

AUSTRALIAN NATIONAL CENTRE FOR
OCEAN RESOURCES & SECURITY



Monitoring, Control and Surveillance (MCS) Curriculum and Training Programme

for implementation through the

Regional Plan of Action to Promote Responsible Fishing Practices including Combating Illegal, Unreported and Unregulated (IUU) Fishing in the South East Asian Region

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1.0 CONTEXT OF THE MCS COURSE

The *Regional Plan of Action (RPOA) to Promote Responsible Fishing Practices including Combating IUU Fishing in the Region* was approved by the Ministers of Republic of Indonesia, Australia, Brunei Darussalam, Cambodia, Malaysia, Papua New Guinea, The Philippines, Singapore, Thailand, Timor-Leste and Vietnam on 4 May 2007 in Bali, Indonesia.

The objective of the RPOA is to enhance and strengthen the overall level of fisheries management in the region, in order to sustain fisheries resources and the marine environment, and to optimise the benefit of adopting responsible fishing practices. The actions cover conservation of fisheries resources and their environment, managing fishing capacity, and combating illegal, unreported and unregulated (IUU) fishing in the areas of the South China Sea, Sulu-Sulawesi Seas (Celebes Sea) and the Arafura-Timor Seas.

The initial RPOA Coordination Committee meeting in Kuala Lumpur in August 2007 identified monitoring, control and surveillance (MCS) as one of the priority areas requiring immediate attention by RPOA participating countries. The Coordination Committee agreed that an MCS workshop be convened to serve as a forum for the discussion of common problems, issues and systems to implement the RPOA objectives.

The MCS workshop, held in Bali in March 2008, discussed a number of issues including: the different aspects of MCS; current gaps in existing MCS systems; and areas where sub-regional MCS initiatives are most required to combat IUU fishing in the region. The Bali workshop identified the MCS needs and responses at three levels: national, sub-regional¹ and regional. Five key MCS-related needs were identified in the workshop. These include:

- Training and capacity building in MCS and fisheries management skills and knowledge;
- Building institutional and human capacity in data collection, management and analysis;

¹ Sub-regional discussions focused on three areas: Arafura-Timor Seas; south western area of the South China Sea (Gulf of Thailand); and the Sulu-Sulawesi Seas.

- Building human and institutional capacity to undertake port inspections of fishing and support vessels;
- Developing skills and expertise in enforcement procedures, legislative requirements and evidentiary needs; and
- Developing comprehensive capacity building on MCS and fisheries management at the local level to reflect trends in the region to devolve some fisheries management responsibilities to provincial and district governments.

The Bali MCS workshop further agreed that a coordinated curriculum and training programme on MCS be developed to address these needs. This training programme, which is envisioned to be provided on a regular basis, should be designed to utilise the skills and expertise of existing fisheries institutions of RPOA participating countries and relevant non-government fisheries organisations in the region. In furtherance of this, the Bali workshop called on *“the Secretariat to develop and distribute a draft curriculum for a coordinated training programme for consideration before the Coordination Committee meeting.”*

2.0 OBJECTIVES OF MCS CURRICULUM AND TRAINING COURSE

This MCS curriculum and training course has been designed to address the MCS priority issues and needs as identified at the MCS Workshop in Bali and endorsed by the Coordination Committee.

The objectives of the MCS curriculum and training course are to build capacity of RPOA participating countries to develop and implement effective MCS measures to combat IUU fishing through an understanding of:

- a practical grounding in the concept of MCS to support sustainable fisheries management;
- MCS procedures in the context of fisheries management and fisheries law in general and in RPOA participating countries;
- MCS systems, required elements, implications, and suitability for specific situations;
- practical at-sea and port inspections, reporting and prosecution matters (e.g. detection of violations, prosecution, rules of evidence); and,

- developing an analytical approach to develop appropriate MCS mechanisms.

The MCS curriculum or its components serve as guide to develop a tailored course that suits the needs of the RPOA participating countries, either individually or at the subregional or regional levels.

3.0 TARGET PARTICIPANTS

The course participants will be drawn from a cross-section of national agencies responsible for various aspects of maritime regulation and enforcement, including:

- National fisheries managers and MCS practitioners;
- Maritime enforcement personnel from agencies such as: customs; immigration; coast guard; navy; port authorities; maritime police; and,
- Participants from relevant regional organisations.

4.0 LEARNING OUTCOMES

The successful completion of the nine components will equip participants with three core measurable outcomes that are fundamental to the development and implementation of an effective MCS framework. These are: relevant knowledge; requisite skills; and appropriate attitudes and values.

4.1 Knowledge

The course will impart knowledge to develop understanding of:

- the complex nature of fisheries management;
- the concept of MCS and its practical implementation;
- the complex legal and administrative framework through which governments manage fisheries resources sustainably,
- the interaction among different national agencies involved in MCS.

4.2 Skills

The course will develop in the participants the necessary skills to use this knowledge so as to:

- design, analyse and evaluate the effectiveness of national MCS measures;
- implement legislation and regulations to ensure effective fisheries management;
- write MCS reports to support prosecution in court;
- give evidence in court to support prosecution of fisheries violations;
- use the library and internet to search for and obtain information; and
- acquire effective communication and extension skills.

4.3 Attitudes/Values

The course will develop/enhance relevant attitudes/values in participants that:

- recognize the importance and benefits of an effective MCS framework for the management of fisheries and the governance and utilization of fisheries resources;
- promote and support the need for effective fisheries resource management;
- recognize the importance and benefits of effective communication and extension in the sustainable management and governance of fisheries resources;
- actively encourage and promote the need for the government, the public and the private sector to ensure transparency and accountability in the governance and management of fisheries resources; and
- develop an appreciation of the importance of national, bilateral and regional MCS cooperation and co-ordination.

5.0 COURSE DESCRIPTION

The course is designed to operate as a stand-alone professional training course over a period of four to six consecutive weeks. It comprises eleven related areas which are essential for the comprehensive development and implementation of an MCS programme. Course content has been developed in close consultation with the International MCS Network.

The course could be taught by one or more regional education centres/consortiums with expertise in fisheries MCS and could be run in-country or at regional and sub-

regional levels, depending on the needs of RPOA participating countries and availability of funding. In the long term, the course could be separately incorporated by regional universities into their curriculum and taught as an assessable subject within a broader resource management certificate or degree.

5.1 Introduction

The introductory part of the course will introduce regional fisheries conservation and management issues from an MCS perspective. The purpose of this component is to put the region and its fisheries situation in perspective. The key issues to be covered include:

- The complex nature of fisheries management in the region, such as the multi-species and multi-gear fisheries, the operational nature and extent of all fishing activities, (including trans-boundary landing of catch), and domestic and international markets for fish;
- Background on fisheries management, principles and challenges with respect to implementing MCS within the larger fisheries management framework; and,
- The jurisdictional complexity associated with implementing MCS measures in different maritime zones, as well as the problems associated with shared boundaries in RPOA areas. Examples of fisheries violations and IUU fishing occurring in areas of national jurisdiction and the high seas will also be discussed, such as fishing without a licence, violation of licence conditions, fishing in prohibited zones or during closed seasons, illegal transshipment at sea and in ports, and non-reporting of catch. Some of these issues have been raised at earlier RPOA meetings and workshops.

5.2 Concept of MCS

This session of the course will introduce participants to the various elements of the definition of MCS. Traditionally the term MCS has been associated with deterrence, particularly law enforcement and boarding and inspections at sea. Increasingly however, MCS is viewed more comprehensively and now addresses two aspects: (a) preventative MCS and (b) deterrent MCS. Both components provide information to

support the design and implementation of fisheries management plans at national and regional levels. Specific MCS needs of the region should first be examined and target participants identified before training is conducted.

Following the definitions outlined by an FAO review in 1994 MCS can be defined as follows:

- **Monitoring** - "the continuous requirement for the measurement of fishing effort characteristics and resource yield";
- **Control** - "the regulatory conditions under which the exploitation and transport of the resources may be conducted"; and
- **Surveillance** - "the degree and types of observations required to maintain compliance with the regulatory controls imposed on fishing activities."

Since 1981, the FAO definition above has been further expanded to make the concept operational. The following expanded definition of MCS, as suggested by the FAO, is used in the design of the MCS curriculum:

a) **Monitoring** includes the collection, measurement and analysis of fishing activity including, but not limited to: catch, species composition, fishing effort, by-catch, discards, area of operations, etc. This information is primary data that fisheries managers use to arrive at management decisions. If this information is unavailable, inaccurate or incomplete, managers will be handicapped in developing and implementing management measures.

b) **Control** involves the specification of the terms and conditions under which resources can be harvested. These specifications are normally contained in national fisheries legislation and other arrangements that might be nationally, sub-regionally, or regionally agreed. The legislation provides the basis for which fisheries management arrangements, via MCS, are implemented. For maximum effect, framework legislation should clearly state the management measures being implemented and define the requirements and prohibitions that will be enforced.

c) **Surveillance** involves the regulation and supervision of fishing activity to ensure that national legislation and terms, conditions of access, and management measures are observed. This activity is critical to ensure that resources are not

over-exploited, poaching is minimized and management arrangements are implemented.

The above elements of MCS will be explained, with practical examples.

5.3 The Legal Framework for Effective MCS in Fisheries Management

Law is central to the successful implementation of an effective MCS system. The legal framework supporting MCS activities can be grouped into three: (a) international instruments, (b) regional instruments (not legally but politically binding); and (c) national legislation.

5.3.1 *Global Instruments*

The fisheries management provisions of the following key international instruments will be explained, with particular focus on their MCS-related provisions:

- The UN Convention on the Law of the Sea;
- FAO Compliance Agreement;
- The UN Fish Stocks Agreement;
- FAO Code of Conduct, and,
- FAO Plans of Action.

5.3.2 *Regional Instruments*

A number of regional organizations and institutions (fisheries specific and general) also provide the context and basis for the development and implementation of coordinated MCS measures among the signatories to the RPOA. The role of the following organizations/institutions and instruments will be explained:

- The Regional Plan of Action (RPOA) to Promote Responsible Fishing Practices including Combating IUU Fishing in the Region;
- Southeast Asian Fisheries Development Centre (SEAFDEC);
- Association of Southeast Asian Nations (ASEAN);
- Asia Pacific Economic Cooperation (APEC);
- Network of Aquaculture Centres in Asia and the Pacific (NACA);

- Marketing Information and Technical Advisory Services for Fishery Products in the Asia and the Pacific Region (INFOFISH);
- Western and Central Pacific Fisheries Commission (WCPFC); and
- Indian Ocean Tuna Commission (IOTC).

5.3.3 *The role of domestic law*

Domestic legislation plays an important role in the effective development and implementation of MCS measures. The key roles of domestic law which will be emphasised are:

- ensuring that fisheries administrators and enforcement officers can exercise all powers available to coastal, port and flag States under international law (this will usually require reviewing the powers of enforcement officers under domestic law and strengthening procedures under which a State can grant an authorization to fish);
- increasing regional and international cooperation in order to reduce the incidence of IUU fishing, including measures to support the enforcement of fisheries conservation and management measures on the high seas and in areas under the jurisdiction of other States;
- increasing the transparency of fishing activity by improving monitoring programs (particularly by requiring the use of satellite based vessel monitoring systems (VMS));
- identifying enforcement issues relating to maritime boundaries and delimitation;
- facilitating the use of information derived from monitoring and surveillance (particularly from new VMS technologies) to promote compliance;
- strengthening existing sanctions and extending the range of compliance mechanisms available to enforcement officers; and
- safety procedures for fisheries officers in undertaking MCS related functions.

5.4 Global and Regional Monitoring and Reporting Requirements

Various global and regional instruments have developed sophisticated reporting requirements to support the conservation and management of fisheries. Some of these

are implemented in such a manner (i.e market controls) as to establish requirements for States that may not be parties to such instruments. Key global and regional instruments of interest to the South East Asian region, and their monitoring and reporting requirements, are introduced including the:

- Catch Documentation Scheme of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR);
- Western and Central Pacific Fisheries Commission (WCPFC);
- Indian Ocean Tuna Commission (IOTC);
- European Community System to Prevent IUU fishing;
- Inter-American Tropical Tuna Commission (IATTC);
- Commission for the Conservation of Southern Bluefin Tuna (CCSBT);
- FAO Compliance Agreement; and
- The UN Fish Stocks Agreement.

5.5 Data Collection and Management

This part of the course will focus on various tools available for collecting fisheries data and measuring fishing effort. Examples of these tools are port monitoring, catch landings, observer programme, at-sea inspection, logbook systems and transshipment records. It will also cover procedures and mechanisms for the management of data collected and data sharing as well as ensuring the confidentiality of data as appropriate. This could include the value of cooperative information sharing between governments – intelligence sharing – e.g. about IUU vessels heading your way.

5.6 Licensing Procedures, Fishing Vessel Identification and Authorisation

This part of the course will cover licensing procedures and fishing vessel identification and authorisation. Key issues to be addressed in this section include:

- Licensing of domestic fishing vessels within national jurisdiction;
- Licensing of foreign fishing vessels within national jurisdiction;
- Authorisation to fish in regional fisheries management organisations;
- Issuance of high seas permits;
- Licensing systems in various RPOA countries;

- Other relevant requirements for fishing vessels such as vessel and gear marking/identification and vessel registration documentation;
- Authorisations to fish on the high seas and in foreign EEZs; and
- Effort restrictions which may be included under the terms and conditions of fishing licences, such as closed areas and quotas.

5.7 Use of Technology in MCS

This session will address the legal and operational aspects of using technology in MCS. Some of the key issues to focus on include:

- Maps and charts;
- Satellite based vessel monitoring system (VMS);
- RadarSAT;
- Automatic Identification System (AIS);
- Adopting such technologies for developing States;
- National and regional experiences in using new technology in fisheries management; and
- The importance of these systems in supporting fisheries compliance and surveillance.

Given the increasing use and dependence upon VMS, and the technical nature of this tool and any subsequent prosecutions, this part of the course could be supplemented by a separate one week course on VMS and its application.

5.8 Compliance Aspects of MCS

This part of the course will cover the core legal and practical issues involved in the compliance aspects of MCS measures with respect to air, sea and land enforcement, such as boarding and inspection schemes, patrol schemes and enforcement of port measures. This session will also cover prosecution and judicial processes such as investigating breaches of fisheries laws and regulations, evidence collection, interview techniques, rights of alleged offenders, preparation and presentation of briefs and evidence, disposal of forfeited items, fisheries sanctions and penalties, and prosecution of fisheries offenders. This component will further include a discussion

on risk assessment and management, specifically the assessment of risk and likelihood of non-compliance by fishers, use of monitoring information to determine patterns of behavior that result in non-compliance, and an analysis of risk in terms of their social, economic, environmental, and political consequences. An understanding of these processes and issues will assist RPOA participating countries to ensure effective enforcement of fisheries laws and regulations.

5.9 Developing Operational Plans

Effective implementation of MCS measures requires the development of operational plans which are integrated within the national MCS system and coordinated across all relevant agencies. Development of MCS operational plans would also need to be integrated at the sub-regional and regional levels. This part of the course will provide participants with the requisite knowledge and practical approaches based on case studies of selected RPOA participating countries and international best practice. The issues to be covered in this part of the course will include:

- Concept and elements of MCS operational plans;
- Role of MCS plans;
- Benchmark case studies;
- MCS operational plan implementation issues; and
- Practical exercises in designing operational plans.

5.10 Writing MCS Reports

This part of the course will teach participants practical skills in writing MCS reports. These skills are important in monitoring the effectiveness of MCS measures and providing the requisite information for MCS planning, execution and prosecution. The following types of reports will be covered:

- Vessel movement reports;
- Catch and effort reports;
- Log books; and,
- Vessel sighting reports.

5.11 MCS Coordination

This part will cover model practices of States in coordinating MCS at the national, sub-regional and regional levels. It will discuss ways in which cooperation among relevant government agencies may be enhanced and will also provide an introduction to sub-regional and regional cooperation on MCS among RPOA participating countries. This session will conclude with a workshop on the development of MCS strategies.

5.12 Investigation and Prosecution

Good investigation and prosecution skills are fundamental to any successful implementation of fisheries MCS measures. This part of the course will develop practical investigative and prosecution skills in the participants in the following areas:

- Fisheries prosecution and investigation techniques, including evidence gathering;
- Note taking;
- Chain of evidence;
- Interviewing and recording statements;
- Preparation of briefs;
- Court procedures.

Hypothetical examples will be developed for role play in a courtroom scenario.

5.13 Course Organization

There are two options in conducting the course. One option is to organise an MCS course comprising all the curriculum components discussed above. The other option is to implement the various components of the MCS curriculum as separate modules. The course or module may be run in a mix mode, comprising classroom presentations, practical exercises, dock-side investigation and court-room presentations. Tutorial sessions may be provided to enable participants to interact more closely with instructors and to actively participate in discussions. In addition, tutorial sessions may be used as a means to conduct formative assessment of students' level of learning and understanding of the course content, as well as an avenue to assess the competencies

of students consistent with course objectives and in areas relevant to their future professional careers.

6.0 BUSINESS CASE

6.1 Introduction

This section outlines the business case underpinning the MCS curriculum and course. It provides the context for the course and identifies issues which need to be taken into account in sourcing funds to support full development and implementation. The issues addressed include:

- (i) Economic justification;
- (ii) Funding sources;
- (iii) Estimated cost of the course;
- (iv) Possible institutions to deliver the course; and,
- (v) High level time frame and milestones.

6.2 Economic Justification

The current trend in the production of global marine fisheries resources presents an alarming concern for food security and sustainable development. Some of the fisheries resources which were previously regarded as inexhaustible are now either seriously depleted or overexploited. According to the Food and Agricultural Organization (FAO), of the major marine fish stocks or species groups, 52 per cent are fully exploited, 17 per cent are overexploited, 25 per cent are underexploited or moderately exploited, and the remaining 6 per cent of the stocks are becoming significantly depleted.²

IUU fishing is now generally acknowledged to be a major contributor to this crisis in global fisheries, with negative economic, environmental, ecological, and social consequences for many countries, especially developing countries. Globally, it is estimated that the total value of losses from illegal fishing is between USD10 billion and USD23 billion annually representing 11.06 million to 25.91 million tonnes of

² FAO, The State of World Fisheries and Aquaculture 2006.

fish.³ In the Asia Pacific region, IUU fishing has been estimated to cost around USD4.5 billion to USD5.8 billion a year.⁴ The quantity of fish taken by IUU fishing activities in the RPOA region is between 3.45 million tons to 8.12 million tons which account for about eight to 16 per cent of the total reported catch per year.⁵ In the Sulawesi Sea of the Asia-Pacific region, the financial loss from IUU fishing has been conservatively estimated at about one third of the total annual value of the marine fisheries in the area.⁶

IUU fishing activities cause damage to fisheries habitats and marine environments, particularly coral reefs. In The Philippines, the productive capacity of coral reefs has been reduced to a fifth of its original capacity as a result of dynamite fishing.⁷ An explosive the size of a coca cola bottle can shatter to pieces all stony corals within a radius of three metres.⁸ Studies suggest that fish diversity and coral area damaged by moderate blast fishing and poison fishing may take 25 years to recover.⁹ If 50 per cent of live coral is destroyed, recovery to the initial state is predicted to take about 60 years.¹⁰ In the case of the Philippines, in the 1990s destructive fishing methods caused the degradation of about 70 per cent of coral reefs and reduced annual fisheries production by about 177,500 metric tons.¹¹

IUU fishing also results in high levels of by-catch of both juvenile fish and non-target species. Migratory oceanic sharks, seabirds, marine mammals, and sea turtles are rarely the target of commercial fisheries but become a large component of the by-

³ Marine Resource Assessment Group Ltd (MRAG) and Fisheries Ecosystems Restoration Research, Fisheries Centre, University of British Columbia, *The Global Extent of IUU Fishing, Final Report*, www.illegal-fishing.info/uploads/MRAGExtentGlobalIllegalFishing.pdf.

⁴ R. Lungren, D. Staples, S. Funge-Smith, and J. Clausen, *Status and Potential of Fisheries and Aquaculture in Asia and the Pacific 2006*, FAO Regional Office for Asia and the Pacific, RAP Publication 2006/22, Bangkok: FAO-RAP, 2006) at 46.

⁵ MRAG, *The Global Extent of IUU Fishing*, *supra* note 70, at 15. See also Frank Meere and Mary Lack, *Assessment of Impacts of Illegal, Unreported and Unregulated (IUU) Fishing in the Asia Pacific*, (Singapore: APEC Secretariat, 2008), at 27.

⁶ Mary Ann Palma and Martin Tsamenyi, *Case Study on the Impacts of Illegal, Unreported and Unregulated Fishing in the Sulawesi Sea*, APEC Fisheries Working Group, FWG 02/2007, (Singapore: APEC Secretariat, April 2008), at 24.

⁷ Alan T. White, Helge P. Vogt, and Tijen Arin, 'The Philippine Coral Reefs Under Threat: The Economic Losses Caused by Reef Destruction,' 40 *Marine Pollution Bulletin* (2000), at 600.

⁸ *Ibid.*

⁹ Raquel Goñi, 'Fisheries Effects on Ecosystems', in Charles R.C. Sheppard, (ed.), *Seas at the Millennium: An Environmental Evaluation, Vol. III: Global Issues and Processes* (Amsterdam: Pergamon Elsevier Science, 2000), at 123.

¹⁰ *Ibid.*

¹¹ A.C. Alcala and G.R. Russ, 'Status of Philippine Coral Reef Fisheries,' *Asian Fisheries Science* 15 (2002), at 177.

catch of longline, purse seine, and drift-net fisheries.¹² The use of destructive fishing methods also exacerbates the problem of by-catch and discards.¹³

A number of social impacts of IUU fishing have been identified.¹⁴ Some IUU vessels recruit their crew from States where there is a lack of alternative employment opportunities¹⁵ and who may be unaware of the vessels' illegal operations.¹⁶ IUU fishing has not only been equated to "stealing food from some of the poorest of the world"¹⁷ but is also known to cause the displacement of legitimate fishers. IUU fishing can further threaten food security and lead to lower employment and reduction in household incomes, all of which exacerbate poverty, particularly among coastal and artisanal fishers.¹⁸ Such social impacts illustrate that IUU fishing not only affects industrial fishing, but is also a concern in small-scale fisheries.¹⁹

For many countries, a major challenge in addressing IUU fishing is the limited operational capacity to manage vast expanses of ocean spaces under their national jurisdiction. The lack of enforcement capabilities in one State can also hinder the monitoring of fishing operations in neighbouring waters.²⁰

Although tangible benefits are difficult to quantify, the successful delivery of the training course will provide the RPOA participating countries with an effective framework to tackle all aspects of IUU fishing. Even a five percent reduction in IUU fishing will significantly increase financial returns from legal fisheries and improve both food security and marine biodiversity.

¹² See Stephen J. Hall, *The Effects of Fishing on Marine Ecosystems and Communities* (Oxford: Blackwell Science Ltd., 1999), at 16-47; See also Michael Berrill, *The Plundered Seas: Can the World's Fish Be Saved?* (San Francisco: Sierra Club Books, 1997), at 65.

¹³ EJF, *What's the Catch? Reducing Bycatch in EU Distant Water Fisheries* (EJF: London, 2005), at 6.

¹⁴ See Jon Whitlow, 'The Social Dimension of IUU Fishing', in OECD, *Fish Piracy: Combating Illegal, Unreported and Unregulated Fishing*, (Paris: OECD, 2004), at 231-238.

¹⁵ *Ibid.*, at 244.

¹⁶ *Ibid.*

¹⁷ EJF, *Pirates and Profiteers*, *supra* note 29, at 3.

¹⁸ David J. Agnew and Colin T. Barnes, 'Economic Aspects and Drivers of IUU Fishing: Building a Framework', in OECD, *Fish Piracy: Combating Illegal, Unreported and Unregulated Fishing* (Paris: OECD, 2004), at 169-200.

¹⁹ FAO, *Increasing the Contribution of Small-scale Fisheries to Poverty Alleviation and Food Security*, *FAO Technical Guidelines for Responsible Fisheries No. 10* (Rome: FAO), at 46.

²⁰ WWF International Endangered Seas Campaign, *The Footprint of Distant Water Fleets on World Fisheries*. Surrey: WWF, 1998), at 23.

6.3 Funding Sources

The estimated cost of running the MCS course is probably more than individual RPOA participating countries will easily be able to contribute. Some of the key organizations which fund fisheries projects and may be interested in funding the MCS course, either individually or jointly, are identified below:

- Participating country contributions;
- Coral Triangle Initiative (CTI);
- Asia Development Bank;
- FAO (Fish Code);
- The Global Environment Facility (World Bank);
- The Nippon Foundation;
- SEAFDEC;
- Infofish;
- Worldfish; and,
- Donors (eg Australia, Canada, USA, Germany, Norway, Japan, European Community, etc).

Given the critical importance of fisheries to this region, the imminent threats posed by IUU fishing, and the probable inability of the region to self-finance the MCS training course, it is important that serious consideration be given to developing a comprehensive financial strategy to seek funding from external sources. Precedents for such an approach exist within the Pacific islands region where the Pacific Islands Forum Fisheries Agency has successfully sought seed grants from the Global Environment Facility to prepare comprehensive funding proposals. These proposals have successfully led to tens of millions of dollars in contributions to capacity building, coordination and training programmes within the Pacific islands region.

6.4 Estimated cost

The cost of the MCS course will be determined by a number of factors including: frequency; duration; location; and mode of delivery. These issues would need to be discussed and agreed to by the RPOA Coordinating Committee.

To be cost effective and to respond to RPOA objectives, the course may be run at three levels: national, sub-regional and regional, depending on the issues to be addressed.

In the short to medium term, it is not recommended that the course be run as a University award course for a number of reasons. These include difficulties in getting all the expertise required to run the course in one educational institution, the difficulty of getting officials released for a longer period (at least one year for Master or Diploma) and difficulties of funding the course at a tertiary level.

While it is not possible to specify an exact cost in the absence of instructions relating to frequency, duration, location and mode of delivery, a rough 'ball-park' estimate is provided to guide discussions regarding specific requirements. Assuming that the course is run over a minimum of five consecutive years and allows for one course in each RPOA participating country per year, one course sub-regionally, and one course regionally per year, it is estimated that an amount of US\$2.5 million will be required to cover travel, accommodation, per diems, course materials and course fees.

6.5 Possible institutions to deliver the course

Given the multi-disciplinary and practical nature of the course, it is unlikely that any single institution will possess all the necessary skills to deliver the course effectively. The most likely scenario for the delivery of the course will be a consortium of several academic institutions and regional organizations, working closely with MCS experts in various fisheries departments in RPOA participating countries. A starting point in drawing up a list of expertise in the region is to request all RPOA participating countries to provide a detailed list of possible institutions in their countries that can deliver all or part of the course. Alternatively, the Coordinating Committee can call for expression of interests of possible providers in RPOA participating countries that can deliver the course. The Coordinating Committee would also need to discuss and agree whether to source expertise from outside the region.

6.6 High level time frame and milestones

If implemented effectively, through suitably skilled professional institutions, the MCS curriculum could achieve the following milestones within the following timeframes.

- Within 1 year, RPOA participating countries have knowledge and skills necessary to review current implementation of MCS through port, coastal and flag State mechanisms.

- Within 3 years, RPOA participating countries have skills and knowledge necessary to:
 - implement comprehensive catch and logbook reporting programmes;
 - implement comprehensive landings and transshipments inspection and reporting programmes;
 - estimate levels of IUU catch from within their waters; and
 - develop MCS national plans of action.

- Within 5 years, RPOA participating countries have skills and knowledge necessary to:
 - monitor all licensed fishing activities (including landings and transshipments) in their waters and ports and by their registered vessels; and
 - undertake MCS operations to the effect that they reduce IUU catch from their waters by 50 per cent.