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# FINAL REPORT ON INDONESIAN FISHERIES POLICY



COASTAL RESOURCES CENTER

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## Introduction

This report provides an assessment and advice to the Ministry of Marine Affairs and Fisheries on ways to strengthen fisheries management capabilities in Indonesia, with special reference to potential challenges of controlling illegal fishing and instituting a property rights regime for fisheries. The first issue I address is whether the Ministry and the fisheries management program are on the 'right track' with respect to long-term fisheries management policy, which is followed by analyses of illegal fishing, prospects for strengthening fisheries management arrangements including implementation of fisheries user rights or privileges.

To assess the fisheries management situation in Indonesia I interviewed at least 35 government officials at the national, provincial and district levels, plus 15 other people involved in fisheries during my two visits (September 10-15, and November 19-30, 2012). The names of those interviewed are listed in Appendix A. In addition, I have collected several documents related to Indonesia fisheries and drawn on many of them for this initial report. Appendix B summarizes a training seminar that I presented during my first visit to Jakarta.

Before presenting the assessment and advice on ways to strengthen fisheries management capabilities, it is useful to explain my perspective on the fisheries management situation in Indonesia.

## Perspective

The first important point is to recognize that successful fisheries management is very difficult and takes years to establish. After 30 years of trying, most developed countries are still struggling to find effective ways to conserve and manage marine fisheries on a large scale. Countries such as the US and European Union member states have taken decades to establish adequate institutional and organizational capacity to address the fundamental issues of fisheries management and achieve meaningful progress towards sustainable fisheries. Even in these advanced democratic countries with long histories of decentralized governance, the implementation of fisheries law is a very complex, imperfect, time-consuming process.

The second important point is that the setting or context of fisheries management in Indonesia may be the most complex of anywhere in the world. The vast size and complexity of the marine environment alone presents significant challenges for Indonesian fisheries management. The archipelago nation extends over 5,000 km, contains over 17,000 islands, some 6,000 of which are inhabited by over 240 million people. There are about 350 ethnic groups, most with their own language and customary laws (Resosudarmo 2005). The country has a coastline of 81,000 km and an EEZ of 2.7 million km<sup>2</sup> with approximately 3.8 million fishermen and 550,000 fishing vessels operating in Indonesian marine waters (FAO 2012).

Added to these complex natural and social environments is a history of inequitable and unsustainable use of fisheries and other natural resources (Resosudarmo 2005, p 4). Government policies formerly encouraged resource extraction for rapid economic development with benefits realized by a narrow segment of society. This history has undoubtedly bred attitudes and expectations that will resist sustainable development policies and programs, and may take years to overcome.

The government of Indonesia is off to a good start in its efforts to implement a modern fisheries management regime in the country. In the past 13 years democratic Indonesia has passed numerous laws to put in place a meaningful program of sustainable marine resource use and development. This concerted attempt to establish a legal and organizational framework for modern fisheries management is an important strength of the government and its leaders.

The Ministry of Marine Affairs and Fisheries is primarily responsible for fisheries management at the national level. Presidential decree No. 136/1999 established the new ministry in 1999 to ‘reverse a pattern of making economic growth dependent on natural resource extraction...’ with the mandate ‘to promote economic growth in the context of sustainable development’ (MSI 2009, p 3).<sup>1</sup> The creation of MMAF is one manifestation of the many political changes that have occurred since the fall of President Soeharto in 1997. The country has aggressively moved to democratize Indonesian society by the process of *reformasi*. The system of government has been decentralized and authority for some areas of governance – including fisheries management – transferred to districts and municipalities (Resosudarmo 2005, p 4). These and other changes since 1999 have resulted in major changes in marine resource management over a very short period of time.

Some of the strengths of the legal framework and institutional structure include the establishment of 11 fishery management areas, the use of fishery management plans, collaboration and consultation in developing fishery management plans, and the establishment of stakeholder Forums to discuss and provide input on management issues. There is also the attempt, still in early stages, to devolve to local and provincial government levels the rights and responsibilities of fishery management. Although this is a step in the right direction, many challenges and obstacles remain. Since few laws are perfect – especially when first enacted – many of these laws will have to be modified over time. But, the current version of the law appears to contain the basic elements necessary to construct a sound fisheries management regime in Indonesia.

Many challenges and obstacles lie ahead for developing a fisheries management regime that satisfies Indonesia’s new democratic society. In its efforts to meet the challenges and obstacles, I recommend that MMAF and its government and non-governmental partners recognize the complex and time consuming that lies ahead.

I recommend that MMAF and its partners

- Take the long view and recognize that progress likely will come slowly and in small increments.
- Be patient and move deliberatively in accordance with sound principles of best practices of public administration and management.
- Initially focus on establishing a sound and solid foundation for robust fisheries management capabilities in the future.

The elements of such a foundation for robust fisheries management include a clear and explicit strategic direction, control of illegal fishing, strengthening existing fishery management arrangements, preparing for the introduction of user rights/privileges, and others. These elements and associated recommendations are explained below.

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<sup>1</sup> Salim (pp xxi-xxv) and Resosudarmo (pp 1-9 in Resosudarmo 2005) recount the political and policy history of Indonesian resource extraction – at the expense of the environment – from 1967 through the late 1990s.

## Strategic Direction

The leadership of MMAF is concerned whether the Ministry and its fisheries management program are on the 'right track.' MMAF has made several changes in policy in recent years, but there is no consistent direction or path to a well-defined end. Some observers view the changes that have been made to date to be ad hoc. The report by MSI (2009) explains this issue as follows:

Because of the current structure of the Ministry, and as a consequence of the relative autonomy of the various units that compose it, many MMAF policies and programs seem to be formulated by the component parts of the Ministry, without sufficient reference to overall MMAF requirements. Sometimes policies for one DG seem to be made with little linkage to the needs of other DGs, or other administrative units. (p 7)

Over the past decade, MMAF has evolved from an organization that was cobbled together from parts of several pre-existing "parent" ministries, into an organization with nine (9) largely autonomous DGs and Agencies. Because of this organizational history, and because of its present structure, the Ministry currently lacks a *well-integrated* management structure. In fact sometimes it seems closer to nine parallel and semi-independent organizations than it is to being one integrated natural resources ministry. Because of its history and present structure, MMAF also lacks a *shared vision* among its various wings for what they could be doing together as an organization. (p 16)

What should that shared vision be? A set of guidelines for policy development, based on a consistent set of principles and long-term vision, is needed to guide future policies and implementation of programs. The following recommendations aim to address this issue.

- Declare *sustainable development* of fisheries as the primary operational objective of the Ministry's long-term fisheries policies and programs.
- Clearly define and explain sustainable development of fisheries in terms of *optimizing long-term sustainable economic benefits within the constraints of the country's fisheries* and other environmental and natural resources.
- Establish standards of performance (i.e., accountability measures) of sustainable development of fisheries in terms of the current and expected long-term (1) *exploitation status* of all fishery resources, and (2) *economic status* of all fisheries.
- *Annually assess the performance of Ministry's policies and programs* in terms of improvements in the exploitation status of fishery resources and the economic status of fisheries.

Declaring sustainable development of fisheries as the primary objective of its policies and programs will enable MMAF to set a course for long-term policy development and implementation, and to evaluate its progress towards meeting the objective in the long-term.

Another reason for setting sustainable development as the primary objective is that doing so will provide greater long-term potential for national economic development in terms of pro-poor, pro-job and pro-growth goals. If sustainability is not first secured, the development potential of fisheries can be greatly weakened.

Too often in other countries, the enthusiasm for short-term development has produced outcomes that threaten sustainability – even leading to severe overexploitation of resources. This is due, in part, to the political dynamics that produce natural resource and environmental policy in a democracy (Sutinen 2011, 2008). To avoid such outcomes and ultimately realize true *sustainable* development, a set of guidelines and priorities is needed for MMAF on which to base its policies and programs over the long term.

In addition, declaring sustainability as its primary objective positions MMAF to better meet its legal and international obligations. The pursuit of sustainable resource use is a key feature of the laws governing MMAF's policies and programs (Law 31/2004 and as amended by Law 45/2009, Law 27/2007). Indonesia's international obligations to sustainability include being signatory to the 1982 UNCLOS, 1995 Fish Stocks Agreement, 1995 FAO Code of Conduct, 1996 UN Seabed Authority, Conventions of RFMOs in which Indonesia participates (IOTC, CCSBT, WCFPC), and the Regional Plan of Action (RPOA) to Promote Responsible Fishing Practices including Combating IUU Fishing in the Region.

The declaration that sustainability is the top priority of MMAF could be achieved by issuing a Ministerial Decree that declares the Ministry's commitment to sustainable development of marine fishery resources and specifies standards of performance or criteria by which every Ministry policy and activity or program is governed.

The proposed decree would explicitly declare that achieving and protecting the sustainable use of marine fishery resources is the Ministry's top priority. The decree should mandate that immediate, short-term policies and actions would be required to re-build over-exploited fishery stocks to or above their sustainability reference points (e.g.,  $B_{MSY}$ ) and prevent fishing mortality from rising above a comparable reference point (e.g.,  $F_{MSY}$ ).<sup>2</sup> For example, the immediate/short-term rebuilding policy and action may require reductions in fishing effort and catches, until the fishery is brought to a sustainable state. Once the fishery is securely on a path of sustainable use, the Ministry can focus on policies and actions to optimize production, income and jobs in the long-term – i.e., be pro-jobs, pro-economy, and pro-growth.

To further support efforts to achieve sustainability, I recommend that the declaration

- Require specification of limit and target reference points for each fishery resource stock to provide a basis for objectively determining the status of the stock; and
- Emphasize the need to follow the Precautionary Approach as called for by the Rio Declaration.<sup>3</sup>

MMAF currently uses MSY to characterize the exploitation status of the country's fisheries; however, it is commonly applied to an aggregation of fish stocks, not to individual fish stocks. MSY is a commonly used limit reference point, and there is no reason to change this reference point in most cases. However, there may be other fisheries where other limit reference points should be used (e.g., percent of maximum spawning biomass or potential).

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<sup>2</sup> The two commonly used reference points  $B_{MSY}$  and  $F_{MSY}$  are 'limit reference points' that set boundaries to constrain fishing within safe biological limits. For information on these and other reference points see Chapter 5 in Cadima, E. I. 2003. Fish stock assessment manual. *FAO Fisheries Technical Paper*, No. 393. Rome, FAO. 161 p. Available online at <http://www.fao.org/docrep/006/X8498E/x8498e0c.htm>

<sup>3</sup> Principle 15 of the Rio Declaration of the UN Conference on Environment and Development (Rio de Janeiro, 1992).

It is not clear from existing fishery management plans or other evidence whether the Ministry is adhering to the Precautionary Approach. An impression is that in fishing areas where reported catches are below the estimated total allowable catch there are government efforts to expand fishing capacity and catches – without measures in place to protect resources from over exploitation. The *Technical Guidelines for Responsible Fisheries* (FAO 1995) explain that

‘A precautionary approach to managing a fishery involves developing, within management strategies and plans, explicit consideration of precautionary actions that will be taken to avoid specific undesirable outcomes. As over-development of harvesting capacity is a common cause of undesirable outcomes, a management plan should include mechanisms to monitor and control that capacity.’ (p 9)

I have seen no evidence that such precautionary actions are in place. At the least, the quest for sustainable develop should develop appropriate precautionary measures and Ministerial Degree emphasize their role for MMAF’s long-term policy.

### **Other considerations**

To strengthen the Ministry’s ability to get on the track to sustainability, each unit of MMAF should establish specific goals, objectives, targets and indicators for its contributions to sustainability.<sup>4</sup> Once this is done,

- Each unit of the Ministry would be evaluated on its contributions to the achieving sustainability.

Another issue is the potential difficulty of persuading Parliament of the need to set sustainability as the top priority of the Ministry’s policies and programs. Since Parliament’s support is crucial to this effort, there will be a need to

- Educate elected officials, fisheries stakeholders and the general public on the rationale and merits of achieving and protecting sustainable use before development goals are pursued.

## **Control of Illegal Fishing**

MMAF, elected officials and the general public are concerned that Indonesia is losing significant economic benefits to illegal fishing by foreign fishing vessels and ex-foreign fishing vessels that have reflagged to fish in Indonesian waters. The common perception is that this loss is quite large and much more needs to be done to combat IUU fishing in Indonesian waters.<sup>5</sup>

My investigation to date indicates that the problem of illegal fishing in Indonesia’s waters is very complex, and is part of a very large maritime security challenge faced by the country. The country is struggling to secure its maritime borders against many illegal activities at sea (e.g., piracy, drug and

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<sup>4</sup> This might be achieved by strengthening the Ministry’s Planning Bureau ‘to become a more effective policy planning unit [to] redress the balance between individual DGs, and allow MMAF to construct a shared vision for the overall work of the Ministry,’ as suggested by MSI (2009, p 15).

<sup>5</sup> The perception is largely based on anecdotal reports of illegal fishing being conducted by foreign fishing vessels (e.g. from Vietnam) that are not licensed to fish in Indonesian waters, and of ex-foreign fishing vessels that are licensed to fishing in Indonesian waters and make illegal transshipments at sea of Indonesian fish for export.



human trafficking), of which illegal fishing is one type. The size and complexity of the maritime area makes securing the borders a daunting challenge. Illegal fishing, especially by foreign fishing vessels, cannot be controlled until the country's maritime borders are secure. It appears that efforts to address the illegal fishing problem will have to proceed on many fronts and require cooperation by and coordination of several Indonesian and regional authorities.

To move forward on this matter I recommend that

- MMAF actively support and encourage all efforts by the government to secure the country's maritime borders. There are at least three areas of opportunity for MMAF to improve the prospects for combating IUU fishing: (1) the new Agency of Maritime Security, if established, (2) the Regional Plan of Action (RPOA), and (3) external support.

### Agency for Maritime Security

The Parliament is reported to be considering a draft Maritime Security Act that would, if enacted, coordinate activities by all sectors working on all maritime matters. If finalized, it will create an Agency of Maritime Security that will execute all maritime law enforcement activities at all levels of government (district, province, national). The Agency may be responsible for enforcing all 17 laws regarding maritime law enforcement. The Agency is expected to be under the Coordinating Minister for Politics, Law and Security who will have meetings with the relevant ministers and ministries to solve cross-ministry issues.

The lack of coordination among enforcement authorities is a problem reported by respondents in our field surveys. For example, in West Kalimantan, the Provincial Governor formed a forum to address the illegal fishing problem that involved the Navy, Marine Police, MMAF Surveillance, and the Provincial DKP). It met twice in 2012. The forum has discussed the characteristics of illegal fishing and agreed on a plan of action, but there still is no coordination among these enforcement authorities. Each government unit is operating independently. Hopefully, the new Agency of Maritime Security will facilitate effective coordination that is very much needed and now lacking.

I recommend that MMAF aim to play an active, assertive role in shaping the new agency's policies and programs. MMAF would be well-served to be a strong advocate of setting border security as the top priority of the agency in order to lay the foundation for effectively combating IUU fishing. In other words, take the position that once the maritime borders are secure, MMAF and others will be in a strong position to effectively combat IUU fishing (especially illegal foreign fishing and illegal transshipments out of the country).

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

Indonesia led the effort to establish the RPOA and currently provides the group's Secretariat services. The concept of the RPOA is sound and has great potential to improve efforts to combat IUU fishing in the region. The organization is doing a lot of very good things that, in the long run, is expected to greatly improve the region's fisheries. However, the RPOA may be trying to do too much in too many areas and not attending to some immediate matters that deserve serious attention.

As an example, off the Kabupaten Sambas coast in West Kalimantan Province (the northern tip that borders Malaysia) there are regular incursions and illegal fishing by large Malaysian trawlers into Indonesian waters. The Malaysian fishing vessels enter Indonesian waters at 7 pm and leave at 6 am when the Indonesian patrol vessels are tied up and not patrolling. This is an issue that the Regional Monitoring Control and Surveillance (MCS) Network of the RPOA should be able address.

Specifically, the RPOA should attempt to use the Regional MCS Network to develop cooperative, and perhaps, joint MCS patrols and other actions. The incursions by each country's fishing vessels could be stopped by a joint, cooperative effort in which MCS officials from each country would investigate illegal fishing by its fishing vessels. In other words, Indonesian authorities could report illegal fishing by Malaysian vessels that would be investigated by Malaysian authorities; and if Malaysian authorities report illegal fishing by Indonesian vessels, Indonesian authorities would investigate those incidents.

#### External MCS support

MMAF's Surveillance unit is severely under resourced at this time, and the prospects are not good for significant support from the Indonesian treasury. Although I do not know to what extent MMAF receives, or has received, support from other countries for its MCS program, I encourage the Ministry to aggressively pursue this option.

For example, the neighboring country of Australia likely has considerable interest in combating IUU fishing along its border with Indonesia. I suggest that MMAF consider requesting or initiating a government-to-government effort in which Australia would assist Indonesia develop the means for securing its maritime borders. Drawing on the expertise and experience of external authorities (such as the Australian Border Protection Command) may enable MMAF to develop a long-term MCS strategy that is integrated with a national fisheries strategy, that includes specific steps to take to implement the MCS strategy (policy changes, investments, etc), and that may include financial and material support to create a robust, effective fisheries MCS program.<sup>6</sup>

### ***Other considerations***

#### Smart Compliance Policy

In addition to illegal fishing by foreign fishing vessels and reflagged foreign fishing vessels, domestic fishers also violate fishing regulations by bombing (blast fishing) and poisoning to catch fish, and disregarding other management measures. Although there is no comprehensive study documenting the full nature and extent of illegal fishing by Indonesian fishers, it is reported by local observers to commonly occur throughout the country.

To control illegal fishing by Indonesian small-scale fishers MMAF has encouraged the formation of community-based surveillance groups. I have not evaluated the effectiveness of the system of

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<sup>6</sup> The Australian Government established the Border Protection Command (BPC) in March 2005 to secure the countries maritime domain (see <http://www.bpc.gov.au/default.asp> for more information).

community-based surveillance groups – known as Pokmaswas – but the principles on which they operate are consistent with results of research studies and experiences elsewhere.<sup>7</sup>

It appears that the groups' approach to controlling illegal fishing relies on building voluntary compliance as well as deterrence. Voluntary compliance includes efforts to secure the active support of and willingness to voluntarily to comply with management plans and regulations by fishers and other stakeholders. Flewelling, et al. (2002) refer to voluntary compliance as the 'preventive approach.' Deterrence includes the enforcement efforts to detect, apprehend, prosecute, adjudicate, and sanction violators – the elements that determine the chances that violators will be caught and sanctioned and the amounts of the sanctions. Governance includes information systems and the legal and management framework.

Efforts to build voluntary compliance are essential to all monitoring, control and surveillance (MCS) programs if such efforts are to succeed. A critical necessary condition for successful fishery management is fishers' support for the program. This view is based on evidence that is extensive and persuasive, originating from several countries for a variety of fishery settings. Front-line fishery managers, enforcement authorities, fishers and field researchers provide such evidence.<sup>8</sup> 'The point is that fishery management cannot rely on enforcement to ensure [acceptable levels of] compliance. There are two important aspects of this conclusion. One, there will always be some degree of non-compliance with the regulations. No amount of enforcement effort will completely eradicate violations of the regulations, and management policy should allow for this fact. Two, the degree of compliance is closely linked to the extent to which fishers support management policy. A high level of support by the fishing community translates directly into compliance with management regulations' (Sutinen, 1995). In other words, without widespread support by fishers and the public, a fishery management program is doomed to fail.

The major factors driving voluntary compliance include individuals' sense of moral obligation and the social influence of their peers. Both moral obligation and social influence are shaped in large part by the extent to which the related institutions are viewed to be legitimate by the fishing community. Studies have shown that this framework for understanding and explaining compliance offers valuable policy options for strengthening compliance that are often more cost-effective than those that focus strictly on producing deterrence with costly enforcement efforts.

The first set of strategies for building voluntary compliance includes efforts to promote high levels of understanding and acceptance of fishery law through education and advice to fishers. The second set of strategies involves including fishers and other stakeholders in developing plans for MCS programs and services. The third set of strategies focus on efforts to achieve a high degree of co-management where fishers play a meaningful role in the development and implementation of fishery management plans. The fourth set of strategies attempt to minimize the costs to fishers of complying with fisheries law and regulations to the extent that fishers perceive these costs as reasonable and worthwhile.

Creating effective deterrence involves strategies that result in the fishers who are violating fishing regulations to believe that there is a reasonable chance of being caught, that they will be successfully prosecuted and penalized with near certainty, and that the costs outweigh the benefits of illegal fishing. The first set of strategies to achieve effective deterrence focus on

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<sup>7</sup> For an explanation and assessment of how one such group works in the East Lombok District see ADB (2008, pp 35-39).

<sup>8</sup> See, for example, OECD (1995), and Sutinen (2010) for a review of the research literature.

increasing the chance of violators being caught by strengthening monitoring and control activities. The second set of strategies focus on targeting those fishers who present the greatest risks to sustainable fisheries management. The third set of strategies aims to enhance the efficiency and effectiveness of the legal and administrative enforcement frameworks to deter illegal fishing.

Smart compliance policy aims to maximize voluntary compliance and create effective deterrence.<sup>9</sup> Sutinen (2010) argues that combinations of voluntary compliance and deterrence can effectively control illegal fishing at reasonable cost. Smart compliance policy deals explicitly with the fact that the influence of compliance drivers on behavior varies among fishers; and that compliance problems presented by those fishers who are not influenced by moral obligation and social influence need to be addressed differently than compliance problems presented by other fishers. Smart compliance policy involves developing strategies that: (a) target and meaningfully penalize frequent, routine violators, b) provide adequate deterrence to discourage occasional violators, and (c) strengthen the basis for achieving voluntary compliance.

It is time for MMAF and its partners to begin designing and implementing a ‘smart compliance’ policy. As MMAF progresses in its efforts to conserve and manage the country’s marine resources, more capture fisheries will become constrained by management regulations. In response to tightened constraints it is expected that illegal fishing by domestic fishing vessels will increase significantly. Developing a smart compliance policy approach to the illegal fishing is the best way to confront these oncoming challenges.

Recommendations:

- Build and strengthen approaches to voluntary compliance, and
- Develop and implement ‘smart compliance’ policy in MMAF MCS programs.

Below, I recommend a number of actions that can help build voluntary compliance, including active and meaningful user participation in developing fishery management plans, providing fisheries management extension and education services, and others.

#### Perils of unenforced and unenforceable regulations

Regulations should not be implemented if they are unenforceable and/or otherwise not enforced. Regulations that are not enforced erode the legitimacy and credibility of the fishery management program. Fishers to whom the regulations should apply learn to not take them seriously and overtime tend to lose faith and support in efforts to conserve and manage their fishery. Building and maintaining voluntary compliance becomes impossible.

In interviews with the staff of a National Surveillance Unit, they seemed to say that they do not check on some of the regulations for their area that are set out in a recent decree (Nomor Per. 02/MEN/2011, plus 2 amendments). After showing them the degree and the mesh size regulations for the purse seine vessels that operate in their area, they explained that the forms they use to check fishing vessels do not have those regulations on them. Hence, they do not check the mesh before clearing vessels for departure.

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<sup>9</sup> Several countries, including Australia (commonwealth and states) and New Zealand have developed very sophisticated smart compliance policy and programs that could be used as models for Indonesia.

If these facts are correct and if this practice is widespread, it risks endangering fisheries management efforts – by eroding support and legitimacy and compliance. Therefore, I recommend that MMAF and its partners

- Avoid enacting regulations that cannot or will not be enforced;
- Assess the enforceability of all fishery management regulations under consideration;
- Involve MCS (Surveillance) officials early in the fishery management plan development process to advise on the enforceability of proposed management measures.

### Estimates of illegal fishing

An adequate and effective policy response to IUU fishing cannot be developed without a sound comprehension of the nature and extent of to illegal fishing. The current estimates of illegal fishing in Indonesian waters are flawed and do not offer a sound basis on which to take action for combating IUU fishing in the country. There are multiple dimensions of illegal fishing, most of which are not accounted for in existing estimates.

If credible estimates of IUU fishing were available, they would provide policy makers with a sound, defensible basis for allocating resources to combat IUU fishing and to improve the information collected for monitoring fishing activity in Indonesian waters.

To address this need, I recommend that MMAF and its partners<sup>10</sup>

- Develop a sound understanding of the full context, nature and extent of illegal fishing in Indonesia's territorial waters and EEZ.

This effort could be led by MMAF's Agency for Marine and Fisheries Research and Development, as suggested by MSI (2009, p 27). To begin this effort, a concerted attempt should be made to assemble the best available information on illegal fishing during the past 3-5 years for each of three groups of fishing operations: (1) foreign fishing vessels, (2) ex-foreign fishing vessels with Indonesian licenses, (3) Indonesian fishing vessels. For each group of fishing operations, document and describe

- a) Countries, ports or regions of origin (e.g. Vietnam for foreign fishing vessels, China for ex-foreign fishing vessels, Lombok Timur for domestic fishing vessels);
- b) Gear (e.g. purse seine, trawl, hand line)
- c) Illegal activities (e.g. fishing without license, bombing, poisoning)
- d) Areas of operation (e.g. South China Sea, inshore off East Lombok)
- e) Spatial and temporal patterns (where and when the illegal fishing tends to occur)
- f) Species affected (e.g. tuna, shrimp, snapper, grouper)
- g) Enforcement authorities (e.g. MMAF, Navy, Marine Police, Malaysian Maritime Enforcement Agency, Australian Coastwatch and Border Protection Command)
- h) Illegal Fishing indicators (which need to be developed)

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<sup>10</sup> Included as partners of MMAF in efforts to combat IUU fishing are other governmental bodies at all levels (national, provincial, district/ local, and regional), non-governmental organizations, fishing industry and other stakeholders.

Until this is done, no approach can be prepared that will have a good chance of succeeding to combat illegal fishing.

## **Fisheries management arrangements**

The Directorate General of Capture Fisheries is the lead unit in MMAF for the management of fisheries. The DG issues licenses to fishing vessels and regulates fishing operations and, importantly, is in charge of producing fishery management plans.

### ***Strengthening Fishery Management Plans***

The fishery management plan is a core instrument for executing fishery management in Indonesia and many countries world wide. The contents of a plan, and the process by which it is produced, are major determinants of a government's ability to conserve fishery resources and achieve sustainable development objectives.

MMAF has completed seven fishery management plans to date and a draft of an eighth plan.<sup>11</sup> Two of the fishery management plans focus on specific fisheries – but most are area-based and attempt to deal with multiple fisheries in large fishery management areas (WPPs). The fishery management plans prepared by MMAF contain the elements for such plans as recommended by FAO.<sup>12</sup> The Ministry has produced general guidelines for the preparation of fishery management plans;<sup>13</sup> and recently prepared a draft Ministerial regulation on fisheries management planning.<sup>14</sup>

Although faced with some serious limitations of data and information, the current plans provide good descriptions of the fisheries and fishery resources in the areas to which the plans apply, the legal and institutional context for management, status of fish stocks based on the available evidence, and social, economic, and environmental conditions. Each plan lists the fisheries management issues that have been identified from meetings with stakeholders and experts, sets out management objectives, and describes a 'fisheries management strategic plan' to address those issues.

The strategic plans contain management measures that are not sufficiently specific and detailed, however. Specific management measures are found in published laws and decrees, such as Nomor Per. 02/MEN/2011 and two amendments, that set out a large set of regulations (all input controls: mesh size, prohibited gear, such as lamps, etc.) for each zone (0-4, 4-12, 12-200 nm) by vessel size, fishery management area (WPP), and gear type. Many, if not most, of the management measures are identical across WPPs and zones. The measures appear to not be tailored to protect or rebuild specific stocks of fishery resources.<sup>15</sup>

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<sup>11</sup> Fishery management plans have been completed for each of the following FMAs: 571, 711, 712, 713, 714, 715, and 718, and a draft plan prepared for FMA 573.

<sup>12</sup> Box 3, Suggested elements for a fishery management plan under EAF, in *FAO Technical Guidelines for Responsible Fisheries*. No. 4, Suppl. 2. Rome, FAO. 2003. 112 p.

<sup>13</sup> 'Pedoman Umum Penyusunan Rencana Pengelolaan Perikanan,' published in 2009 by the Direktorat Jenderal Perikanan Tangkap.

<sup>14</sup> Peraturan Menteri Kelautan Dan Perikanan Republik Indonesia Nomor Per. /Men/2012 (Draft 28 Maret 2012)

<sup>15</sup> We also found in our field work that surveillance officials were not checking for compliance with these measures. It appears as though there has not been adequate follow up in the implementation of management measures.

The process for developing an FMP is as important as the content. At present, MMAF uses a collaborative approach to develop fishery management plans. It appears that stakeholders are not included from the beginning of a plan's development, and that fishers, which are the subject of fishery regulations, have not been included in the consultation process for some of the plans.<sup>16</sup> In order for plans to have broad support it is critical to include salient stakeholders from the onset of plan development, especially if plans are to include management measures and other regulations. Including stakeholders from the beginning of the process so that they have opportunities to participate in identifying and assessing sustainability and other fisheries issues/problems through to identifying management measures and other policies for addressing those issues/problems can greatly improve the prospects for success. The current approach does not appear to do that.

The work to date by MMAF to develop fishery management plans, while admirable in many respects, raises a number of questions about whether the plans can serve as effective instruments for conserving fishery resources and achieving sustainable development.

How well do MMAF's plans compare to international standards of fishery management plans that have proven successful in other countries? For example, do the plans contain sufficiently 'explicit consideration of precautionary actions that will be taken to avoid specific undesirable outcomes,' as called for by the *Technical Guidelines for Responsible Fisheries* (FAO 1995, p 9)?

Do successful fishery management plans focus on individual fisheries or address multiple fisheries simultaneously – as is the case in most of MMAF's plans?

What can be learned from successful fishery management plans with respect to how they address the enforceability of and compliance with proposed management measures?

What elements of the contents of MMAF's plans should be strengthened (e.g., analysis, prescribed management measures) and how?

How should the process for developing the plans be modified? When and to what extent should stakeholders be included in the process? How is this done in successful management programs of other countries? What is their role of stakeholders? To what extent do they have a voice in decision-making?

It is time to assess the strengths and weaknesses of the plans that MMAF has produced to date, to identify whether and how they can be improved and better serve as effective instruments for managing fisheries in Indonesia. I specifically recommend the following:

- Compare and contrast the MMAF fishery management plans with plans for successful fishery management programs in other countries;
- Assess the strengths and weaknesses of the fishery management plans produced to date;
- Identify where and how Indonesian fishery management plans could be strengthened;

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<sup>16</sup> MMAF initially meets with staff from universities and district and provincial offices to get their help on a given plan, after which a draft fishery management plan is developed. MMAF presents the draft fishery management plan to stakeholders – including the fishing sector – and asks them for suggestions on how to make the fisheries sustainable. Following these consultations, MMAF prepares the final fishery management plan for publication.

- Develop a ‘model fishery management plan’ for Indonesian fisheries and revise the Ministry’s guidelines for preparing stronger plans.

A closely related suggestion by MSI (2009, 21) is to conduct reviews of MMAF’s policies and regulations, to assess ‘whether they are achieving the intended impact, what their side effects and hidden costs, and what are factors that are helping or hindering compliance’ with the policies and regulations. It may be premature for a regulatory review of fishery management plans, since they are so new. However, it would be wise to begin to build or establish the capacity and process for such regulatory reviews of fisheries management in the near future. Tasking the Agency of Marine & Fisheries Research and Development with this task, as suggested by MSI (2009, p 22) makes sense.

## **Forums**

Fisheries stakeholder Forums have been established to discuss and provide input on management issues. Fisheries stakeholder Forums can help build support for user rights/privileges and other methods for managing Indonesia’s fisheries, and help build voluntary compliance (as noted above). In other words, they have the potential to play important constructive roles in developing and implementing fisheries management policies and programs. Participation by stakeholders – especially by those users of resources subject to management – can greatly improve compliance and the effectiveness of fisheries management.

Extensive research on user (stakeholder) participation in fishery management has shown that when users have a meaningful role in the management process they develop a stake in the outcomes of the process and program. User participation can also promote stewardship through creating an assurance of control over outcomes. Compliance with management regulations tends to be greater and less costly when users are meaningfully involved in the development and implementation of fishery management programs. Involving fishers and other stakeholders in the development and implementation of a compliance program also improves the fairness and appropriateness of the program, and in turn improves its cost-effectiveness. Keeping regulations simple with a clear connection to conservation goals and the equitable application of regulations and enforcement are also believed to be important for securing fishers’ support (Sutinen, 1995).

Some observers I interviewed have noted a number of shortcomings of the Forums. The Forums are not yet well-organized or institutionalized; and there’s no coordination among levels of management authority (district, provincial, national). Forums meet once a year at the Province level and involve District fisheries officers; however no fishers are involved in these Forum meetings. Discussions at Forum meetings have tended to just confirm well-known problems and have not yet advanced to the point of developing and proposing constructive fisheries management proposals.

### Recommendations:

- MMAF should consider elevating the role of Forums in fisheries management and improving stakeholders’ ability to participate constructively in the management process. The Forums are a very important avenue for meaningful stakeholder participation.
- Membership and/or participation in the Forums should include representatives from all sectors that have an interest in fisheries management. Fishers, processors and seafood traders, environmental and community groups as well as representatives from all levels of government should have the opportunity to be active members in Forums.



- Participants should have opportunities to learn about the science and policy of fisheries management. The topics should covered would include elementary population dynamics of exploited fishery resources, socio-economic and legal aspects of fisheries. Workshops and public education efforts should prepare Forum participants to well-informed when making decisions and/or recommendations on fisheries management policy.
- MMAF should task a team of well-trained extension specialists to conduct training and educational workshops and hearings for Forum participants.
- Seek assistance and advice from fishery management authorities in other countries on best practice methods for educating stakeholders and the general public on fisheries management. Countries like Australia and New Zealand have conducted very effective public education campaigns.

### ***Fisheries management extension (outreach) services***

Extension services dedicated to capture fisheries production and management appear to be lacking. For example, in West Lombok Province, I was informed that there are about 100 fisheries extension officers in the Province, but they're not doing extension work. And in Lombok Timur, two extension officers were added to the District office two years ago, but never consulted with DKP even though they are doing fisheries extension. Also, it appears that none of the fisheries extension services currently include informing and educating fishers, other stakeholders and the general public about fisheries management.

Extension and outreach services that focus on fisheries management matters are a valuable, if not essential, component of the entire fisheries management process. Fisheries management extension staff, skilled in explaining the science and policy aspects of management, can facilitate the development and implementation of fishery management plans by educating stakeholders and the general public. By educating stakeholders and the general public about fisheries management such extension services indirectly, but powerfully, contribute to superior fishery management outcomes (in terms of resource conservation and compliance with management regulations).

To achieve these favorable outcomes, I recommend that

- MMAF either restructure its existing fisheries extension service or develop a new, dedicated fisheries management extension service, to focus on educating fisheries stakeholders and the public on the many dimensions of fisheries management.

### ***Research***

The Ministry's Agency of Marine & Fisheries Research and Development (AMFRD) conducts research on fisheries and other marine resources in four research centers.<sup>17</sup> The Research Center for Fisheries Management and Fish Resources Conservation assesses fisheries stocks and produces case studies. Socioeconomics research is conducted by the Research Center for Marine and Fisheries Socio Economics.

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<sup>17</sup> Fisheries Management and Fish Resources Conservation, Aquaculture, Marine and Fisheries Assessment and Engineering Technology, and Marine and Coastal Resources.

Some of the inadequacies in the fishery management plans described above are due to the lack of research to support assessment and analysis of fishery resources and the performance of fisheries. This lack of research can be attributed in part to inadequate data and information, and also to ‘weak linkages’ between the Research Agency and the Capture Fisheries DG (MSI 2009, p 19). In addition, there is no longer much capacity in MMAF to assess fishery resource stocks. Most, if not all, of the Ministry’s stock assessment scientists have retired. This is a critical gap in MMAF’s ability to manage the country’s fisheries.

To overcome some of these gaps, I recommend that MMAF consider the following actions:

- Contract out stock assessment services from local universities, regional providers (e.g., CSIRO, WorldFish Center), or others.
- Arrange for PhD-level training in stock assessment, regulatory analysis, and other science and policy fields necessary to support fishery management policy development.
- Incentivize AMFRD to produce more ‘demand-driven’ research, i.e. produce research demanded by the needs of fisheries management, perhaps by having one or more line items in the agency’s budgets designated for fisheries management research.

It would be appropriate for AMFRD to have a mix of policy-focused, demand-driven and basic research on fisheries management issues. Such a mix is needed to support a robust fishery management regime. There’s a delicate balance between the quantity and quality of each. To design, implement and monitor policy developments, a well-executed research program focusing on policy is needed. At the same time, the research staff should embark on research projects that do not necessarily have short-run policy payoffs and instead have a longer time horizon and that enable the research staff to stay current on advances in their fields of expertise. In addition, peer review of research output is critical to ensuring the quality of the research is sound and credible, and some of the research should be published in peer-reviewed journals.

## **Rights-based fishery management**

Some uncertainty exists at present about whether user rights to fishery resources are allowed under current law. According to the Director of the Legal and Organization Bureau, Hanung Cahyono, the High Court threw out the provision of the Coastal Management and Small Islands Act (No. 27/2007) that would have allowed user rights out to 12 miles from shore – known as HP3. The Constitution, Art #33, paragraph 3 says that the land, waters, air, and natural resources are under the control of the state. Therefore, there could not be an individual or group right in the sense of ownership. The Court said that the state is responsible for these resources, and not individuals.

The Director also noted that user rights in the form of individual catch quotas are currently being used in the Southern Bluefin Tuna fishery. Chapter III, Art 5, paragraph 2 of the Fisheries Law (Law 31 of 2004) indirectly addressed the issue of individual quotas in the SBT fishery. It allows division of the national quota into a few individual quotas for specific fishing vessels. The Law allows individual quotas if part of an international agreement or RFMO.

The Ministry currently is developing a law or regulation to present to Parliament that would allow user rights/privileges in fisheries. I assume, for present purposes, that the Ministry and

others working to overcome this obstacle will succeed in due course and that it will be legally possible to implement various forms of user rights in Indonesia's fisheries in the near future. Once the legal obstacles are removed, it is likely that there will be other impediments to the implementation of user rights.

One major impediment commonly faced by other countries is public suspicion and opposition to user rights – especially to individual catch quotas, in which individual fishing operations have exclusive right to catch a quota of fish. To overcome the suspicion and opposition, governments have mounted extensive public education and discussion efforts that have resulted in designs of user rights that are acceptable and workable.

For example, some countries use the term 'privilege' instead of 'right' to emphasize the fact that the fisher does not own the resource. Rather the government, as trustee of the public's fishery resources, is granting a fisher the privilege to have limited and exclusive use of fishery resources. In addition, group privileges – where the fishing privilege is granted to a cooperative or a community of fishers – has received more support than granting privileges to individuals. Allocations to groups also appear to be more cost-effective from an administrative perspective.

Another attribute of user rights or privileges that frequently is controversial is the exclusive nature of the right/privilege. Fishers who are accustomed to fishing under open access, the prevailing system in Indonesian fisheries, often oppose limiting the amounts that they can catch individually and limiting the fishing privilege to a fixed number of fishers. For many fishers being able to move among fisheries and catch what they want when and where they want is part of their 'way of life.' They oppose the taking away of this freedom.

In anticipation of these other obstacles, MMAF should consider developing and implementing a public education campaign, along with public hearings, using all forms of multimedia to discuss the way forward in the government's efforts to manage fisheries. Other countries have a lot of experience with such campaigns and could be drawn on to provide advice and assistance.

In preparation for the time when there are no or only minor legal obstacles to implementing user rights/privileges in fisheries management, it is recommended that MMAF begin to lay the groundwork for introducing the system in the country's fisheries. It should be emphasized that the implementation of user rights/privileges should have widespread support among the stakeholders affected by this management regime. Without widespread support, compliance will break down and management authorities will damage their legitimacy and credibility.

The following are some actions the Ministry can implement to begin laying the needed groundwork:

- Arrange for MMAF staff and extension personnel to receive training and assistance on the science, policy and practice of implementing user rights/privileges in fisheries management.
- Initiate public outreach, education, and extension efforts to inform stakeholders and the general public about importance of marine fisheries to the country's economy and people's well-being, the risks to the sustainability of fishery resources, and potential strategies and policies for protecting these valuable resources.
- Establish specialized teams to educate fishers and other stakeholders in the selected fisheries about the rationale of fishery management, the approaches used in other

countries' fisheries, and begin discussing alternative approaches for managing their fisheries.

- Gradually begin to limit access to selected fisheries by controlling the number of active fishing operations and their capacity to catch fish.
- Investigate the prospects of introducing user rights/privileges in a few fisheries that have high odds of success.

## Concluding Remarks

In summary, this report presents several recommendations on four issues: setting a strategic direction for MMAF, control of illegal fishing, strengthening fisheries management, and user rights/privileges. The principal recommendations to MMAF on these issues are as follows.

### Strategic Direction:

- Declare *sustainable development* of fisheries as the primary operational objective of the Ministry's long-term fisheries policies and programs.
- Clearly define and explain sustainable development of fisheries in terms of *optimizing long-term sustainable economic benefits within the constraints of the country's fisheries* and other environmental and natural resources.
- Establish standards of performance (i.e., accountability measures) of sustainable development of fisheries in terms of the current and expected long-term (1) *exploitation status* of all fishery resources, and (2) *economic status* of all fisheries.
- Annually *assess the performance of Ministry's policies and programs* in terms of improvements in the exploitation status of fishery resources and the economic status of fisheries.

### Control of illegal fishing:

- MMAF actively support and encourage all efforts by the government to secure the country's maritime borders. There are at least three areas of opportunity for MMAF to improve the prospects for combating IUU fishing: (1) the new Agency of Maritime Security, if established, (2) the Regional Plan of Action (RPOA), and (3) external support.
- Build and strengthen approaches to voluntary compliance, and
- Develop and implement 'smart compliance' policy in MMAF MCS programs.
- Avoid enacting regulations that cannot or will not be enforced;
- Develop a sound understanding of the full context, nature and extent of illegal fishing in Indonesia's territorial waters and EEZ.

### Strengthening fisheries management:

- Compare and contrast the MMAF fishery management plans with plans for successful fishery management programs in other countries;

- Assess the strengths and weaknesses of the fishery management plans produced to date;
- Identify where and how Indonesian fishery management plans could be strengthened;
- MMAF should consider elevating the role of Forums in fisheries management and improving stakeholders' ability to participate constructively in the management process. The Forums are a very important avenue for meaningful stakeholder participation.
- Membership and/or participation in the Forums should include representatives from all sectors that have an interest in fisheries management. Fishers, processors and seafood traders, environmental and community groups as well as representatives from all levels of government should have the opportunity to be active members in Forums.
- Participants should have opportunities to learn about the science and policy of fisheries management. The topics should covered would include elementary population dynamics of exploited fishery resources, socio-economic and legal aspects of fisheries. Workshops and public education efforts should prepare Forum participants to well-informed when making decisions and/or recommendations on fisheries management policy.
- MMAF should task a team of well-trained extension specialists to conduct training and educational workshops and hearings for Forum participants.
- MMAF either restructure its existing fisheries extension service or develop a new, dedicated fisheries management extension service, to focus on educating fisheries stakeholders and the public on the many dimensions of fisheries management.
- Contract out stock assessment services from local universities, regional providers (e.g., CSIRO, WorldFish Center), or others.
- Arrange for PhD-level training in stock assessment, regulatory analysis, and other science and policy fields necessary to support fishery management policy development.

#### User rights/privileges:

- Arrange for MMAF staff and extension personnel to receive training and assistance on the science, policy and practice of implementing user rights/privileges in fisheries management.
- Initiate public outreach, education, and extension efforts to inform stakeholders and the general public about importance of marine fisheries to the country's economy and people's well-being, the risks to the sustainability of fishery resources, and potential strategies and policies for protecting these valuable resources.
- Establish specialized teams to educate fishers and other stakeholders in the selected fisheries about the rationale of fishery management, the approaches used in other countries' fisheries, and begin discussing alternative approaches for managing their fisheries.
- Gradually begin to limit access to selected fisheries by controlling the number of active fishing operations and their capacity to catch fish.

- Investigate the prospects of introducing user rights/privileges in a few fisheries that have high odds of success.

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## **Appendix A – People Interviewed**

During two trips to Indonesia (September 10-15 and November 19-30, 2012) I interviewed at least 50 people. The total includes 25 MMAF officials, three provincial and district marine affairs and fisheries officials, seven ad hoc fisheries judges, one attorney, seven from the fishing industry, four fishing community leaders, and four others. The names and/or titles of those interviewed are listed below.

### ***Ministry of Marine Affairs and Fisheries, Jakarta***

- Gellwynn Jusuf, Secretary General
- Anang Nugrotto, General Secretariat
- Ishartini, General Secretariat
- Nilanto Perbowo, General Secretariat
- Syafril Fauzi, DG of Fisheries Product Processing and Marketing
- Agus A. Budhiman, Dir of Fisheries Resource Management
- Hanung Cahyono, Director, Legal and Organization Bureau
- Saut P. Hutagalung, DG of Fisheries Product Processing and Marketing
- Aris Budiarto, Capture Fisheries DG
- Trian Yunanda, Capture Fisheries DG
- Ganef Hari Budoyo, Capture Fisheries DG
- Joko Supriyanto, Deputy Director for Surveillance in the Aquatic Ecosystem in Conservation Areas, Directorate of Marine Resource Surveillance.
- Rahman Arif, Deputy Director for logistics and Operations in West Indonesia, Directorate of Surveillance Vessels.
- Rina E S Hadirini, Deputy Director for Fishing Surveillance in the West Indonesia, Directorate of Fisheries Surveillance.
- Frans Ohoirat, Head of Section for logistics in east Indonesia, Directorate of Surveillance Vessels.
- Sung Kowo, Head of Evaluation Section, Directorate of Law Enforcement,
- Adi Wicaksono, Head of Section for Monitoring Systems Analysis, Directorate of Marine Fisheries and Fisheries Resources Monitoring and Surveillance Infrastructure Development,
- Purwanto, (formerly) Head of Research Center for Fisheries Management & Fish Resources Conservation,
- Agus Heri Purnomo, Head of Research Center for Marine & Fisheries Social Economics, under Agency of Marine & Fisheries Research and Development (AMFRD)

### ***Fisheries Courts:***

Joko Martoyo, ad hoc Fisheries Judge, Fisheries Court, Jakarta

Six ad hoc fisheries judges in Pontianak, West Kalimantan:

- S. Ginting,
- Agus Sutrid,
- Widimariakito,
- Tri Bono,



- Tatang S.,
- Suharan.

Head, Attorney Office, Court of West Kalimantan Province, Pontianak

***Tuna Longline Association, Benoa, Bali***

Three staff of the Central board of Council, Indonesian Tuna Longline Association (DPP-ATLI)

- Dwi Agus Siswa Putra, Secretary General
- Drs. Soetomo, Executive Director
- I Nyoman Sudarta, Deputy Secretary General

***ANOVA Asia, Benoa, Bali***

Blane Olson, Director  
Aditya Utama, Manager for CSR and Sustainability, and  
Two other ANOVA staff.

***West Kalimantan***

Abdullah, head of Pontianak MMAF surveillance office, investigator and surveillance officer.

3 captains and 5 crew of six MMAF patrol vessels, West Kalimantan DKP Pontianak port facility.

Gatot Rudiyono, head, West Kalimantan Province DKP

***Lombok***

Head of Capture Fisheries, West Lombok DKP, Mataran

Five surveillance officers National Surveillance Unit,

Two staff of the Port Authority

Four members of the Pokmaswas group of KPPL (Komite Pengelobary Perikanan Laut),  
Tanjungluar, Lombok Timur

M. Ridman, District DKP, Selong, Lombok Timur

***WWF-Indonesia:***

Iman Musthofa Zainudin, Fisheries Program Leader, WWF-Indonesia, Jakarta

***IMACS, Jakarta***

Peter Mous, fisheries expert

Aziz Kiagus, Fisheries Statistics Specialist (formerly Lecturer at Bogor Agricultural University, Bogor)

## **Appendix B - Summary of capacity trainings completed**

I presented a one-day seminar/workshop at the Morrisey Hotel in Jakarta on 14 September 2012. The workshop covered the topics of the enriched theory of fisheries regulatory compliance and the application of property rights as a fisheries management tool, including selected case studies. The objectives of the workshop were to:

- To develop a common understanding of the institutional structure and the regulatory processes of fishery management in general and in Indonesia;
- To learn how specific fishery management measures and arrangements perform in actual fisheries elsewhere, and assess how they perform in Indonesian fisheries;
- To learn what determines the level of compliance with fisheries management regulations, and to identify the state of fisheries compliance in selected Indonesian fisheries.

The participants included staff from MMAF and from fishing industry organizations. The participants formed three break-out groups – one for each of a selected fishery. Each group described the governance and management status for its fishery, identified key issues, described what is and is not working well, and prepared a set of recommendations to improve the performance of the selected fishery.