for the planning and legislative exercise that can be called upon for assistance in management planning and implementation exercises, but Asian countries do not fully exploit their potential. Further, there are regional fisheries bodies in Asia such as the Association of Southeast Asian Nations (ASEAN), the Southeast Asian Fisheries Development Center (SEAFDEC) and the Asia-Pacific Fishery Commission (APFIC), but they appear to play a minor role. In addition to the major role they play in technical training, they also play a minor role in assisting members to develop their individual

BOX 1

Consequences of using draft legislation to introduce management strategies

Draft legislation presented to stakeholders involves a lengthy drafting and debate process during which the government officials often become emotionally attached to their work and assume responsibility, or ownership for this draft legislative instrument. They sometimes feel they have to actively support the draft through to its enactment. The draft then loses its flexibility. Given the interconnections within the draft and connection with related laws (penal, etc.), it is usually very difficult to make significant changes in intent or scope. This means that one usually keeps to the overall structure and most of the substance of the draft. This effectively minimizes the "real" input of stakeholders to consulting, but with little listening and resultant action using such a process. This is clearly not a recommended method to encourage transparency and participatory management.

marine fisheries management plans, to learn lessons from the experiences of other members, or to harmonize management strategies to benefit all members. These tasks tend to be left to donor banks and agencies through loans, and in some cases, partial grant funds. The FAO FISHCODE project has had a significant influence in training and providing tools for responsible and sustainable fisheries management. However, as a result of the countries' different commitments and priorities, these management tools have been used differently, fully or partially, yielding varying degrees of progress towards these management goals.

Most of the countries assessed have had recent legislative reviews or re-writes of outdated fisheries laws; consequently, there is a written commitment to the international conservation and sustainable fisheries management principles adopted by most FAO Members in the 1980s and 1990s. Although this commitment is on paper and in law, the pressures of poverty, food security and employment often stand at the forefront and guide political entities and legislators, often to the detriment of the principles of conservation and sustainability.[1] In many Asian countries, the most intensive fishing activity is undertaken within 12 nm of the coast, thus increasing the pressures on these coastal fisheries stocks. Taking this into consideration, as well as the integration of many fisheries management authorities within the ministry responsible for agriculture where increased production is usually the primary goal, it is not surprising that the four top policy statements for fisheries in most of the developing countries of this sub-region are:

- Enhance food security.
- Address poverty alleviation.
- Increase employment.
- Increase foreign earnings.

Unfortunately, recognizing the general lack of normal use of and success in alternative income-generating initiatives as a supplemental income opportunity, and the lack of capacity for extensive attention to post-harvest losses in developing countries, most if not all of these policy goals are therefore based on *increased production.* With the one exception noted above (Malaysia), *few if any policy statements in management strategies of the countries assessed note the recommended implementation of limited access, conservation measures or the establishment of sustainable harvesting limits contained in*

[1] The collapse of the Canadian cod fishery and the looming collapse of cod stocks in EU waters are due to having ignored best scientific advice for many years, and government management authorities giving into pressure from industry to keep up quotas and safeguard employment related to the cod fisheries. This lesson has not been learned in this region.

international agreements and codes for responsible fisheries. Consequently, where these principles are included in legal clauses in the more recent fisheries legislations, such as the Philippines, Cambodia,[2] Indonesia and Thailand, the commitment and capacity for implementing these policy statements is lacking.

Malaysia has been a leader in taking a very pro-active stance for sustainable fisheries management policies and in showing a commitment for implementation. Although the Philippines has updated its legislation recently, providing legislative instruments for sustainable fisheries management, it is weak in implementing the new regime, especially with respect to the principle of "limited access". It is to be noted, however, that efforts are complicated by both the devolution of fisheries authority to the municipalities and the need for strong leadership to coordinate national guidelines and fisheries policies. Second, efforts are hampered by the traditionally weak political commitment towards resource management in the country, as well as limited capacity for implementation. Indonesia has recently (2003/2004) added significantly to its coastal resources legislation and Thailand is still trying to get its new legislation passed in government. Both legislations include international principles for sustainable fisheries management. Indonesia, on the one hand, appears to be relying on the transfer of management rights to local government levels or the selling of its rights of access to the private sector to achieve sustainable management. Thailand's growing commitment to sustainable fisheries management at the ministerial level is not always shared by the legislators, who have yet to pass the new Fisheries Act. Thailand still relies on the 1947 version, with regulatory changes, to institute conservation into the fisheries management processes. Cambodia has recently re-written its legislation and is the focus of donor agency initiatives for sustainable fisheries resource management. The evidence of policies for implementing such practices and principles is not yet evident, however, largely because the focus in Cambodia is on the inland fisheries and not the smaller, coastal marine capture fisheries. There is, however, an Australian-funded policy-drafting initiative ongoing, with final recommendations expected later in 2003.

On the political front, with reference to legislators, political leaders and the stakeholders themselves, and despite a generalized regional trend of leaner catches, it appears that:

- the belief in unlimited fisheries resources still exists in Southeast Asia;
- the lessons that could have been learned from collapsed stocks in other countries, developing or developed, have not overridden the priorities for food security deriving from a dwindling resource, and for employment. Further, these countries have not responded to the need for sustainable management policies to address poverty concerns;
- government priorities for sustainable fisheries management remain low; it is expected that important stocks will be left to decline further and collapse.

The principle of "open access" is still the prevalent management policy and practice for most, if not all fisheries, commercial and artisanal, in Cambodia, Indonesia, the Philippines, Thailand, and Viet Nam, despite the authority to use limited access as a management tool in many of their legal instruments. Until the "open access" principle is replaced by limited access regimes, the resource base in the sub-region will continue to further decline under pressures of overfishing with the related social and economic consequences, especially in the coastal areas. Although the multi-species aspect of the fisheries in Asia may provide a buffer of sorts against further decline or collapsed fisheries, it cannot continue unabated. There is a very real danger that dwindling marine resources will trigger the collapse of rural society in many parts of coastal Asia,

[2] It must be noted that most of Cambodia's fisheries are inland and hence the focus is in this area, with marine capture fisheries largely unregulated, although policies are currently being developed to address this gap.

and result in faster urbanization, higher demands on states for social assistance and increased peace and security problems.

In almost all cases, there is overlapping legislation between maritime agencies, which impacts on fisheries policy and on the implementation of management regimes. In some countries, there are inter-agency mechanisms for cooperation, such as Malaysia with its Maritime Enforcement Coordination Centre (MECC), but in others, management coordination mechanisms are absent. Common overlapping legislation includes:

- environmental legislation for coastal resources or marine parks management;
- harbours or transportation legislation for vessel safety registration/certification that sometimes counters or duplicates fisheries licensing;
- forestry or wildlife legislation for coastal wetlands or marine parks' authorities and their access and management limitations;
- law enforcement legislation including national defence, marine police, customs and immigration.

Active inter-agency mechanisms and joint planning to address overlapping responsibilities are required for cost-effective coordination and co-operative management, as well as the use of assets unencumbered by inter-agency rivalry.

Policy objectives are set out in national development plans or through legislative instruments, the former being pro-active and the latter, largely reactive. In general terms, fisheries policy in the sub-region is still production-orientated as opposed to focusing on conservation and sustainability criteria. The implementation of these principles under the new laws is weak; however, when legislation is recent and includes or advocates international principles of sustainable management, wise use practices, the precautionary approach or conservation. (Malaysia is an exception with regard to conservation). The "open access" philosophy is the dominant management policy and practice in most countries, thus threatening not only national coastal fisheries, but also transboundary, highly migratory fish stocks. Effective inter-agency policies and mechanisms are few, Malaysia being the exception, and regional cooperation in fisheries management beyond verbal commitment is not apparent in the sub-region. There is a very positive success story on the benefits of regional cooperation in the South Pacific where the small island developing states formed a regional fisheries body for cooperative management, which then led to increased revenues from foreign fishing fees for all participants, increased fisheries control mechanisms and the ability to collectively negotiate with foreign fishing partners and not be overwhelmed by their industrial technology and pressures for fisheries access. Regional cooperation for policy development and harmonized implementation of regional fisheries management strategies should be used as a tool for restoring fish stocks to sustainable levels and for meeting medium-term goals of sustainability, food security and poverty alleviation.

LEGAL FRAMEWORK

In most countries there is a Department or Bureau of Fisheries, usually within the Ministry or Department of Agriculture. In Indonesia, however, fisheries have their own Ministry of Marine Affairs and Fisheries (MMAF). In all countries in this sub-region, the fisheries agency is responsible for fisheries management and drafting of fisheries legislation for central government approval. Attempts to change fisheries legislation usually take time due to the order of priorities of government legislators. This is especially true in Asia where central government legislators prefer the status quo in order to avoid addressing the sensitive and conflicting priorities of small fishers' needs (survival, poverty alleviation, employment) and big business interests (profit), resulting in a lower priority usually being placed on fisheries matters. Further, since

the resource status is not as visible as for forests and agricultural production, there is a tendency to ignore what one cannot see, and to be hesitant to change the general focus from increased production to sustainability, conservation and responsible management. Legislators are also somewhat reluctant to make any changes that would impact negatively on their constituents or larger-scale business interests, hence the very slow review processes for new legislation, with sustainability and conservation usually taking a back seat to socio-economic interests.

Implementation of fisheries legislation in all countries assessed benefits from receiving assistance from other law enforcement agencies, such as the marine police, military and customs. There are only three cases, Malaysia, Thailand and to a lesser extent, Indonesia, in which the fisheries agencies have their own fleet of vessels for patrols or research; all other countries rely almost totally on other agencies for enforcement. Implementation of fisheries legislation therefore requires agreements and inter-agency mechanisms for cooperation, a factor that is often weak in these countries. In the Philippines and Indonesia, the fisheries authorities have been or are being devolved to provincial and/or local government levels – districts in Indonesia and municipalities in the Philippines. Cambodia, Malaysia, Thailand and Viet Nam have centralized fisheries authorities with regional or district offices. The challenge for devolution is how to achieve consistency in legislation and its implementation while maximizing the benefits of stakeholder input. The benefits of a central system are consistency in implementation and control, but it is less successful in encouraging stakeholders to take some degree of responsibility for the management of their resources or for cost-sharing. Further, local legislation is usually more pertinent to the local situation, but depends on two factors:

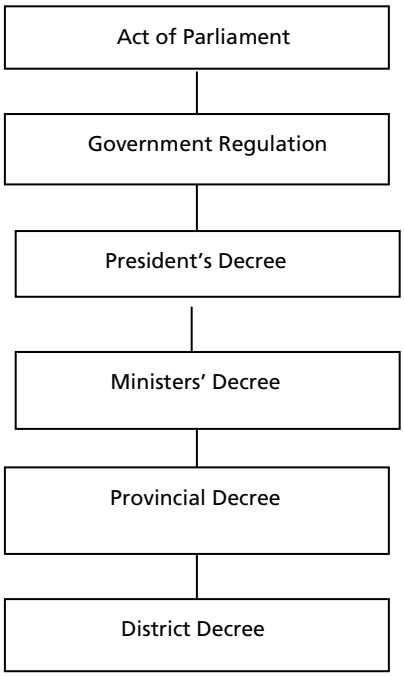
- consistency with national policies and management goals of sustainability and conservation of the resource base;
- the commitment of the local legislators to the principles of conservation and sustainable resource management, and to implementation.

It should be highlighted that most of the countries of this sub-region have amended their fisheries legislation within the last ten years and the new legislations reflect the emerging international principles for responsible fisheries management contained in international agreements and the voluntary Code of Conduct for Responsible Fisheries. Countries that have not yet amended their legislation are in the process of doing so. Table 2 summarizes the status of current fisheries legislation and reviews.

Country examples

The *Philippines* has both a centralized and devolved legal structure in which its central, national office provides policy and legal support to general management principles and standards, and guidance to its regional offices. The regional offices provide assistance and facilitate the management process with the provinces and municipalities, the latter being mandated under the Local Government Code of 1991 to manage the fisheries from the coast to the 15 km limit. The legislative framework in the Philippines therefore has two and sometimes three levels – national, provincial and municipal. Under the local Government Code, fisheries legislation is limited to national and municipal levels, with the provinces having only a minor role in this process. In addition to the Fisheries Law (the Philippine Fish Code of 1998), the Fisheries Administrative Orders (the regulations), and Provincial and Municipal Ordinances (local regulations), other tools for management include: Presidential Executive Orders, Administrative Orders and Ministerial Orders, in descending order of authority. The Presidential Orders and Ministerial Orders are not legal instruments but rather, are used as administrative directions to managers.

The legal framework in *Indonesia* is similar to that of the Philippines, but devolution mechanisms have been brought in as recently as 1999, with the districts



having management authority over 0-4 nm and the provinces over 0-12 nm (the overlap being deliberate to give the provinces coordination authority), beyond 12 nm being the responsibility of the national government. The national government also has the overall coordination and policy-setting role with national legislation taking priority over that of all other levels. It is to be noted that there were 11 levels of legislation in Indonesia until the Autonomy Law of 1999, and now there are six.

Principles of customary law or traditional law (locally called *adat* or *sasi* law) are also used in the rural communities, but had no legal status until recently. It is now being incorporated into the formal legal framework.

Viet Nam has a complex legislative system that encompasses laws from the National Assembly and resolutions, decrees, decisions, instructions and circulars from the Council of Ministers; ministers have the authority to issue the latter three. These instruments form the legal framework for fisheries management. General fisheries law is enshrined in the Constitution. The Statement on the Territorial Sea, the Contiguous Zone, the Exclusive Economic Zone, and the Continental Shelf of Vietnam was created on 12 May 1977 and enacted by the Council of Ministers on 12 November 1982 as the Declaration on the Baseline of the Territorial Waters of the Socialist Republic of Vietnam which then formed the base for the former geographic limits. The 1989 Ordinance SO 18, on the Conservation and Management of Living Aquatic Resources was the basis for fisheries management. Enactments in 1980 addressed foreign fishing in Vietnamese waters, including licensing regimes, and were updated by Decree No. 49 in 1998. Resolutions in 1989 and 1990 addressed issues of catch, mesh size, authorized fishing methods, prohibitions, protected areas, notices for fishing voyages, among others. The ban on destructive fishing practices was issued in 1998. Decree No. 36 of 1999 brought in the principle of administrative sanctions; Circular No. 6000 of 1999 addressed fishers safety at sea, and various other decrees and regulations between 2000 and 2002 addressed fees for aquatic resource protection, fishing vessel and crew registration, fishing trade and product processing regulations. Viet Nam is unique in its joint ministerial decrees that show solidarity and cooperation between agencies to address priority issues. This is a positive example of successful inter-agency mechanisms not seen in other countries of the region, except Malaysia.

Although the central fisheries authority in all countries have the mandate for fisheries management, it is usually implemented – particularly with regard to the monitoring, control and surveillance (MCS) and enforcement components – with support from other agencies, for example, the national marine police, armed forces (navy and air force), customs and immigration. In the devolved legal frameworks, further support comes from district, provincial or municipal authorities appointed for such purposes. There are few mechanisms for inter-agency coordination for fisheries management or for monitoring and controlling the maritime sector. Malaysia has a formal Maritime Enforcement Coordinating Centre (MECC) for such purposes, which brings together the Navy, Air Force, Marine Police, Coast Guard and Fisheries for joint enforcement purposes. Viet Nam's system of joint Ministerial Decrees is another example of inter-agency cooperation. These are efficient and cost-effective management tools for implementing legislation. Malaysian legislation includes limited access; licensing for **all**

TABLE 2
Summary of current legislation

Country	Type of system (centralized, decentralized/ devolved)	Date of current effective primary legislation	Comments
Cambodia	Centralized	Fisheries Act 1987	The base law was redrafted under a World Bank project in 2000, but has not been enacted to date. Amendments for new policies to include international agreements and principles for sustainable fisheries management are being considered.
Indonesia	Devolved	Fisheries Law No. 9/85 and Conservation Law No. 5/90 as well as Autonomy Laws 22/99 and 25/99 for devolution	The Ministry of Marine Affairs and Fisheries (MMAF) formed in 2000 has enacted a new Small Islands and Coasts Act that will have considerable impact on the management of the coastal zones with the private sector being offered the right to procure tenure for small islands and coastal areas. It is not yet known how this is implemented with the devolution of authority to districts and provinces. FAO was involved in re-drafting the fisheries law in 2000, but the output of new legislation has not yet been presented to Parliament for consideration. The World Bank Coral Reef Rehabilitation and Management Program (COREMAP) I Project conducted a full review of the current fisheries-related laws and made suggestions for re-drafting and/or amending laws and government regulations. Incorporating these suggestions into MMAF policies and new legislation is being considered. The new Western and Central Pacific Fisheries Convention (WCPF), to which Indonesia is a signatory, came into force on 19 June in 2004 and should bear considerable impact on Indonesian fisheries management. WCPF will focus on pelagic fisheries management, re-flagging of foreign vessels to fish in other zones, IUU fishing, fisheries data collection and analysis, and licensing obligations to meet international and legal commitments to the Convention.
Malaysia	Centralized	Fisheries Act 1985 (amended in 1993); EEZ Act of 1984	FAO took the initiative to review the Fisheries Act in 2000, but the suggested amendments have not yet been incorporated in new legislation.
Philippines	Devolved	Philippine Fisheries Code Law No. 8550 of 1998 and the Local Government Code of 1991	The amendment of the former PD704 (the former fisheries legislative instrument) to Act 8550 included some of the principles of international law in existence at the time due to changes to the draft during the political processes. This Act is again under review by the government. The Philippine legislators have yet to resolve the boundary delimitation issues enshrined in UNCLOS since its ratification in 1985. The potential negative consequences of not declaring its boundary was mitigated by an extension on the deadline for such declaration until 2009, but if not declared by that date – the Philippines will be compelled under international law to accept the official delimitation of its partners as its boundary. The Philippines is also a signatory to WCPF and will have similar obligations to Indonesia as a new partner in the process.
Thailand	Centralized	Fisheries Act B.E. 2490 of 1947	This Act has been reviewed and re-written with FAO assistance and is presently before Parliament as the proposed Fisheries Act B.E. 2545. This legislation has not yet been enacted by the Royal Government of Thailand, but the new Act will include all the intentions and clauses of recent international agreements and the Code of Conduct for Responsible Fisheries, and will give the Department of Fisheries all the authority and tools to manage its resources in a sustainable manner. International fisheries agreements with neighbours may be influenced by the WCPC Convention when it comes into force, especially the mutually agreed dual flagged vessel fishing arrangements in Indonesian waters.
Viet Nam	Centralized	The legislative framework of Viet Nam consisting of the Constitution, laws, ordinances, decisions, decrees and circulars, which were first implemented for fisheries in May 1977, and updates continue to be enacted today to enhance their management capacity.	The FAO has assisted Viet Nam recently in reviewing and re-drafting its fisheries legislation, with expected enactment before the end of 2003.

fishers, vessels, and fishing gear; clear vessel marking schemes to facilitate identification at sea or from the air; and strict control clauses and heavy deterrence for infractions, including loss of fishing privileges, vessel, catch and fishing gear. This level of forfeiture is automatic for foreign fishing vessels on a finding of guilt. The legal framework and implementation of its laws can provide a model for the rest of Asia. The Philippines had a system for coordinating maritime management, but it failed due to lack of inter-agency cooperation. It was established in the mid-1990s through a Presidential Executive Order establishing a Cabinet Committee for inter-agency cooperation in maritime affairs. Internal differences resulted in this Committee becoming ineffective in late 1998 and inoperative since the turn of the 21st century. Unfortunately, this occurred at a time when efforts for sustainable fisheries management and its contribution to peace and security concerns were most needed.

In all countries in the region, there are supplementary legislative instruments of other agencies that impact on the legal framework for fisheries. Most common of these are the authorities for:

- vessel certification/licensing or registration for safety-at-sea;
- ports, harbours and sea transportation for the use of sea lanes, ports and harbour areas where fishing areas are located;
- coastal area development, resource management, mangroves, environmental impact assessments;
- forestry or wildlife, whichever agency has the mandate for marine parks and coastal mangroves;
- customs and immigration for trade and illegal immigrants;
- foreign fishing issues and regional cooperation through foreign affairs;
- tourism for use of the coastal areas, and in some cases the fishing areas;
- industry for the joint use of the coastal areas.

Sovereignty, peace and security issues are growing in importance, especially in countries where terrorist activities pose renewed and increasing concerns, such as Indonesia and the Philippines. As these issues intensify they will impact on fisheries legislation and on how fishing is conducted in EEZs and on the high seas, especially with respect to policing and control arrangements. As noted earlier, in most countries in the region, inter-agency mechanisms for coordination and co-operation are not in place, except on a case-by-case basis.

In summary, the challenges for all countries, except the noted exception of Malaysia, include thorough commitment to implementing existing or new fisheries legislations that address sustainable fisheries management. The development of a regional framework to jointly address the concerns of common fisheries resource management is a positive step forward. Harmonization of legal frameworks to address these issues would be a first step in this process. The WCPF Convention will have considerable impact on how both the Philippines and Indonesia currently manage their fisheries and will put pressure on them to implement their new fisheries legislation and fisheries management measures, e.g. data collection and analysis, licensing and MCS. The Convention could enhance their commitment and capacity to address the FAO International Plans of Action under the Code of Conduct for Responsible Fisheries, especially those for managing fishing capacity and illegal, unreported and unregulated fishing. These latter issues will be challenges for all countries in the sub-region.

FISHERIES STATUS

There are wide variations in world fish catch estimations, due mainly to differing beliefs regarding viability of data provided, China being the recent key focus. The

TABLE 3
Inland fisheries not included in this review

Countries	Inland fisheries
Cambodia	Capture fisheries in freshwaters
Indonesia	Aquaculture and capture fisheries in freshwaters and brackish waters
Malaysia	Capture fisheries in freshwaters
Philippines	Capture fisheries in freshwaters and brackish waters
Thailand	Capture fisheries in freshwaters
Viet Nam	Aquaculture and capture in freshwaters

Note: Freshwaters include lakes, rivers, swamps, marshes, dams, reservoirs, irrigation, rice fields, channels, streams, drainage, etc.

TABLE 4
Fishing zones of countries in Southeast Asia

Countries	Fishing Zone 1	Fishing Zone 2	Fishing Zone 3	Fishing Zone 4
Cambodia	From shore line out to 20m depth.	From 20 m depth to the EEZ limit		
Indonesia	From shore line out to 3 nm.	Four nautical miles from the outer limit of first fishing zone or 7 nm from shore.	Five nautical miles from the outer limit of second fishing zone or 12 nm from shore.	More than 12 nm from shore.
Malaysia	From shore line out to 5 nm.	From 5 nm to 12 nm.	From 12 nm to 30 nm.	From 30 nm to the EEZ limit.
Philippines	From shore line out to 15 km.	From 15 km to the EEZ limit.		
Thailand	From shore line out to 12 nm.	From 12 nm to the EEZ limit.		
Viet Nam	From shore line to 30 m depth in northern and southern areas, to 50 m depth in the central area.	From 30 to 50 m depth to the EEZ limit.		

world marine capture fishery was estimated in 2000 – the last year for which full data are available – at approximately 78 million metric tonnes, taken by some 22 377 million fishers, of which 85 percent are in Asia. The numbers of fishers are decreasing in capital-intensive countries, yet the overall global number is increasing at a rate of 2.2 percent per year, thus suggesting an increase in Asia. Asian fisheries, especially coastal fisheries resources, are coming under increasing pressure from new entrants on an annual basis. The fisheries in the Asian sub-region are multi-species and caught with multi-gear types. Predictions of coastal fisheries over-exploitation made in the 1980s and 1990s are coming true in all countries of the sub-region. In general, smaller fish are being harvested and fishing gear and target species are shifting from higher-value species to lower-value species. There are efforts in most countries to move the fisheries further offshore to areas presumed to have under-exploited large pelagic resources, but these efforts have mostly failed in significantly reducing pressure on coastal fisheries resources. It has been several years since a regional survey for stock assessment has been carried out in either the coastal or offshore areas. This leaves the sub-region in a position where simple data on fish sizes and catch per unit effort (CPUE), often not even available, are the only indicators that can be utilized. This further emphasizes the need for a precautionary approach if sustainable fisheries management is to be a priority.

One of the difficulties in analysing fisheries management regimes in many countries is due to the various differentiations in fisheries categories for marine fisheries and even to distinguishing between marine and inland fisheries. A recent SEAFDEC publication assists in this respect, by providing varying definitions for inland fisheries, clarifying *which fisheries are not included in this review*. This review focuses on the marine capture fisheries, which does not include the inland fisheries noted in Table 3.

The second clarification is differentiating between artisanal fisheries, at times also referred to as small-scale sustenance fisheries, and commercial fisheries, at times

TABLE 5
Small- and commercial-scale fisheries

Countries	Small-scale Fisheries	Commercial Fisheries
Cambodia	Coastal fisheries: small-scale fisheries with/ without engine (from 5-50 hp) operating in Zone 1.	Commercial fisheries: more than 50 hp operating in Zone 2.
Indonesia	Small-scale fisheries:	Industrial fisheries:
	Outboard engines less than 10 hp or 5 gt operating in Zone 1. Trawls, purse seines and gillnets are not allowed, except for purse seine with a head rope less than 120m.	Inboard engines with less than 200 hp or 100 gt operating in Zone 3. Purse seining is allowed, except those with a head rope less than 600 m.
		All fishing vessels and fishing gear operating in Zone 4.
	Inboard engines less than 50 hp or 25 gt operating in Zone 2. Trawl and purse seine are not allowed, except purse seines with a head rope less than 300 m.	
Malaysia	Traditional fisheries: small-scale fisheries using traditional fishing gears (i.e. other than trawls and purse seines) with vessels less than 10 gt operating in all zones concentrating in Zone 1.	Commercial fisheries: medium and large-scale fisheries using commercial fishing gears such as trawls and purse seines:
		with vessels less than 40 gt operating in Zone 2.
		with vessels from 40-70 gt operating in Zone 3.
		with vessels above 70 gt operating in Zone 4.
Philippines	Municipal fisheries: small-scale fisheries with vessels of less than 3 gt operating in Zones 1 and 2.	Commercial fisheries:
		a) Small-scale commercial fisheries from 3.1-20 gt vessels operating in Zone 2; can also operate within 10.1-15 km (within Zone 1) if authority is granted by the concerned local government unit (LGU).
		b) Medium-scale commercial fisheries: from 20.1-150 gt operating in Zone 2; can also operate within 10.1-15 km (within Zone 1) if authority is granted by the commercial local government unit (LGU).
		c) Large-scale commercial fisheries: more than 150 gt operating in Zone 2.
	Small-scale fisheries: vessels of less than 5 gt operating in Zone 1.	Large-scale fisheries: vessels of more than 5 gt operating in Zone 2.
Viet Nam	Small-scale fisheries: vessels without engines or with engines less than 40 hp.	Large-scale fisheries: vessels with engines more than 40 hp.

referred to as offshore fisheries, depending on the context applied. Before drawing up a table with the current definitions, however, it is necessary to define the "zones" that are often used as part of these definitions. Table 4 provides definitions for the various zones in use in the countries assessed.

In Asia, the following are the current definitions for small-scale/artisanal fisheries and commercial fisheries:

Cambodia, with its 435 km coastline and 55 600 sq km EEZ, has a small marine fishery sector. Most of its fishing and management efforts are applied to the inland fisheries in the Mekong and Tonle Sap areas. The 50 000 mt marine fishery is mostly finfish, shrimp, cephalopods, crabs, gastropods and bivalves taken in the coastal area by the 5 311 motorized fishing vessels. Trash fish is reported to be increasing, indicating resource declines of the higher-valued species. Data on fishing vessels and catches are very difficult to obtain due to inter-agency involvement in licensing and fisheries data; hence they are considered significantly under-estimated and must be used with caution.

Indonesia, with its almost 19 000 islands, has over 5 million persons involved in the fishery sector. It is estimated that there were 2.7 million persons in the marine capture fishery in 1996 and 4.1 million in 2002.[3] Total estimated yield for all fisheries has been

[3] The very significant increase in numbers of capture fishers in Indonesia could be the result of two key factors: an enhanced registration, licensing and data collection system in place and/or an ineffective data collection system. Fisheries data throughout Asia is of questionable validity due to several factors, including the lack of attention and cross-checking systems in use. Inaccurate or incomplete data hampers managers in developing successful and sustainable fisheries management schemes. Data collection and cross-checking systems should be a high priority for all countries.

calculated at 4.96 million mt, with marine captures at approximately 3.6 million mt.[4] Earlier data indicates that there is latitude for expansion of the fisheries,[5] but it must be recognized that the additional fish available would be for offshore fisheries. Indonesia has a very extensive coastal fishery sector involving over three-quarters of the total fishers, most of them from the rural small islands that greatly depend on this resource. These coastal fishers take approximately 95 percent of the total marine catch, most of it caught in western Indonesia and the shelf areas of the Arafura Sea. Larger Indonesian vessels catch the deeper-water large pelagics. In 1997, it is estimated that more than 900 foreign fishing vessels (FAO, 1997) were licensed to fish in Indonesian waters through various joint venture agreements.

Malaysia has a large commercial fishery sector, approximately 1 million mt taken by 32 000 fishers using 7 000 vessels, with another 200 000 mt taken by 34 000 artisanal fishers from 21 000 fishing vessels. Of this 1.2 million mt, 96 percent is caught within 12 nm from the coast and landed at the 72 designated landing sites. Alternate employment options have resulted in an outflow of youth from the fishery sector: Malaysian commercial fishing crews consist of up to 90-98 percent non-Malaysian nationals. Trawls and purse seines are used in the commercial fishery for mackerels and anchovies; hook and line for tunas; drift and gillnets for higher value pelagics; and bag nets for other species. It is notable that 522 000 of the 1 million mt commercial fishery is taken from the east coast waters in this sub-region and some 113 000 mt from the artisanal fishery.[6] This is taken by a total of 16 857 fishing vessels.

The Philippines' data system has been under revision for several years to accommodate the devolution of authority to the municipalities; consequently, the data for the artisanal fishing fleet (470 000 *bancas*) and fishers (730 000 municipal and commercial) should be used with caution. The Bureau of Fisheries and Aquatic Resources (BFAR) licensed 3 601 commercial fishing vessels in 2002, but the total number of commercial fishing vessels is not fully known due to a lack of monitoring capacity. The potential yield for all fisheries in Philippine waters was estimated at some 1.9-2.2 million mt in the early 1980s (Source: Pacific Rim Innovation and Management Exponents [PRIMEX] ADB FRMP Project Design 1994), and estimates made in 1985 in preparation for the ADB-funded Fisheries Sector Project (FSP) concluded that 22 out of 26 of the major bays in the Philippines were over-exploited. Estimates in 1994 in preparation for the ADB-funded Fisheries Resources Management Project (FRMP), the follow-on to FSP, estimated that the coastal sector catches had exceeded the maximum sustainable yield by a factor of two (source: PRIMEX preparatory findings to the design of FRMP). No reduction of fishing capacity or limited access mechanisms have been implemented in the Philippines since the 1980s, although this is legislated for under the new Philippines Fisheries Code of 1998. Decreasing stock availability in the coastal areas is evident from the small sizes of fish, shifts in fishing strategies to target lower-value species, and the lower national fish availability from 32 kg/capita/year in the late 1980s to 22 kg/capita/year today and the projected 10 kg/capita for 2010 at conservative population estimate of 93 million. The population explosion in the Philippines exceeds estimates and is already at 81 million persons, surpassing the projected 73 million for 2002. The value of the fisheries in the Philippines is estimated at approximately US$1.5 billion, but illegal foreign fishing has been estimated at approximately the same value.[7]

[4] Unfortunately, figures are not available to determine the split between the northern areas of Indonesia, in the Malacca Straits east to West Papua, and the waters south of Java and west of Sumatra. Consequently, the percentage of catches, fishers and value of fish cannot be broken down into Western and Central Pacific Ocean, and East Indian Ocean.

[5] Source: FAO webpage on Fisheries Country Profiles and Information for Management.

[6] Extrapolation from the figures presented by Malaysia and the 2000 FAO Information for Management webpage. Note that artisanal fisheries in Malaysia are for both subsistence and small-scale, local commercial sales.

[7] This is the combined estimate from SPC tuna data over the past 20 years, published for ADB's FRMP design in 1994 and Navy-released estimates for 1994/1995.

In summary, the Philippines faces a stock crisis because fishing is an essential livelihood component for rural coastal communities with respect to income and food security. The state of the commercial fisheries has not been assessed for several years and illegal foreign fishing cannot be properly quantified. Limited access is foreseen under the Philippine Fish Code of 1998, but "open access" management regimes prevail for all fisheries.

In this review, the fishery sector of *Thailand* will be represented by the Gulf of Thailand. FAO data indicate that 63.8 percent of all Thailand catches (2.77 million mt from the marine capture fishery) are taken in the Gulf of Thailand waters by some 86 000 fishers using 9 400 licensed fishing gear.[8] The shallow fishing grounds in the Gulf of Thailand are excellent for the use of small trawls, purse seines and traps in the coastal areas. Approximately 52 percent of the catches are used for food consumption, of which 17 percent are squid, cuttlefish and shrimp, and the remainder are used for non-food consumption. Crab, squid and anchovy constitute the largest catches in the Gulf area. With a modest degree of success, the Government of Thailand has been encouraging fishers to move their efforts offshore to reduce over-fishing pressure on coastal stocks. The government's National Development Plan expectations of 1.8 million mt production coming from Thai vessels fishing outside their EEZ have placed considerable pressure on its offshore fleets on the high seas and in third-party waters.

In *Viet Nam*, total catches in 2002 were approximately 1.4 million mt taken by an estimated 320 000 fishers using 71 000 fishing vessels. Vessels target shrimp in the inshore areas and longline boats target tuna (largest commercial yield), pike, conger, sharks and mackerel in deeper waters. Catches have exceeded the maximum sustainable yield for Vietnamese inshore waters of 582 000 mt every year since 1991.[9] An estimated 80 percent of all fisheries occur within the 30 m depth contour.[10] Although the government encourages fishers to conduct activities further offshore, this has been unsuccessful, with incentives utilized to bring larger, more powerful vessels into inshore waters. The "open access" management concept is still in use in Viet Nam, resulting in the harvesting of small fish and smaller catches. This is verified by the statistics showing decreasing CPUE from the Ministry of Fisheries, which are expected to decrease further, as well as an increase in illegal fishing and in the use of unregistered fishing vessels, unless remedial action is implemented in a timely manner.

Table 6 summarizes the fisheries and value of fisheries, providing a view of the ***three major commercial and artisanal fisheries*** by country in the sub-region.

MANAGEMENT ACTIVITY

The countries assessed in this sub-region vary in levels of socio-economic development – ranging from some of the poorer and challenged countries to one of the more capital intensive and industrialized nations in the world. This bears an impact on their fisheries management capacity, implemented strategies and focus. Management strategies vary from centralized top-down mechanisms with regional and local fisheries offices of the central authority (Cambodia, Malaysia, Thailand and Viet Nam), to more devolved management mechanisms put in place (the Philippines) and to strategies now emerging as a result of autonomy laws (Indonesia).

Malaysia has a very well-developed management system based on a pro-active long-term development and management planning process, e.g. *sustainable fisheries*

[8] Noteworthy for Thailand is the fact that the Department of Harbours registers and licenses fishing vessels for safety (53 538 in 2000), while the Department of Fisheries licenses key mobile fishing gear (17 295 in 2000), thus creating an information gap on actual fishing capacity, and hence CPUE estimates.

[9] Discussions with the Research Institute for Marine Fisheries, Haipong, Viet Nam in October 2003.

[10] Fisheries sectors in Viet Nam are recorded according to power of vessel engines and depth contours (10 m, 30 m, 50 m) as opposed to areas, commercial/artisanal fisheries or other factors.

TABLE 6
Summary of Fisheries and Value of Fisheries

Country/ Fishery	No. of licensed fishing vessels/ gear 2000	No. of fishers, 2000	Catch and value, 2000 (000s mt US$ millions, 2002 equiv.)	Catch and value, 1996 (000s mt US$ millions, 2002 equiv.)	Catch and value 1993
Cambodia					
Commercial (TRL, GN, PS)	5 311*	400 000 full-time 300 000 part-time**	43.57 (n.a.)	n.a. (n.a.)	n.a. (n.a.)
Artisanal (not specified)	n.a.	n.a.	n.a.	n.a.	n.a.
Subtotal	**5 311**	**400 000 full-time/ 300 000 part-time**	**43.57**		
Indonesia[a]					
Commercial (LL, PS, BED Sh TRL)	2 815	1 166 764	910.06 US$3 476.81	836.11 n.a.	524.14 n.a.
Artisanal (GN, seine, trap)	417 000[b]	2 911 385	1 689.98 US$9.66	1 313.42 n.a.	1 038.64 n.a.
Subtotal	**419 815**	**4 078 149**	**2 600.04 US$3 477.70**	**2 149.53 n.a.**	**1 562.78 n.a.**
Malaysiac (WCP Ocean)					
Commercial (TRL, PS)	3 767	17 719	521.42 US$288.33	433.16 US$229.18	317.39 US$135.90
Artisanal (Drift GN, H&L, Bag net)	13 090	18 974	113.37 US$104.88	123.98 US$94.53	98.6 US$45.07
Subtotal	**16 857**	**20 753**	**634.79 US$393.20**	**557.14 US$323.74**	**415.99 US$180.98**
Philippines					
Commercial(roundhead, Indian sardines, skipjack)	3 601 (1999 BFAR Regulatory	56 715 (1980 Census)	976.54 US$694.02	940.54 US$571.87	824.36 US$346.56
Artisanal/(frigate and yellowfin tuna, Indian sardines)	469 807 (2000 BFAR Yearbook)	675 677 (1980 Census)	969.54[d] (2001)[e] US$658.12	891.15 US$557.04	1 013.97 US$423.68
Subtotal	**473 408 (estimated)[f]**	**732 392**	**1 946.08 US$1 352.14**	**1 831.55 US$1 128.91**	**2 065.00 US$770.23**
Thailand (Gulf of Thailand)	Fishing Gear Licensed[g]				
Commercial (TRL, PS, GN & Ent N)	6 923	81 695	1 676 US$632 451	1 705 US$553.531	n.a.
Artisanal (sGN, trap, H&L)	2 437	4 627	81.740 US$117.603	69.880 US$78.916	n.a.
Subtotals	**9 360**	**86 322**	**83.416/ US$750.054**	**71.585/ US$632.447**	**n.a.**
Viet Nam	Fishing Vessels				
Commercial (TRL, PS, GN – for shrimp, groundfish, anchovy, scad, small tunnids, mackerels, shrimp and cuttlefish)	11 269 (>45 hp)	n.a.	n.a.	n.a.	n.a.
Artisanal (sGN, shrimp TRL, small LN @ lt)	55 129 (<45 hp) motorized 4 765 no engine				
Subtotal	**71 163**	**320 000**	**1 434 800**	**1 060 000**	**750 000**

n.a. = not available
Liftnet with light = LN @ lt
Bycatch exclusion device = BED
Small gillnet = sGN
Trawl = TRL
Gillnet = GN
Purse seine = PS
Entangle Net = Ent N
Small purse seine = sPS
Shrimp trawl = ShTRL
Hook and line = H&L
Longline = LL
Trap = trap

* not limited to only three top fisheries
**personal communication with Jennifer O'Brien, former advisor for the Department of Fisheries (DOF)
*** This figure differs significantly from the four million persons reputed to be fishers in other government reports.

Notes: Totals cannot be produced due to differing categories of licensing classifications and fishers; otherwise it would be misleading.
a The catch statistics could not be separated between the Western and Central Pacific Ocean and East Indian Ocean Sectors.
b Personal communications with government officials, Jakarta, October 2003, expected to be 417 000, but confirmation not forthcoming.
c All figures for Malaysia based on extrapolation of total figures at a rate of 56% being in the Western and Central Pacific Ocean side of Malaysia (confirmation from Malaysian government not forthcoming).
d Noting that preliminary figures for 2002 include: municipal – 988 938 mt & commercial - 1 042 193 mt.
e The Philippine artisanal catches include 821 000 mt of unidentified catch of the total 969 000 mt.
f These figures are estimates as the Municipalities and BFAR are commencing registration and licensing of municipal fishers at this time.
g For Thailand DOF licenses key mobile fishing gear only, and not fishing vessels. Department of Harbours registers all vessels for safety, including fishing vessels (total for Thailand = 53 000+ for 2000).

BOX 2
Challenges in fisheries data to address fish stocks

- With the exception of Malaysia, basic fisheries data collection (fishers, boats and gear) and verification/cross-checking mechanisms in the region are weak for all fisheries, and especially for artisanal/inshore fisheries. This makes national fisheries management planning very difficult and further complicates regional fisheries cooperation due to lack of data and data standards.
- Categorization of fisheries by species, gear types, or size of the operations is not standard, thus making comparisons very difficult.
- IUU fishing within the sub-region between countries and within national jurisdictions is reported to be significant, but no efforts are being made to quantify this claim. (The Philippines reports that illegal foreign fishing is equal to the value of legal fishing, but no assessment has yet been carried out for national IUU fishing.) Without monitoring capacity, such data cannot be factored into stock assessment exercises, which negatively impacts on management planning.
- Even without up-to-date and verifiable data, anecdotal data from fishers indicate that the fisheries in all countries are stressed, overfished and over-exploited, especially for the coastal areas.
- The stock status is not well known and has not been subjected to a national or regional review in several years, except perhaps in Malaysia where data is available for science-based catch analysis and stock projections.

Efforts to establish and implement data collection standards and to effectively carry out stock assessment are neither evident in the region nor within regional organizations responsible for fisheries management. This is vital for achieving management goals within the important, regionally interconnected fisheries.

management with increased production to 2.9 million mt by 2010 at an annual increase of 5.5 percent. The Department of Fisheries has the clear mandate and authority to manage fisheries, marine parks and coastal areas. This mandate is supported by a fleet of some 65 fisheries patrol vessels and an integrated, inter-agency Maritime Law Enforcement Coordinating Centre (MECC) comprised of the Navy, Air Force, Marine Police, Customs, Coast Guard and Fisheries. Malaysia has an effective management and controlled access system that includes:

- licensing for fisheries for **all** fishers, their vessels and their fishing gear;
- a highly visible vessel identification and marking system to facilitate monitoring;
- zonation to reduce gear conflicts and recognize the traditional fisheries that do not have mobility or flexibility of their fishing areas;
- seasons and gear restrictions;
- formal processes for data collection and verification;

- regular scientific assessment of stocks for management planning;
- the use of new technology including radar and vessel monitoring systems (VMS);
- stringent laws and regulations to support the management process, the latter supported by the prosecutors and judiciary to produce an effective deterrent capacity.

Conflict resolution is addressed through administrative processes or the courts. Infractions are handled similarly, through administrative compounding processes or the courts, and penalties are known to be severe to protect the fisheries resources.[11] In summary, implementation mechanisms include use of access limitations, gear restrictions, spatial restrictions and temporal restrictions.

Malaysia has not only a management planning process, but also a system that could be a model for Asia. Malaysia has made full use of its own increasing government commitment to sustainable fisheries management and the tools provided by the FAO FISHCODE initiative over the past five years to significantly improve its capacity for management. It is recognized, however, that involvement of the fishers, stakeholders and NGOs in the management processes in Malaysia is low. Nonetheless, multi-media mechanisms are used to publicize and seek input and discussions with stakeholders with respect to the implementation of all new management strategies and legislation. An example is the establishment of no-take zones around marine parks, particularly, P. Langkawi, which resulted in a significant increase in the length of the fishing season for anchovies, thereby gaining a posteriori support from fishers. Malaysia has recently amended its legislation and is implementing new technology such as radar and VMS for vessel controls. All key fisheries are regulated in Malaysia, and despite increased costs for fisheries management due to the commitment for implementation, need for capital acquisition, legal processes and consultation with fishers; the DOF has responded with increased budgets to address these needs.

The Philippines has had a decentralized fisheries management system since the enactment of the Local Government Code of 1991, but its evolution and implementation with respect to responsible fisheries management has been slow. As in most developing countries, it is the strength and commitment of personalities, "champions" of the cause of sustainable fisheries management, that have been a key factor in success stories. Without this local government support, concurrence, involvement and commitment, the initiative will not succeed, and indeed, the donor agency could be accused by local government of subverting their authority to govern.[12]

The new Philippines Fish Code of 1998:

- introduced the concept of limited-entry fisheries;
- re-created the Bureau of Fisheries and Aquatic Resources (BFAR) as a line agency;
- increased penalties;
- created mechanisms to ensure involvement of the fishers in the fisheries management process.

The Fisheries and Aquatic Resources Management Councils (FARMCs), with two-thirds of their membership non-governmental, act as advisory bodies to the National Bureau of Fisheries and Aquatic Resources (BFAR) and the local municipal governments. The Philippines Fisheries Code of 1998 has thus legalized stakeholder

[11] Illegal foreign fishing usually results in financial penalties for the captain and each member of the crew and loss of fishing catch, fishing gear and fishing vessel.

[12] A local government leader became very concerned and vocal against such action in Indonesia during the joint World Bank, Asian Development Bank and AusAID-funded COREMAP community-based initiative that ignored the involvement and authority of the local officials (author's personal experience as a World Bank Monitor for COREMAP I, 2001).

involvement in the devolved management process. These FARMCs work at all levels of government and may provide an example of how stakeholder involvement in fisheries management could be formalized.

Management planning processes are usually reactive to arising issues, despite very general goals written into the Medium-Term Fisheries Management Plan, e.g. food security, poverty alleviation, increased employment and increased revenues. Limited access and increased penalties have not yet been integrated and accepted as management tools by the government authorities or the judiciary. The "open access" management concept remains. Active fisheries law enforcement and judicial proceedings are rare, possibly due to the lack of formal legal protection for fisheries enforcement officials against harassment and counter-suits when lawfully conducting their duties, or the need for increased commitment to the task. BFAR has a limited enforcement capacity and a very limited field research capacity,[13] therefore relying on local governments, the Marine Police and Navy to implement fisheries laws. The coordinating mechanism for this process, although mandated as a Cabinet Committee in 1994/1995, has grown very weak. The data collection and verification system has traditionally been weak. There is no formal and verifiable data on municipal or artisanal fishers, gear numbers or catches. The only data available is that extrapolated from samples taken in the early 1980s for the development of the first ADB-funded Fisheries Sector Program (FSP). This factor, in addition to the complexities of coordinating a devolved management, data collection and verification have hindered in providing timely and accurate data to fisheries managers at the appropriate levels – national/BFAR for outside 15 km and municipal leaders for inside 15 km.

Management tools for implementation include gear restrictions, temporal restrictions, spatial restrictions and participatory restrictions are included in the law, but their actual application in fisheries management is low.

Management processes have become more complex and costly for the Philippines in the process of setting example for stakeholder involvement and devolution of management authority. The Philippine Fish Code of 1998 is scheduled for review and amendment, and it is hoped that it will include the newer international principles of responsible fisheries sustainable fisheries management as approved by COFI over the last several years, e.g., Code of Conduct for Responsible Fisheries, the International Plans of Action (Seabirds, Management Capacity, IUU Fishing). Legislators significantly diluted these principles during the passage of the Code.[14] Devolution has slowed the process of implementing sustainable management regimes. Further, by not increasing deterrence through stronger penalty systems, the judiciary has not supported the implementation of sustainable practices. Moreover, the continuation of the "open access" management concept further exacerbated the over-exploitation of coastal fisheries resources. Illegal foreign fishing in the offshore areas has continued unabatedly in Philippine waters and remains a concern with respect to government capacity to meet its obligations under the new multi-national (potentially 27 nations) Western and Central Pacific Ocean Fisheries Commission (WCPF), which came into force in June 2004. The political commitment for responsible and sustainable fisheries in the Philippines has been weak in the past two decades, and with the exception of a few coastal areas where donor projects have a limited impact, this remains the unfortunate situation for the country. Its future capability to implement responsible and sustainable fisheries management practices as provided in the training workshops

[13] Research capacity is growing with the acquisition of a fisheries research vessel from Spain; plans for usage are not known at this time, but there is potential for regional sharing of research efforts.

[14] Lack of commitment of Philippine legislators could possibly be due to conflicts of interest between the internationally accepted Code of Conduct for Responsible Fisheries and other good practices and those principles approved by the Philippines for sustainable fisheries management and individual participation, or lack of interest in the industry.

under FAO's FISHCODE project attended by Philippine officials, will rely more with the few "champions" in the private sector than with the government agencies that are constrained by internal politicization of fisheries issues.

Indonesia is just entering the process of devolving its coastal resources authority to the provinces (0-12 nm) and the districts (0-4 nm), with the national government covering the area outside 12 nm. In addition to the devolution, a new Ministry of Marine Affairs and Fisheries (MMAF) has been formed, which removed fisheries from the responsibility of the Ministry of Agriculture. These two developments, as well as the evolution of democracy after the fall of President Suharto, have all combined to elevate fisheries management in Indonesia to new levels. These steps have laid the foundation for three levels of fisheries authority and legislation: national, provincial and district. According to the new Ministry, the management goals are:

- setting appropriate biologically sensitive and economically viable levels of fishing;
- preventing conflict between users;
- utilizing fish better – more socially desirable distribution of economic rent;
- conserving the resource;
- preventing over-exploitation by controlling activities;
- improving quality of fish by reducing post-harvest losses;
- developing the use of new fish resources, including fish farming and aquaculture;
- developing the use of little-known species;
- improving marketing and presentation of the products.

Fisheries Law No. 9 of 1985, Conservation Law No. 5 of 1990 and Autonomy Laws No. 22 and No. 25 of 1999 have the greatest impact in Indonesia on fisheries management for the legislation of the use of strategies and the devolution process. Other environmental legislation also has an impact, but not as critical as the above legislations. The MMAF has developed and the government has enacted a new Small Islands and Coasts Law intended to bring in communities as well as the private sector as investment partners to secure tenure of coastal areas in an attempt to implement sustainable coastal resource management. This is an innovative and challenging measure if one considers the difficulties in monitoring these agreements for compliance. The integration of the new law, while recognizing the rights for provinces and districts to set their own legislation, is a further challenge to be addressed. It is intended that the lower levels of government will follow the general policies and fisheries guidelines of the national government and establish management schemes within these parameters. New provincial and district laws must be in line with national legislation.

Fisheries management in Indonesia is becoming more open, with increased consultations with stakeholders and use of NGOs as intermediaries to assist in developing community and district management plans. Approximately one-third to two-thirds of the fisheries are still managed from the national level and at this time less than one-third from the provincial and local levels, but this is changing. Efforts in consulting with and seeking input from all stakeholders, and building closer working relationships with the provincial and district officials, the communities, and fishers are evolving processes that are gaining acceptance in Indonesia. Management is not formally carried out through the development and implementation of management plans, but through the development of legislation to address conservation concerns in the fishery sector. The three major commercial fisheries, longlining for tunas, purse seining and shrimp trawling, do not have management plans but are regulated by legislation with respect to:

- Bycatch Exclusion Devices (BEDs) for shrimp trawls;
- licensing for limited access to key fisheries;
- area designations;

- gear restrictions;
- setting of total allowable catches;
- penalties for non-compliance.

Indonesia has also implemented a vessel monitoring system (VMS) for large vessel tracking, dockside and landing site monitoring. These measures have not been sufficient to counter overfishing, especially in the coastal areas where registration and controls on small fishers are not enforced, penalties are too low and the commitment to enforcement is weak. Although the legislation contains many of the international sustainable management principles, without the commitment of fisheries personnel and their mandated enforcement agency partners, i.e. the police and navy, these principles will encounter severe difficulties in their implementation. Further, the low priority for fisheries management set by the judiciary and law enforcement agencies contributes to legislation not being implemented and the consequent decline in fisheries resources. Similar processes are applied for the artisanal fisheries. The accuracy of data for registering fishers and landings is still a major concern for the artisanal fisheries in Indonesia. The steps to date to enhance fisheries management have not been sufficient to reduce overfishing, illegal fishing or rebuild coastal stocks.

Indonesia permits several foreign fishing vessels (approximately 900 or more) to fish with trawls[15] under the flag of Indonesia as charter/joint ventures. This constitutes a concern and challenge for the government as it prepares to address its sustainable fisheries management obligations under the WCPF Convention. Data collection capacity and validity, licensing and registration of *all* fishers, and the implementation of the international agreements and FAO's Code of Conduct for Responsible Fisheries with its International Plans of Action (IPOAs) are other management challenges that will need to be addressed under the WCPF Convention. Indonesia has enhanced its offshore protection capacity through its active involvement of the Indonesian navy in the apprehension of illegal foreign fishers reported in the news since 2003; however, the coastal management, devolution of authority and sustainability of the resources have been largely left to donor agencies and local "champions" that will need to be supported to this end. The inter-agency coordination and cooperation mechanisms have been strained and are relatively ineffective to date. They are now further strained by the devolution of authority to provinces and districts, and resistance in many national agencies at the central level. This is even more evident in the western areas when one reviews the efforts of the government and donors to implement best practices in fisheries management after the tsunami and earthquakes that devastated the coastal areas in the province of Aceh, as well as Nias Island of North Sumatra. These will be the challenges for Indonesia in its efforts towards sustainable fisheries management in the future.

In *Cambodia,* fisheries management efforts are focused on the more lucrative inland fisheries where landings are some ten times greater than those from the 55 600 km² EEZ. The World Bank assisted in re-writing the 1987 Fisheries Law in 2000, but it has not yet been enacted. Management is still oriented towards production; consequently, sustainable management and international principles from more recent agreements and

[5] Trawling is banned in western Indonesia as is foreign fishing. Pressure from large fisheries investors resulted in two decisions that now challenge the government's commitment to responsible fishing. First, the government allowed investors to re-flag foreign vessels as Indonesian vessels, a practice internationally known as dual flagging and not accepted by the international community. Second, the trawl was altered slightly and renamed a "fish net", thus in effect permitting trawling by these 900 or more foreign/Indonesian-flagged vessels in western Indonesia. (Sources: the author's discussions with officials and personal observation in Indonesia and Thailand, 2001–2003, e.g. the Indonesian Presidential Decree No. 39/1980 on Banning All Trawlers from Waters off Java and Sumatra; Presidential Instruction No. 11/1982 on the Extension of the Trawl Ban throughout Indonesia to be effective from 1 January 1983; Ministerial Decrees from 1985 to date on foreign fishing vessels chartered to fish in Indonesia's EEZ and defining the "fish net").

the Code of Conduct for Responsible Fisheries have not yet been integrated into the management scheme. Management of the commercial fisheries is through legislation, the last marine capture fisheries plan having been included in the 1987 Fisheries Law. The artisanal fishers are relatively unregulated. Management mechanisms in use include: implementation of fishing permits and licences for national and foreign fishing vessels; fishing gear and area restrictions; prohibition of illegal or destructive fishing practices; establishment of marine protected areas (MPAs), closed seasons to protect spawners; and protection of CITES-listed endangered species.

The licensing authority is shared between the Ministry of Agriculture, Forestry and Fisheries, the Department of Fisheries and the Provincial/Urban Fishery Authorities for different levels of the fishing sector,[16] which makes the determination of the overall number of licensed vessels a very challenging exercise (Gillett, 2003). Data collection and stock assessment capacity are weak – lacking both basic data and a system for stock assessment – and the consequent lack of viable data renders management measures difficult, since stock states and exploitation rates are unknown variables (Try, 2003; Gillett, 2003). The lack of research capacity and capital resources for monitoring, together with weak law enforcement, render the best efforts of field staff ineffective in the implementation of sustainable marine capture fisheries measures.

Participatory practices, geared towards community-based management or co-management, have increased over the last thirteen years, especially in the inland fisheries sector, but are not yet utilized in the marine sector.

In *Thailand,* the fisheries management exercise is currently centralized and complicated by two factors: the outdated fisheries legislation of 1947 and the decision in 2003 to establish a new Department of Coastal and Marine Fisheries within the Ministry for Natural Resources and the Environment, which will necessitate a joint management scheme at the national level for coastal fisheries management. A further complication is the requirement in the National Economic and Development Plan for equal fish production (approximately 1.8 million mt/yr per sector) from Thai vessels fishing within the EEZ and outside the EEZ, thus placing pressure on Thai fishers for production, possibly without equal pressure for conservation. The Department of Fisheries (DOF) is re-structuring in light of the new Fisheries Law B.E. 2545 currently before Parliament. Its management strategy includes the use of sound scientific advice, regulatory measures, consultation with stakeholders and *implementation*. The government reports that 67 percent of all commercial fisheries have associated management legislation. In addition, the three key commercial fisheries have had periodic plans through regulatory measures since 1975, with specific objectives set for each fishery, or for example in the case of trawl fishery, protection of spawning stocks, protection of juveniles and sustainability of the fishery.

The data collection system is complex and results must be used with caution when one notes that, as aforementioned, the Thailand Department of Harbours licenses/registers all vessels for safety, including fishing vessels (54 538 in 2000). DOF licenses only key mobile fishing gear types, e.g. trawls, seines, gill and entangling nets (17 295 licensed in 2000), thus causing disparity in the perceived numbers of fishing vessels, fishers and fishing gear. This makes it difficult to calculate the actual fishing activities of the Thai fishing fleet. Further, National Parks Authorities control access and fishing within the parks, and Wildlife Department Authorities addresses access and fisheries in reserves and inter-agency mechanisms for data sharing and harmonized management are not yet in place.

[16] See the Proclamation on Competent Authorities in Issuing Permission to Fish in Open Water, Aquaculture, Fish Processing and Special Permissions, 1989, Article 1.

The artisanal fisheries are operated under an "open access" regime. Although more species-specific through the use of selective fishing gears, and with similar management measures in place, these fisheries are becoming more problematic with respect to over-capacity and over- exploitation. At present there have been no fisheries capacity surveys or measures taken to address concerns in the artisanal fishery.

Thailand fisheries have several integrated fisheries field stations with research, which combine management/MCS and extension. Fisheries patrols are conducted through the use of several vessels, approximately 100, in combination with the Navy, Marine Police and National Immigration Office facilities.

In summary, the following fisheries control mechanisms are utilized:

- *spatial restrictions* including MPAs, nursery area closures, no-take zones, marine reserves and other temporary closures of areas;
- *temporal restrictions* such as defined fishing seasons;
- *gear restrictions* on vessel size, gear types and mesh sizes for encircling gillnets for Indo-Pacific mackerel;
- *participatory restrictions* through licensing, and in the case of trawl fishery, limited entry; *groups' rights,* a pilot initiative, are all in use as fisheries management measures.

The use of these control measures has been increasing over the past few years. Nevertheless, despite the increased use of the above management measures, stakeholder involvement and conflict-resolution mechanisms to resolve competition between vessel types and fisheries, the situation has not improved with respect to stabilizing stock levels. Capacity-reduction measures, which include shortening seasons and buyouts of licences, have had little impact on reducing the trawl fisheries. Despite the use of compliance tools including higher penalties, at-sea boarding and inspections, revocation of licences, and a generally increased budget for law enforcement activities, the infractions in the trawl and encircling gillnet fisheries have increased over the past ten years. Funding is perceived as insufficient to address all compliance issues. A key challenge for Thailand for the near future is the commitment to provide financial and personnel support and establish effective inter-agency mechanisms, changing its focus from increased production over the past decades to a sustainable fisheries to enter the global community of responsible fishers. The National Development Plans and the Government have yet to fully address this challenge.

In *Viet Nam*, fisheries management is centralized within the National Ministry and its provincial and local offices under the direction of Peoples' Committees. Management appears mostly reactive and includes mesh size restrictions and seasonal/area closures. Minimal licensing fees are imposed. The "open access" management concept is in practice, and coastal fisheries are overexploited. The Government of Viet Nam is taking steps to address the overfishing and overcapacity in the coastal area through new fisheries legislation in the National Assembly. This legislation will also address international fisheries agreement and concepts. The focus in Viet Nam has been to increase production over the past ten years for food security and to affirm its position in the global trade markets in its need for increased foreign revenues. At this time sustainable fisheries management concepts are not yet in place and enforcement of existing legislation to reduce pressures on overexploited coastal resources is less than adequate to reduce the overfishing and stock declines. These uncontrolled fishing pressures and related negative impacts on coastal communities dependent upon coastal resources is beginning to become a focus for action by Viet Nam. The challenge for the future will be the implementation of the FAO FISHCODE principles for responsible and sustainable fisheries management, control of the coastal resources and a shift in fisheries effort to the offshore areas.

In summary, the management strategies of the countries in the sub-region **vary from**:

- up-to-date, internationally-backed, responsible and sustainable management mechanisms including supporting legislative instruments, with full controls and compliance support as seen in Malaysia; **to**
- post-World War II systems that still focus solely on increasing production to guarantee food security and support the national economies, with conservation issues playing a minor role. This has been observed in Viet Nam, Thailand and Cambodia, but their governments are currently considering conservation and responsible fishing concepts, however these have not yet been put in place in legislation.

In all but Malaysia, less than 33 percent of coastal fisheries are under a formal management regime involving all stakeholders, and including strategies and mechanisms for responsible fisheries. In some countries with centralized fisheries management systems and authorities, reports indicate that up to 67 percent of the fisheries are under management regimes, and although noted in the laws, they do not appear to be implemented effectively at the field level. Stock assessment, legislative reviews, inter-agency coordination mechanisms and enforcement are generally weak in most countries of the sub-region. Implementation of existing legislation is being neglected in many cases. Consultation with stakeholders is a concept gaining in popularity (Thailand and Indonesia), with the Philippines enshrining the process into law, but in some countries the concept is still in its infancy (Cambodia and Viet Nam). Management control mechanisms commonly in place in the sub-region include: spatial restrictions; temporal restrictions; gear restrictions; participatory restrictions; with group rights being assessed in some countries on a pilot basis. To reiterate, although provided for in the law, the implementation of such measures are not adequate to reduce overfishing and overexploitation of coastal fish stocks. Since the current status of offshore fish stocks is relatively unknown, the precautionary approach would be in order in managing the increasing exploitation of these stocks until new information can be made available.

In Malaysia, all fishers, vessels and gear are identified and data collection systems in place for effective management supported by legislation, judicial support and coordinated law enforcement mechanisms. This combined set of fisheries management mechanisms has enabled Malaysia to take management measures to protect and move towards the sustainability of its fisheries. While illegal foreign fishing and illegal local fishing persist, they are carried out on a much reduced scale compared to other countries. Further, Malaysia's MPAs measures have gained the support of the fishers who are now reaping the benefits of greater fishing opportunities.

Indonesia and the Philippines have the legislative mechanisms to implement sustainable management principles and practices. However, with the devolution of authority in these countries that is consuming their efforts, their implementation of sustainable management practices is inadequate to stem the overfishing and pressures on the fish stocks, especially in coastal areas. Most of the countries assessed reported that over 80 percent of their catches taken in national waters came from coastal waters.

In all but the above-noted artisanal fisheries, coastal resources are over-exploited, with most countries giving minimal attention to implementing sustainable management practices to protect them.[17] Governments appear less concerned that management is also needed in the non-commercial harvesting sector for conservation purposes where fishing and social pressures generally have very significant or higher impacts on resource stability and sustainability, especially when observing fishing activities directed at coastal areas in this region.

[17] These include legislation, regulatory mechanisms such as licensing or registration, limited access and measures to minimize resource user conflicts.

Challenges for the future will be the attitudinal changes of the legislators, judiciary, fisheries authorities and stakeholders that are necessary to implement responsible fisheries management measures in the sub-region. Basic identification of fishers, boats and gear, data collection and verification, and control mechanisms are still required. Legislation updates, and political commitment is needed to address responsible fisheries in all countries, especially for the implementation of FAO's IPOAs for IUU fishing and Management of Fishing Capacity, the two main concerns in Asia. Countries need to be more mindful of the fact that IUU fishing is not only foreign fishing, but includes **all** illegal, unreported and unregulated fishing activities, many exercised by their own national fishers. Regional co-operation to implement sustainable and responsible fisheries practices is in the verbal stages only and very little has evolved from sub-regional organizations to take such steps to date. The obligations under many of the international agreements signed or ratified over the past 10 to 20 years are still outstanding with respect to implementation in many of these countries, and new obligations under the WCPF for the Philippines and Indonesia will be further challenges for those two countries. Implementation of basic and verifiable fisheries licensing, registration of all fishers, vessels and gear, and data collection systems are the general first steps required for responsible fishing and fisheries management. Implementation of the laws through preventative and deterrent MCS operations are the second step.

Regional cooperation to set minimum standards for fisheries management and data requirements could be a first and effective approach towards responsible fisheries; more complex issues such as enforcement may be dealt with at a later stage.

COSTS AND REVENUES OF FISHERIES MANAGEMENT

All countries report that they have not yet implemented any cost-sharing arrangement with fishers or stakeholders to address increasing management costs. Licence fees provide minimal contributions to offset management costs. Increased consultation with stakeholders, increased pressures on the resources resulting in overfishing, conflicts and subsequent increases in infractions have also led to higher costs for fisheries management. Infractions have resulted in further costs for litigation, again all falling back on the government as the sole source of funding. It is only in Malaysia that a significant commitment from government has been observed to increase its budget to enhance its capability and capacity for fisheries management; all other countries report that funds are insufficient to carry out their mandates.

Considerations

Cost recovery with stakeholders sharing management expenses is an option for consideration.

Most countries assessed do not register or license all fishers. Further, the revenues recovered from current exercises are not rationalized against the potential resource rents for fishers. If these measured would be taken, they could enhance revenues and move towards cost-sharing with stakeholders. Similar initiatives could be developed for possible devolution of management of coastal areas to communities, tourism agencies or other stakeholders with interests in maintaining the sustainability of the marine resources.

Deterrence is critical to the success of responsible fisheries management, financial fines being a key component. Since financial revenues from fisheries penalties is generally very low in all countries assessed except for Malaysia, deterrence is also low. This is an area that can benefit from experiences in the South Pacific and Malaysia.

IMPLEMENTATION OF GLOBAL FISHERIES MANDATES AND INITIATIVES

Table 7 summarizes the status of signatures and ratifications of international agreements. Many countries have included internationally agreed sustainable and

Deterrence as a management tool

Experience shows that when the risks of being apprehended are low due to ineffective monitoring, and the penalties are low in comparison to the gains, infractions will increase. If the deterrence level is increased (increasing the risk of apprehension + increasing penalties, ensuring no profit from the illegal fishing activity), fewer infractions will occur as the risks and costs simply outweigh the potential profits from illegal fishing. In Malaysia, this principle is translated into fines for masters and for each crew member, as well as loss of fish, gear and vessel. To be effective, this requires understanding and supporting the prosecutors and judiciary through awareness of the damage that illegal fishing causes to the resources and the negative social and economic impacts for fishers. Finally, a basic data system for registration (possibly free of charge), vessel marking and identification, and data reporting can be very beneficial towards sustainable fisheries management.

responsible fisheries management principles in newer legislative instruments, but the implementation of these principles is weak, with the exception of Malaysia. This is due to minimal political and bureaucratic commitment, resulting in declining stocks and a worsening social and economic situation for coastal fishers.

In the case of FAO's International Plans of Action (IPOAs),[18] most countries have reported that they have commenced implementation activities (see Table 8), but these tend to be in the form of meetings with stakeholders for discussions. In most cases, supporting mechanisms for management – science, data collection, licensing/registration of all fishers, limited access, reports and cross-verification of catches and landings, monitoring and enforcement – are not yet in place. Some countries have reported commencing work on National Management Plans for the IPOAs and have commenced discussions. The two most important IPOAs for the sub-region, management of fishing capacity and IUU fishing, will first require a licensing and registration system to enumerate the fishers, vessels and fishing gear; this will be the first challenge in all countries, with the exception of Malaysia which already employ this system.

Considerable verbal support and paper has been produced with respect to sustainable fisheries management in international agreements to which most countries are a party, such as the Code of Conduct for Responsible Fisheries and its IPOAs to which FAO Members have given unanimous verbal agreement through COFI. In practice, however, these papers have generally not yet been formally adopted through legislation by national authorities and hence have not yet been implemented in the field. If allowed to continue, several important stocks in the region may reach levels of collapse before action is taken, which could bear serious impacts on the social and economic order of the day in each country. Such consequences will also gravely impact on peace and security.

PARTICIPATION IN REGIONAL FISHERY BODIES

The common sub-regional and regional bodies of which the countries are members or in which they participate include:

APEC – Asia-Pacific Economic Cooperation (APEC) was formed in 1989 to enhance the economic growth and prosperity of its 21 members. It has no treaty obligations, decides by consensus, represents 2.5 billion people, has a combined GDP of US$19 000 000 million and 47 percent of the world trade.

[18] IPOAs have been published by FAO for the reduction of the incidental catches of seabirds in longline fisheries, conservation and management of sharks, management of fishing capacity, and prevention, deterrence and elimination of illegal, unreported and unregulated fishing (IUU fishing).

TABLE 7
Status of international agreements

Country	UN Law of the Sea Convention		UN Fish Stocks Agreement*		FAO Compliance Agreement**	
	Signed	Ratified/ acceded	Signed	Ratified/ acceded	Signed	Ratified/ acceded
Bangladesh		27 July 2001				
Cambodia						
India (East)		29 June 1995		19 Aug 2003		
Indonesia		3 Feb 1986				
Malaysia		14 Oct 1996				
Myanmar		21 May 1996				8 Sept 1994
Philippines		8 May 1984				
Sri Lanka		19 July 1994		24 Oct 1996		
Thailand	Yes					
Viet Nam		25 July 1994				

TABLE 8
Status of International Plans of Action (IPOAs)

Country	Management of Fishing Capacity		Reducing Incidental Catch of Seabirds in Longline Fisheries	Conservation and Management of Sharks	Prevent, Counteract and Eliminate Illegal, Unregistered and Unregulated Fishing
	No. of Assessed Fisheries	NPOA	NPOA	NPOA	NPOA
Bangladesh		No	No	No	No
Cambodia					
India (East)	Capacity to be measured by 2005	Plan being formulated	Not perceived as a problem	10 sharks protected since 2001; resource being assessed	Under investigation, plan being formulated
Indonesia		2004	2004	2004	2003
Malaysia	All coastal	Yes (ongoing)	No	Yes (ongoing)	Yes (ongoing)
Myanmar		No (not a problem)			Yes (ongoing)
Philippines		Yes (ongoing)	No	Yes (ongoing)	Yes (ongoing)
Sri Lanka		Yes (ongoing)	No	Yes (ongoing)	Yes (ongoing)
Thailand		Yes (ongoing)	No	Yes (ongoing)	Yes (ongoing)
Viet Nam					

APFIC – Asia-Pacific Fisheries Commission (APFIC) was formed in 1993 following several name changes from the 1948 Asia-Pacific Fisheries Council. It has some 20 members and aims at ensuring full and proper utilization of living aquatic resources of the Asia-Pacific Region, developing and managing fishing and culture resources, and developing processing and marketing. The Commission has no regulatory powers. At present, this organization is in limbo, with members awaiting a review on whether or not it should continue as a regional fisheries body for Asia.

CCAMLR – The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) was formed under Article IX of the Antarctic Treaty System in 1982 with a preliminary concern for the krill fishery. It now has 24 members with seven non-member participants and addresses Antarctic marine resource issues.

CCSBT – The Commission for the Conservation of the Southern Bluefin Tuna (CCSBT) has five active members and two other countries considering membership at this time. It was founded in May 1994 to address the conservation of bluefin tuna. Indonesia is involved in this organization due to its interest and role in the conservation and protection of southern bluefin tuna.

IOTC – The Indian Ocean Tuna Commission (IOTC) evolved in March 1996 from the Indo-Pacific Tuna Programme. It has 20 members with a common objective to manage the tuna and tuna-like species of the Indian Ocean and adjacent seas.

SEAFDEC – The South East Asian Fisheries Development Centre (SEAFDEC) was formed in 1967 to promote fisheries development in Southeast Asia though research, training, information exchange to improve food supply and rational utilization, and development of fisheries resources to improve the livelihood of the people of South East Asia. SEAFDEC has ten members, many from this sub-region. The new thrust of SEAFDEC – to address the Code of Conduct for Responsible Fisheries through the development of regional guidelines for countries – is a new and positive role for this organization.

TABLE 9
Regional organizations

COUNTRY	INDIAN OCEAN		
	APFIC	IOTC	SEAFDEC
Bangladesh	M		
Cambodia	M		M
India (East)	M	M	
Indonesia	M		M
Malaysia	M	M	M
Myanmar	M		M
Philippines	M		M
Sri Lanka	M	M	
Thailand	M	M	M
Viet Nam	M		M

M – Member; C- Cooperates but is not a member; S – Signed; R – Ratified

WCPF – The long-term objective of the Western and Central Pacific Ocean Fisheries Commission (WCPF) is the conservation and sustainable use of highly migratory stocks in the West and Central Pacific Ocean area. This Commission came into effect on 19 June 2004. For several years, twenty-seven countries were involved in developing this Convention, the majority which have already become full Members of the Commission. The Philippines and Indonesia are signatories to the Convention. The Commission will have some mutually agreed regulatory powers.

Tables 9 and 10 reflect the status of membership to regional and intra-regional fisheries bodies of the countries assessed.

None of the sub-regional organizations except for the new WCPF have regulatory powers, which may be a reason for which the organizations have not been as effective as expected in bringing about sustainable fisheries management schemes in the region. There is no need for commitment by members for cooperation or action. This may change when the sub-region becomes subjected to long-standing and successful *South*

TABLE 10
Intra-regional organizations

COUNTRY	PACIFIC OCEAN		TRANS-OCEAN		
	APEC*	WCPFC**	CCAMLR	CCSBT	OLDEPESCA
Bangladesh					
Cambodia					
India (East)			M		
Indonesia***	M	S		C	
Malaysia	M				
Myanmar					
Philippines	M	S			
Sri Lanka					
Thailand	M				
Viet Nam	M				

Notes:
* APEC General Membership
** On 4 September 2001, the Convention that would create the WCPFC was signed by 19 countries, and on 19 December 2003 the minimum number of countries had ratified the Convention, thus bringing it into force six months later, on 19 June 2004.
*** Indonesia's agreement is being urgently pursued since Indonesian catch, which is significant, includes mature fish taken in the only known SBT spawning ground. The Commission is developing a status of "cooperating non-member", and discussions will be held with Indonesia on participation with this status as an initial step in formal engagement with the Commission.
M – Member; C – Cooperates but not a member; S – Signed; R – Ratified
Source: CCSBT website: www.ccsbt.org/docs/about.html

Pacific Forum-type organizations that include obligations for action and that respect the implementation of agreements.

SUMMARY AND CONCLUSIONS

The Asian subsector of the Western and Central Pacific Ocean sector represents approximately one-twelfth of the world population and 6.4 percent of the world EEZs. It has a very high percentage of the world's marine capture fishers and harvests some 13 percent of the total value of the world's fisheries. The growing view of fisheries as the last resort employer is still evident, and the aging demographics of fishers in most countries also indicate the lack of popularity of fishing as a livelihood.

The countries vary in development levels, from one of the most capital-intensive and developed countries of the world (Singapore, which is not included in this review), to some of the least developed countries, thus resulting in varying fisheries management schemes. Malaysia has one of the more advanced centralized fisheries management systems in the sub-region and reputedly in the world. The country may provide Asia with a model for marine capture fisheries in the following fields:

- management planning;
- inclusion of international agreements and management principles;
- research;
- data collection and analysis;
- supporting legislation;
- control mechanisms in use, including licensing of fishers gear and vessels, vessel marking and identification, data reporting, collection and verification, and limited access;
- monitoring of fishing activities for compliance;
- joint inter-agency enforcement mechanisms (MECC);
- judicial support by creating a high level of deterrence, e.g. high risk of being apprehended and severe penalties from the courts outweighing benefits from illegal fishing.

The Philippines is an example of the complexities of devolution of fisheries authority and an excellent example of bringing stakeholders into the management planning process. The Philippine Fish CODE of 1998 established Fisheries Aquatic Resources Management Committees (FARMCs) to advise managers on fisheries matters at all levels of government. Indonesia is entering the devolution process and learning from the Philippines by bringing the provincial government into the chain of authority. Most countries assessed have relatively new legislative instruments for fisheries management or draft legislations in their respective national government assemblies for enactment. These more recent and draft laws include sustainable management ideas and principles covered in international agreements, the voluntary Code of Conduct for Responsible Fisheries and its IPOAs.

The fisheries in the offshore waters are assumed to have room for expansion; however, a precautionary approach in the region would dictate that the 1980s survey may be outdated, meriting review and a new survey. The fisheries in the coastal inshore areas were found to be at or exceeding MSYs in the late 1980s and early 1990s. Nevertheless, "open access" policies still prevail in all countries assessed, with the one exception of Malaysia, where limited access mechanisms are in use for fisheries management. Given that in many countries more than 80 percent of all recorded catches are taken in the coastal/inshore areas, these stocks are severely overstressed. Responsible fisheries management mechanisms will require very strong national commitment by each country. This includes viable data for planning, responsible and precautionary decision-making involving stakeholders, supporting legislation and a commitment to compliance, and for both preventive and deterrent enforcement with support from the judiciary.

Although many countries have the legislation and the tools for sustainable management, the political and field-level commitment and capacity for implementation is very weak, making the verbal proclamations of support for responsible fisheries "paper tigers" rather than reality.

All countries with fisheries patrol fleets of 50 or more vessels, even Thailand and Malaysia, rely on other law enforcement agencies to assist in compliance duties. With the exception of Malaysia, there do not appear to be any formal and effective inter-agency mechanisms for cost-effective operational planning and action.

"Toothless" sub-regional organizations for fisheries management implementation have proven, as in most cases in the world, ineffective in reducing either the pressures on the fish stocks, or the increasing IUU fishing, both foreign and national. Although the sub-regional organizations are fora for discussion and effective management planning and aquaculture training, these cannot be realized if this training is not put to use and there is no commitment for regional cooperation and harmonization of strategies for sustainable fisheries management. APFIC was an organization with the potential to address these concerns, but it has been rendered ineffective by the cancellation in 1997 of its working groups for these issues. The WCPF is another potentially effective regional organization. It will impact on two countries of the sub-region (Indonesia and the Philippines), but there is concern that without a commitment towards implementation, this organization could suffer from lack of support and inadequate and verifiable fisheries data for decision-making. This would severely weaken WCPF's potential to conserve the large pelagic stocks of the Asia-Pacific region.

Conclusion

In summary, the legislative tools are in place or about to be put in place for sustainable and responsible fisheries management; however, the commitment and the actual capacity for implementation is low, except in Malaysia. The fish stocks are under severe and continually growing pressure, especially in the coastal areas. Stakeholders are yet to be fully integrated into management planning and to understand the situation to support implementation mechanisms. Countries need assistance in developing sustainable and realistic fisheries management plans that reflect the level of detail and commitment to address current concerns of overfishing and IUU fishing. Countries and existing regional fisheries organizations in the sub-region are weak with respect to implementation of sustainable fisheries management mechanisms, without which the fisheries will continue to decline.

Regional cooperation and efforts to harmonize data collection and verification as well as the implementation of licensing or registration of all fishers, gear and vessels, would be a first positive step to address the fisheries pressures on the stocks today. The implementation of international agreements, the FAO Code of Conduct for Responsible Fisheries, and coordinated efforts to address the IPOAs, especially for management of fisheries capacity and IUU fishing are also important first steps in regaining control of the sub-regional fisheries and moving towards sustainable development and management.

The continuation of the FAO FISHCODE initiative and the financial and personnel commitment for training and capacity enhancement to bring the message of responsible and sustainable fisheries management to the wider fisheries management communities will be the greatest challenge to countries and donor agencies alike. The stakeholders in this challenge has grown significantly with the initiatives to devolve management authorities closer to the field activities, e.g. provinces, districts and municipalities. In many cases this may appear to be a repetition of past efforts, but these initiatives will be necessary to provide local sustainable management capacities to new managers at the community level.

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