



**CORAL TRIANGLE
INITIATIVE**
ON CORAL REEFS, FISHERIES AND FOOD SECURITY



Activity Report: Live Reef Food Fish Trade Intergovernmental Forum

Bangkok, Thailand, January 31 and February 1, 2013



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Live Reef Food Fish Trade Intergovernmental Forum

Bangkok, Thailand, January 31 and February 1, 2013

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CONTENTS

CONTENTS	2
ACRONYMS	3
EXECUTIVE SUMMARY	5
I. INTRODUCTION	10
Objectives and Expected Results	10
II. SESSION PROCEEDINGS	12
Day 1, 31 January 2013.....	12
OPENING SESSION	12
SESSION I. LRFFT SCENE-SETTING AND REGIONAL BACKDROP	13
Presentation 1 –The Science and Supply-side Challenges of Sustainable Fish Supplies for the Southeast Asian LRFFT	13
Presentation 2 – The Demand for Live Reef Food Fish in Southeast Asia: Consequences and institutional challenges.....	16
Presentation 3 – Ensuring the future of LRFFT: Mechanisms for stakeholder engagement	20
SESSION 2. COUNTRY PRESENTATIONS AND DISCUSSIONS	25
Country Presentation 1: Indonesia.....	25
Country Presentation 2: Philippines	27
Country Presentation 3: Malaysia	29
Country Presentation 4: Timor-Leste	31
Country Presentation 5: Vietnam.....	32
Discussion and synthesis on options for national and regional actions	32
Day 2, 1 February 2013.....	37
SESSION 3. MOVING FORWARD	37
Summary of Day 1 and Outline of Goals for Day 2	37
Presentation 4 – Challenges to Engagement of China and Options for LRFFT Tracking	39
Facilitated Discussion on Meeting Resolutions.....	44
SESSION 4. PRESENTATION AND CONFIRMATION OF RESOLUTION AND NEXT STEPS	48
Presentation of resolution	48
Next Steps	49
SIGNING OF RESOLUTION AND CLOSING	49
ANNEXES	51
A1: Agenda (as published, does not reflect changes during actual Forum).....	51
A2: List of Participants and Resource Persons	54
A3. LRFFT Inter-Governmental ForumPartners	58
A4: Participants Breakdown by Gender and Organization	59
A5: List of Presentations and Other Workshop Materials	60
A6: Preliminary Summary Report: Live Reef Food Fish Trade Intergovernmental Forum, January 31-February 1, 2013, Bangkok, Thailand.....	61
A7: Resolution on Sustainable LRFFT for Southeast Asian and CTI-CFF Countries	65

ACRONYMS

ADB	Asian Development Bank
AMAF	ASEAN Ministerial Meeting on Agriculture and Fisheries
APEC	Asia-Pacific Economic Cooperation
APT	ASEAN Plus Three
ASEAN	Association of Southeast Asian Nations
ASEAN-WEN	ASEAN Wildlife Enforcement Network
BFAR	Bureau of Fisheries and Aquatic Resources (Philippines)
BIMP-EAGA	Brunei-Indonesia-Malaysia-Philippines East ASEAN Growth Area
CDT	cyanide detection test
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CT	Coral Triangle
CT6	CT Countries (Indonesia, Malaysia, Philippines, Papua New Guinea, Solomon Islands, and Timor-Leste)
CTI	Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security
CTI-CFF	Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security
CTMPAS	Coral Triangle Marine Protected Area System
CTSP	Coral Triangle Support Partnership
DENR	Department of Environment and Natural Resources (Philippines)
DGA	Directorate-General of Aquaculture (Indonesia)
DOF	Department of Fisheries (Malaysia)
EAFM	ecosystem approach to fisheries management
FAO	Food and Agriculture Organization (United Nations)
FCA	full-cycle aquaculture
FMA	fisheries management areas
FMO	Fisheries Management Organization (Hong Kong)
GAqP	Good Aquaculture Practices
HK	Hong Kong
IUCN	International Union for Conservation of Nature
IUU	illegal, unregulated and unreported (fishing)
kg	kilogram
km	kilometer
LGU	local government unit
LRF	live reef fish
LRFF	live reef food fish
LRFFT	live reef food fish trade
LRFT	live reef fish trade
MMAF	Ministry of Marine Affairs and Fisheries (Indonesia)
MMEA	Malaysia Marine Enforcement Agency
MOF	Ministry of Forestry (Indonesia)
MOU	memorandum of understanding
MPA	marine protected area
MRA	mutual recognition agreement
NCC	National Coordinating Committee
NDF	non-detrimental finding
NPOA	National Plan of Action
PCSD	Palawan Council for Sustainable Development (Philippines)
PNG	Papua New Guinea
RFMO	Regional Fisheries Management Organization
RPOA	Regional Plan of Action

RPOA-IUU	Regional Plan of Action to Promote Responsible Fishing Practices Including Combating Illegal, Unreported and Unregulated Fishing in the Region
SEAFDEC	Southeast Asian Fisheries Development Center
SEP	Strategic Environment Plan (Palawan, Philippines)
SOM	Senior Officials Meeting
SOM-AMAF	Senior Officials Meeting-ASEAN Ministerial Meeting on Agriculture and Fisheries
SSME	Sulu-Sulawesi Marine Ecoregion
TMP	Tun Mustapha Park (Malaysia)
TURF	territorial use rights fisheries
TWG	thematic/technical working group
UMS	Universiti Malaysia Sabah
UNCLOS	United Nations Convention on the Law of the Sea
USCTI	United States Coral Triangle Initiative Support Program
WWF	World Wildlife Fund for Nature

EXECUTIVE SUMMARY

The Live Reef Food Fish Trade (LRFFT) Intergovernmental Forum, held in Bangkok, Thailand on 31 January and 1 February 2013, was a gathering of senior fisheries officials from six Coral Triangle and Southeast Asian countries with significant interest in LRFFT. It was jointly organized and hosted by the Secretariats of the Southeast Asian Fisheries Development Center (SEAFDEC) and the Coral Triangle Initiative for Coral Reefs, Fisheries and Food Security (CTI-CFF) with support from the US Coral Triangle Initiative Support Program (USCTI) to provide a venue for governments of LRFF-producing countries to discuss and address the challenges and opportunities of managing LRFFT for sustainability.

The six countries that participated were Indonesia, Malaysia, the Philippines, Solomon Islands, Timor-Leste and Vietnam. These countries can be divided into two regional groupings that intersect geographically: Indonesia, Malaysia, the Philippines, Solomon Islands and Timor-Leste are members of the CTI-CFF. The countries of Indonesia, Malaysia and the Philippines – along with Vietnam, the only non-CTI-CFF country in the Forum – also belong to SEAFDEC, which is composed of the 10 members of the Association of Southeast Asian Nations (ASEAN) and Japan. (The sixth CTI-CFF member-country, Papua New Guinea (PNG), is also an LRFF-producing country but was not represented.)

In broad terms, these two regional groupings' goals also intersect. SEAFDEC is a state-sponsored organization established to promote sustainable fisheries development in the Southeast Asia region. CTI-CFF, on the other hand, is a multi-lateral partnership formed to address the threats facing the coastal and marine resources of the Coral Triangle. SEAFDEC has no specific mandate on LRFFT, while CTI-CFF specifically addresses issues related to LRFFT in its Regional Plan of Action (CTI-CFF RPOA).

Target 2 under Goal 2 of the CTI-CFF RPOA is “more effective management and more sustainable trade in live reef fish and reef-based ornamentals.” There are two priority actions under this target: (1) Develop a collaborative work program on the management of and international trade in coral reef-based fish and ornamentals; and (2) Establish an informal CTI-CFF Forum on management of and international trade in coral-reef based organisms. The Bangkok LRFFT Intergovernmental Forum directly supported these two CTI-CFF priority actions, and broadly, SEAFDEC's goal of sustainable fisheries.

The Forum was also intended to follow through on earlier LRFFT-focused, CTI-CFF-sponsored activities and other related regional initiatives. This includes (1) the CTI-CFF Regional Exchange on an Ecosystem Approach to Sustainable LRFFT in the Coral Triangle held in Kota Kinabalu, Malaysia in October 2010, which discussed the science needs of LRFFT and options for a region-wide policy framework and multi-stakeholder Forum in the Coral Triangle, and (2) the Workshop on Market-Based Improvements in LRFFT organized by the Fisheries Working Group of the Asia-Pacific Economic Cooperation (APEC), which recommended greater transparency in the movement of traded species, adoption of international standards for the trade, and the creation of a public-private sector Forum on LRFFT.

More specifically, the Forum was designed to:

- 1) Provide status updates on LRFFT;
- 2) Examine separate supply and demand issues, linkages with China and the challenges of having such a huge market hold a virtual monopoly of demand for LRFF;
- 3) Discuss and share current approaches being employed by participating countries to manage LRFFT;
- 4) Clarify each participating country's policy position on the management of LRFFT;

- 5) Discuss potential common policies that participating countries can advocate to support country and regional initiatives to sustain the LRFF resources in the region;
- 6) Develop agreement on a common approach to regulating LRFF fisheries and controlling illegal, unregulated and unreported(IUU) fishing of LRFF species;
- 7) Agree on tangible next steps to improve government control of the exploitation of key LRFF species, including the possible establishment of a Forum or other appropriate mechanism for continuous dialogue;
- 8) Engage governments in activities leading toward the adoption of appropriate measures to sustain and manage LRFF resources in each country and the region as a whole.

A total of 51 participants were at the Forum. In addition to senior fisheries officials and their staff, in attendance were some of the participating countries' development partners, experts on the different aspects of LRFFT who were invited as resource speakers, and representatives from the private sector, primarily LRFF producers from some participating countries who were included in the country delegations (Annex A2).

The discussions and presentations were organized around two sets of objectives: (1) To provide trade status updates and point out the challenges and opportunities of managing LRFFT in the region for sustainability; and (2) To clarify each participating country's policy position on LRFFT and agree on a common regional approach to promoting sustainability in the trade over the long term.

All sessions were done at plenary. On Day 1 there were three expert presentations, status updates from the participating countries, and discussions on potential interventions to promote LRFFT sustainability. The discussions continued through Day 2, which also included another expert presentation that tackled challenges to engaging China in a regional LRFFT Forum focused on promoting resource sustainability and options for tracking the trade. Also on the second day, participating countries worked at developing an agreement on a regional approach to promoting sustainability in LRFFT.

The presentations highlighted the uncertain status of wild stocks of most species targeted for LRFFT amid apparent progress in aquaculture and mariculture development, and initiatives taken by governments to manage their fisheries. Concern was raised about the impacts of the ever-increasing demand from the huge Hong Kong/China market on steadily declining stocks, and the discussions explored the issues and solutions, including a proposal for a regional multi-stakeholder Forum on LRFFT and recommendations to protect the resource base and promote traceability across the LRFFT chain of custody.

The Forum was co-hosted by USCTI and SEAFDEC and co-chaired by SEAFDEC Secretary-General Chumnarn Pongsri and CTI-CFF Interim Regional Secretariat First Secretary Eko Rudianto. Dr. Victor PH Nikijuluw, head of the Indonesian delegation, and Atty. Asis Perez, head of the Philippine delegation, moderated the discussions.

ACTIONS RESULTING FROM THE FORUM

I. Resolution on Sustainable LRFFT for Southeast Asian and CTI-CFF Countries

The drafting and signing of a resolution to promote sustainable LRFFT in the region was the most important output of the Forum. Approved and signed by the heads of delegation of the six participating countries and attested to by Dr. Chumnarn and Mr. Rudianto (see Annex A7), this resolution is an articulation of the six participating countries' commitment to pursue national, intergovernmental and regional actions for sustainable LRFFT in the region. It contains the following action items:

- Establish Marine Protected Areas (MPAs) that may involve the following actions in support of LRFF:
 - Identification of spawning aggregation areas and other trans-boundary ecosystems that may be included in the Coral Triangle Marine Protected Area System (CTMPAS);
 - Establishment of fish *refugia* to protect LRFF species both inside and outside MPAs.
- Develop an Accreditation System that includes incentives/disincentives designed to encourage LRFF suppliers/traders to follow sustainable and fair trade practices. To complement the system, each country may:
 - Establish a network of cyanide testing laboratories to detect violations and promote compliance;
 - Identify and collaborate with independent bodies to monitor and check LRFF exports and to complement the government's regulatory system;
 - Designate export hubs for shipment of LRFF to simplify trade and streamline regulation;
 - Consider, among others, the following conditions for accreditation: a) Proof that export commodity comes from sustainable sources; b) Proof of sustainable management of reef ecosystem; c) Certificate of compliance issued by an independent body designated to monitor and check LRFF; d) Permit to export from designated shipment hubs.
- Consider developing and establishing necessary and appropriate reporting system to promote consistency in data collection, reporting processes and traceability. The basic information may include species, date caught, size, fishing area, and others as may be required.
- Address IUU issues related to LRFF in respective countries (consistent with the parties' obligations under RPOA-IUU) and extend cooperation to prevent trans-boundary IUU fishing and illegal trading practices.
- Promote collaboration among participating countries through a regional Forum modelled after the Regional Fisheries Management Organization (RFMO) and encourage each country to develop and establish appropriate local and national fora to promote information exchange, collaboration and continuous dialogue among all stakeholders.

2. Endorsement of SEAFDEC

The resolution also designates SEAFDEC as Interim Secretariat of the LRFFT Regional Forum, with support from the CTI-CFF Interim Regional Secretariat and US CTI Support Program. As Interim Secretariat, SEAFDEC was requested by the CTI-CFF Interim Regional Secretariat and the participating countries to take the lead in drafting the roadmap, developing the terms of reference (TOR), and identifying the organizational and administrative requirements of the Forum.

3. Identification of potential agenda items for the LRFFT Regional Forum

Over the course of the two-day meeting, a number of points were brought up and put forward as potential agenda items for consideration by the LRFFT Regional Forum. These include:

- a. Hybridization of grouper – The countries expressed concern about the risks associated with the development of hybrids and their culture in cages in open water where the potential is high for the hybrids to leak into the wild. Urged to “make at least a precautionary approach or risk assessment a priority,” the countries agreed that this is one issue they need to address both locally and regionally.
- b. MPA boundaries and responsibility center – The countries agreed that the different MPA models applied within the region need to be more clearly defined to promote a common understanding of MPA boundaries and the responsibilities of the different

agencies that are tasked to manage MPAs. There was also a recommendation to include in the definition not only spatial but also temporal considerations.

- c. Membership of LRFFT Regional Forum – Participants raised questions about the membership of the Forum that still need to be resolved: (1) Should the Forum invite the buying countries (Hong Kong and China in particular) as formal members? When would it be most constructive to engage them: at the organizational stages of the Forum or when the Forum is fully established, with rules and regulations binding the member-countries? (2) What would be the best mode of engagement with private sector (buyers, producers and other stakeholders)?
- d. Aquaculture/Mariculture – Several issues were raised by both resource speakers and country representatives in relation to the culture of fish for LRFFT that need to be taken up by the Forum. Among these are: (1) Feed supply issues: Food fish for people are being caught to feed the fish market for export; (2) Capture-based mariculture: Most seed for growout come from juvenile capture fisheries; (3) Emergence of disease associated with intensification of aquaculture/mariculture: How intensive should grouper culture be allowed to go?
- e. Ecosystem impacts of LRFFT – There was implicit agreement on the need to further discuss and examine more closely at the regional level the ecosystem impacts of LRFFT, which represents only 1-3 percent of the total resources taken from the reefs but have tremendous impacts on the reef ecosystem and the communities who depend on the reefs for food and livelihood. Participants noted that governments and other LRFFT stakeholders need to understand the resource base better and promote trade policies and practices that respond to realities on the ground rather than to “perception of plenty.”

4. Support from the CTI-CFF Regional Interim Secretariat

The CTI-CFF Regional Secretariat committed to undertake the following immediate next steps in support of the resolution coming out of this Forum:

- a. Report results of this Forum to the Chair of the CTI-CFF Council of Ministers (Malaysia);
- b. Distribute results of Forum to the CTI-CFF member-countries;
- c. Synergize with and integrate the LRFFT Forum plan into the CTI-CFF EAFM working group, who will meet before May 2013; and
- d. Bring the Forum’s recommendations on MPA to the MPA working group meeting in March 2013 and report the results of the Forum to other CTI-CFF meetings as may be appropriate.

5. Support from SEAFDEC

SEAFDEC committed to support the LRFFT Regional Forum in its capacity as the technical arm of ASEAN and a neutral technical organization. The Secretary-General said he would present this Forum report at the SEAFDEC Council Meeting in April 2013 and subsequently to the ASEAN mechanism, which could open up possibilities for addressing LRFFT issues at the higher authority level, particularly in the ASEAN and ASEAN Plus Three (APT).

6. Support from USAID

The USCTI Support Program will support a meeting between LRFF-producing countries and the demand side of the trade (Hong Kong/China) and through the Coral Triangle Support Partnership (CTSP), provide opportunities for representatives from producing countries to participate in a study visit focused on traceability in LRFFT.

7. Agreement on “immediate” next steps

The following next steps were deliberated and specifically agreed on by the countries at the close of the Forum:

- a. Report results of this Forum and forward a copy of its resolution to the SEAFDEC Council meeting on 1 April 2013, RPOA-IUU and eventually ASEAN.
- b. Forward to SEAFDEC Council meeting on 1 April 2013 this Forum's endorsement of SEAFDEC to serve as LRFFT Regional Forum Interim Secretariat;
- c. Hold an LRFFT Regional Forum meeting before September 2013. (Indonesia offered to host the meeting in Manado.)
- d. Meet with the demand side of the trade (USCTI offered to support meeting with Hong Kong and China).

Another important action point brought up at the close of the Forum related to formalizing the SEAFDEC-CTI-CFF collaboration through a memorandum of understanding (MOU). This requires follow-up talks between SEAFDEC and possibly an intercessional decision by the CTI-CFF countries. In one of the early sessions where this matter was discussed, the incoming Chair of the SEAFDEC Council (Philippines) requested the CTI-CFF Regional Secretariat to "send out to the senior officials (of CTI-CFF) the communication on the MOU so we can move forward on this."

8. Approval of Forum Report

As announced by the Chair at the close of the Forum, this Forum Report would be circulated to the countries for review and further recommendations. Should there be no other comments or recommendations, it is deemed automatically approved.

I. INTRODUCTION

Held at Centre Point Wireless, Bangkok, Thailand on 31 January and 1 February 2013, the Live Reef Food Fish Trade (LRFFT) Intergovernmental Forum brought together senior fisheries officials from six Coral Triangle (CT) and Southeast Asian countries with significant interest in LRFFT. The Forum tackled challenges arising from and affecting the trade, and explored opportunities to support the sustainable development of the LRFF industry in each country and the CT and Southeast Asia regions as a whole. It was jointly organized and hosted by the Secretariats of the Southeast Asian Fisheries Development Center (SEAFDEC) and the Coral Triangle Initiative for Coral Reefs, Fisheries and Food Security (CTI-CFF) with support from the US Coral Triangle Initiative Support Program (USCTI).

The six countries that participated in the Forum were Indonesia, Malaysia, the Philippines, Solomon Islands, Timor-Leste, and Vietnam. Indonesia, Malaysia, the Philippines, Solomon Islands and Timor-Leste, along with Papua New Guinea (PNG) which was not represented, are members of the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF, also referred to in this report as CTI). Indonesia, Malaysia and the Philippines, along with Vietnam, also belong to SEAFDEC, which is composed of the 10 member-countries of the Association of Southeast Asian Nations (ASEAN) and Japan.

All told, 27 country delegates from the six participating countries, including private sector representatives, attended the Forum. They were joined by 24 participants from SEAFDEC, USCTI and other development partners (Annex A2).



Participants at the LRFFT Intergovernmental Forum held on 31 January and 1 February, 2013, in Bangkok, Thailand. (Photo: US CTI PI)

OBJECTIVES AND EXPECTED RESULTS

In general, the Forum's objective was to support SEAFDEC's mission on sustainable fisheries, as well as CTI-CFF's target on sustainable trade in live reef fish and reef-based ornamentals, which is stated under Goal 2 of its Regional Plan of Action (CTI-CFF RPOA) as follows:

Goal 2: Ecosystem approach to management of fisheries and other marine resources fully applied

Target 4: More effective management and more sustainable trade in live reef fish and reef-based ornamentals

- *Action 1: Develop a collaborative work program on the management of and international trade in coral reef-based fish and ornamentals.*
- *Action 2: Establish an informal CTI-CFF Forum on management of and international trade in coral reef-based organisms.*

From the CTI-CFF perspective, the Forum was intended to follow through on earlier LRFFT-focused, CTI-CFF-sponsored activities and other related regional initiatives. These include the CTI-

CFF Regional Exchange on an Ecosystem Approach to Sustainable LRFFT in the Coral Triangle held in Kota Kinabalu, Malaysia in October 2010, which discussed the science needs of LRFFT and options for a region-wide policy framework and multi-stakeholder Forums in the CT, and the Workshop on Market-Based Improvements in LRFFT organized by the Fisheries Working Group of the Asia-Pacific Economic Cooperation (APEC), which recommended greater transparency in the movement of traded species, adoption of international standards for the trade, and the creation of a public-private sector Forum on LRFFT.

In more specific terms, the Forum was designed to accomplish the following:

- 1) Provide status updates on LRFFT;
- 2) Examine separate supply and demand issues, linkages with China and the challenges of having such a huge market hold a virtual monopoly of demand for LRFF;
- 3) Discuss and share current approaches being employed by participating countries to manage LRFFT;
- 4) Clarify each participating country's policy position on the management of LRFFT;
- 5) Discuss potential common policies that participating countries can advocate to support country and regional initiatives to sustain the LRFF resources in the region;
- 6) Develop agreement on a common approach to regulating LRFF fisheries and controlling illegal, unregulated and unreported(IUU) fishing of LRFF species;
- 7) Agree on tangible next steps to improve government control of the exploitation of key LRFF species, including the possible establishment of a Forum or other appropriate mechanism for continuous dialogue;
- 8) Engage governments in activities leading toward the adoption of appropriate measures to sustain and manage LRFF resources in each country and the region as a whole.

The Forum was intended to result in articulation of country commitments to pursue national, intergovernmental and regional actions for sustainable LRFFT in the region.

II. SESSION PROCEEDINGS

The LRFFT Intergovernmental Forum was organized around two sets of objectives. The first part consisted of presentations that provided trade status updates and pointed out current challenges to and opportunities for promoting sustainable LRFFT in the Coral Triangle and Southeast Asia. The second part was focused on clarifying each participating country's policy position on LRFFT and hammering out a common regional approach to promoting sustainability in the trade over the long term.

All sessions were done at plenary. Day 1 included three expert presentations, status updates from the participating countries, and discussions on potential interventions to promote LRFFT sustainability. The discussions continued through Day 2, enriched further by another expert presentation that tackled challenges to engaging China in a regional LRFFT Forum focused on promoting resource sustainability and options for tracking the trade. Toward the last third of the two-day meeting, participating countries worked at hammering out an agreement on a regional approach to promoting sustainability in LRFFT.

The Forum was co-hosted by USCTI and SEAFDEC and co-chaired by SEAFDEC Secretary-General Chumnarn Pongsri and CTI-CFF Interim Regional Secretariat First Secretary Eko Rudianto. Dr. Victor PH Nikijuluw, head of the Indonesian delegation, and Atty. Asis Perez, head of the Philippine delegation, moderated the discussions.

Day 1, 3 January 2013

OPENING SESSION

At 9:11 a.m., the Chair, Dr. Pongsri, welcomed participants and officially declared the Forum open. In his short remark, the Chair noted the degradation caused by LRFFT in reef systems across the CT and its ripple effect on other habitats that eventually impacts the entire ecosystem. He said that the complexity of LRFFT and IUU fishing in general impedes the sustainable management of valuable LRFF resources. While countries in the region have individually taken measures to regulate the trade and address IUU fishing of LRFF, Dr. Pongsri acknowledged that the issues have not been directly addressed regionally. "This is why this meeting is very crucial," he said, expressing hope that "with better understanding of the issues, we can work together and with other stakeholders" to better manage LRFFT and its challenges.

Co-chair Mr. Rudianto cited past efforts to discuss LRFFT concerns at the regional level, in particular three regional workshops on LRFFT held in Hong Kong; Sabah, Malaysia; and Bali, Indonesia in 2009, 2010 and 2011, respectively. He especially noted observations made at the Workshop on Market-based Improvements in LRFFT held in Bali in October 2011 about the complex nature of LRFFT in the Central Indo-Pacific region encompassing Southeast Asia and the Coral Triangle. The workshop concluded that in this region, any effort to manage LRFFT for sustainability would be constantly challenged by a highly lucrative LRFF market dominated by one country (China), persistent and growing demand, poor enforcement and limited regulation along the market chain, geographic isolation of sources, open-access fisheries involving large numbers of artisanal fishers, and a consumer market that generally lacks "eco-consciousness." These characteristics of the trade "require our collective action," said Mr. Rudianto. He urged the body to "save the business" and the region's fishery resources and reef ecosystems by strengthening regional collaboration and information-sharing. "I hope that through [this Forum], we can agree on tangible next steps and appropriate measures to manage our reef fish resources and reef ecosystems," he concluded.

Mr. Alfred Nakatsuma of USAID Asia, guest speaker at the opening session, encouraged the body to learn from and work with each other in order to successfully deal with LRFFT, which presents an important development problem that requires a regional response.

Mr. William Jatulan (US CTI) presented the context, rationale and objectives of the Forum, and explained the program flow. His presentation was immediately followed by participant introductions, which rounded out the opening session and signalled the start of substantive discussions.

SESSION I. LRFFT SCENE-SETTING AND REGIONAL BACKDROP

This session consisted of three expert presentations and participant discussions on LRFFT in the Southeast Asia-CT region. The first presentation tackled the supply side of the trade, the second presentation looked into the demand side, and the third discussed a proposal for a multi-stakeholder Forum on LRFFT. All three presentations were designed to provide a situational analysis on LRFFT, put LRFFT-related country issues into a regional context, and provide a jumping off point for discussions on regional solutions to priority issues.

The Chair, Dr. Pongsri, introduced each speaker before their presentation and, after each presentation, opened the floor to questions and comments from participants.

Presentation I – The Science and Supply-side Challenges of Sustainable Fish Supplies for the Southeast Asian LRFFT

Dr. Yvonne Sadovy de Mitcheson, University of Hong Kong

There are major challenges to putting LRFFT on a sustainable footing, but there are also major opportunities. Many of the solutions to LRFFT issues are also solutions that will help manage fisheries generally in the region.

Per capita consumption of LRFF has been growing since the 1960s. China is a big consumer, but Hong Kong (HK) Special Administrative Region, although much smaller in population and area, is also a big market due to one of the highest per capita consumption rates in the world. Projected demand is much greater than projected supply, especially for many of the high value species. And while there is growing production from hatcheries, the majority of species is still taken from the wild and several species are still taken from the wild in their juvenile phase in large numbers and grow-out in captivity – these are juvenile-based fisheries (see Table I.1 below). This underscores the need to manage wild populations for long-term sustainability.

Table I.1. Sources of major species

Species	Hatchery	Hatchery and wild (grow-out seed)	Wild only
<i>P. leopardus</i>		(x)	X
<i>P. areolatus</i>			X
<i>P. maculatus</i>			X
<i>E. fuscoguttatus</i>		X	
<i>E. lanceolatus</i>		X	
<i>Sabah hybrid</i>	X		
<i>E. polyphkadion</i>			X
<i>E. coioides</i>		X	

<i>C. altivelis</i>		X	
<i>C. undulates</i>			X

Interest in wild caught fish remains high because of increasing demand specifically for wild caught fish, so mariculture and aquaculture alone cannot solve the supply and demand problem. Also, there is market demand for a diversity of species, many of which may be difficult to culture in the short term at least. Also to be considered is the welfare of communities that take fish from the wild and need access to wild populations. These communities will lose out in the long run if wild populations decline and most will not be able to use mariculture as a solution.

One of the major challenges in managing LRFFT is the lack of understanding of wild populations of reef fish. It is important to know how much fishing pressure these populations can sustain, and there is at present not that much study being done in this field. Another major problem is a perception problem: Every day, people see hundreds of tanks of fish being brought to the market, so there is perception of plenty that belies the true resource situation or problem. One of the challenges to hammering home the message that in some places there is overfishing, and that this will affect communities in the long term, is the issue of consolidation. The tanks of fish that reach the market are consolidated by traders from thousands of small fishers who take many hours in many days to catch them, maybe catching one or two fish a week each and having to travel further each year to catch the fish as the numbers decline. The fishermen can recognize that the fish are declining but those traders or others who just see the consolidated fish cannot know.

The same perception is created by mariculture (i.e. the grow-out of wild caught fish), where cages are stocked full of baby fish taken from the wild. What is not apparent to the casual observer is that there are thousands of small fishers working long periods of time and travelling long distances each day to catch those fish and bring them to the cages. Capture areas for live fish destined for China has expanded from South China Sea in the 1970s to many sources across the Indo-Pacific by the 1990s in response to increasing demand, declining supply and serial overfishing. Such extensive spread of capture areas makes it difficult to know the status of wild populations for observers who only see of culture operations, restaurants or transporter vessels but do not know what is actually happening in the fishery. It is important, therefore, to ask the fishers.

It is important to address this 'misperception of plenty' and to undertake studies that help scientists and resource managers alike understand better the underlying resource base. Studies need not be done region-wide everywhere but some representative case studies can reveal a lot about what is going on with the resource. There are a few examples of these studies but more studies are needed.

One of the unfortunate characteristics of LRFFT is that the preferred species, which are mainly the groupers and some Napoleon fish, are biologically susceptible to being overfished because of their slow life spans and reproductive behavior (e.g. forming spawning aggregations, making them easy to fish and overfish). Indeed, several major species are either near threatened, vulnerable or endangered (IUCN), and several others are 'near-threatened'. The Napoleon wrasse is not only endangered but is also, the first LRFF to be so listed as so (Appendix 2).

Mariculture and restocking are being touted as solutions to the supply problem, but with rare exceptions, restocking has not demonstrably led to wild population recovery, and while a significant portion of a few mariculture species are hatchery produced, the majority of species still come from the wild. All Napoleon wrasse and coral trout in growout facilities (with the exception of some hatchery produced coral trout in Mainland China) come from wild capture, which is typically not managed. Seed fisheries have historically not been considered part of 'fisheries', but they are indeed wild capture fisheries because they involve taking large quantities of juveniles from the wild and are now recognized by FAO as part of 'capture-based fisheries'. As a rule, fisheries that are managed should avoid the capture of juveniles to enable fish to mature and replenish their population. One way

to do this would be to shift to hatchery-farmed juveniles, but hatchery production has its own challenges: (1) technical difficulties in hatchery production for many species; (2) difficulty in getting broodstock for some species; (3) poor economic viability due to slow growth rates and late maturation of preferred species; and (4) increasing occurrence of disease associated with intensive culture. The last point in particular underscores the safety risks associated with intensive culture that requires a decision on how intensive grouper culture should be allowed to go.

For the most part, neither mariculture nor restocking can solve the problem of overfishing of wild populations, unless fisheries are reduced in parallel with restocking and mariculture production which is never done to my knowledge. In a demand-driven market, increasing mariculture production by one ton has resulted in reducing wild capture fisheries by one ton, because consumers continue to prefer wild fish and because demand is so high. On the other hand, if consumers do shift to hatchery-farmed fish and hatchery production begins to take over supply from wild stocks because of depletion, the issue becomes loss of income for many communities who depend on wild capture fisheries and cannot afford or do not want to culture fish. We need to keep wild fish populations also for genetic replenishment of fish in culture.

Feed supply is also a major concern because food fish for people are being caught to feed the fish for export. And, as mariculture becomes successful and the balance tilts toward the supply side, prices can be expected to decline, impacting the profitability of mariculture operations. Also, China is surging ahead in mariculture production and could in time become less dependent on outside food fish sources.

Currently, the biggest sustainability challenge is with unmanaged/uncontrolled harvesting of high-priced species from the wild. The high demand for some species and their biological characteristics have led to unsustainable fishing practices, including use of cyanide, aggregation fishing and heavy take of juveniles. Overfishing and habitat destruction resulting from the absence of management are leading to loss of food and livelihood options, a lose-lose situation for both fish and food security.

Looking into the future, climate change is also a major concern. The tropics stand to lose substantial catch potential relative to other places on the planet as a result of the projected increase in sea surface temperatures and other temperature anomalies.

There are solutions, but stakeholders must be honest about what the problems really are and what solutions are truly required. Some considerations for sustainability that the industry and government should look into are as follows:

- 1) Fishery objective (is the fishery primarily for food, per capita income, state income, livelihoods? Whose food security are we really trying to protect?)
- 2) Sustainable export quotas (e.g. Napoleon fish in Indonesia/Malaysia and coral trout from Australia)
- 3) Stock assessment (e.g. FAO [Food and Agriculture Organization] study on Napoleon wrasse)
- 4) Measures to stop use of cyanide/compressor (one investment area that should be encouraged is in the development of a good cyanide testing kit since we do not yet have a reliable one)
- 5) Minimum/maximum catch sizes (no wild juvenile grow-out?) to protect spawning biomass.
- 6) Protection of spawning aggregations/nursery areas to allow for population replenishment
- 7) Trade/fishery monitoring to follow trends in volumes, species, fishing activity, provenance, etc. to address IUU fishing
- 8) Alternative livelihoods
- 9) Management by source countries of their own resources for sustainability (demand side countries cannot do this for them)

Discussion

Indonesia – I would like to emphasize two points that were raised in the presentation. The first point is the perception of scale or the illusion of plenty, which we in government appear to be afflicted with despite what we know to be the reality on the ground. We must acknowledge that there is overfishing and resource depletion and adopt policies based on fact rather than perception. The second point is the impact of aquaculture and in particular the use of other fish species to feed fish for export. One solution would be to reduce the price of artificial feeds so aquaculture operators will be encouraged to shift to artificial feeds.

Dr. Sadovy – A word of caution: Pellet feeds also contain quite a high proportion of wild fish so we must not fool ourselves into thinking that they provide the final solution. The long-term target should be to get off pellets by developing alternative sources of appropriate protein. Or by using fish that do not need pellets (non-carnivores). But you said it well. We must get past the illusion of plenty so we can see what the problem really is and how we can address it. The FAO has a new sub-sector under aquaculture called ‘capture-based aquaculture’, a hybrid between mariculture and wild capture fisheries that involves catching juveniles from the wild and raising them in captivity. FAO now has guidelines on this type of fish culture.

Malaysia – Do you have an estimate of the volumes of LRFFT being traded in HK and China? What is your recommendation for managing stocks?

Dr. Sadovy -- I cannot give you a specific prescription for managing your stocks because different situations require different solutions, and different countries will have different approaches. There are many tools you can use, such as quotas, for example. Australia has set an export quota based on stock assessments that give them an estimate of the productivity of a reef area per year. About trade volumes: I wish I knew. There's an enormous amount of IUU trade happening in HK and China and that needs to be solved. We're trying to improve enforcement and reporting to try to capture that.

Presentation 2 – The Demand for Live Reef Food Fish in Southeast Asia: Consequences and institutional challenges

Dr Geoffrey Muldoon, WWF Coral Triangle Program

The Asia-Pacific LRFT is significant in terms of volumes traded (approximately 30,000 tons worth in excess of USD800 million) and regionally expansive. With recent research, a clearer picture of what is happening to LRFF when it gets to HK has emerged. Growth in consumption of LRFF in HK and China is more about growing wealth and prestige than about what people need. There is a doubling of per capita consumption of seafood in these two markets. In mainland China, consumption is increasing due to demand from non-traditional markets, such as Beijing, Shanghai, Fuzhou and Chengdu. In Beijing, Napoleon wrasse can fetch prices of up to USD600 per kg of fish, not only because of high demand but because of diminishing supply.

Data from HK's Agriculture, Fisheries and Conservation Department and Census and Statistics Department indicate fairly stable reef fish imports into HK overall. Looking at specific species, imports of Leopard coral grouper from the Philippines have shown a declining trend from the mid-2000s, while imports from Indonesia have been relatively stable. Green grouper imports from Malaysia and Indonesia are showing some increase and those from the Philippines appear fairly steady. For Tiger grouper, Indonesia showed a drastic decline between 2010 and 2011, apparently because while there has been a great increase in hatchery-based mariculture of this species, disease occurrence prevented the product from getting to market. Green grouper exports, on the other hand, have been on an uptrend between 2010 and 2012, likely because of increased production from mariculture.

What these trends indicate is that demand has exceeded sustainable supply and that reef productivity is being exceeded, resulting in growth overfishing, and eventually recruitment overfishing, where potential adults are being taken from the population so they are not able to replenish stocks. The decline in wild stocks has prompted the movement of the trade to more areas in more remote locations, as fishers follow the fish looking for supply to meet demand. In Indonesia, LRFFT started in the central part of the country, moved west and is now expanding eastward, causing chronic overfishing and serial depletion of stocks in its aftermath. In Palawan in the Philippines, LRFFT started in the Coron Bay area and has moved southward to Balabac, Taytay and Roxas. The fishery has since closed in Coron (whatever is traded there comes from Taytay), and in Taytay, juveniles are now being targeted. A catch-and-effort survey conducted in the area showed that only about 20 percent of fish caught in the Taytay area are “market size” and the rest are undersize and must be “grown out” in cages until they reach market size.

It is evident from a study of available trade data that there is growth in cultured fish, a decline in wild caught fish being traded, and a slight decline in fishery-based culture. Percentage-wise, fishery-based cultured fish account for 50 percent of LRFF going into HK, which means that 50 percent of all LRFF that go into HK are juvenile fish that have been grown out.

There are international measures to combat IUU fishing (e.g, port state measures) but they do not specifically address IUU fishing of LRFF and need to be adapted to support LRFFT. A significant amount of the LRFFT from the eastern part of Indonesia and other parts of the CT ends up in HK on small vessels, which are not covered by regulations that apply to major commercial fishing vessels. It is not clear what species and volume of fish are being traded or where exactly they come from because not many good records are being kept in Hong Kong about those species. Reporting and traceability needs to be improved. One way to do this is to allow transshipment of LRFF only in designated hubs and only through air transport. This will allow much better information to be collected. Also, legislation to regulate trade in Napoleon wrasse (Humphead wrasse) under Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) should be enforced more effectively. In China, for example, it is very difficult to find CITES documentation on the importation of Napoleon wrasse. There is an export ban on Napoleon wrasse in the Philippines, zero export quota in Malaysia, and a quota of 2,000 specimens in Indonesia, which means that effectively, the regional quota for Napoleon wrasse should be 2,000 specimens. However, based on surveys conducted with traders in southern China in 2011, around 50,000 specimens of Napoleon wrasse are actually being traded in China, 25 times higher than the regional quota.

There are ongoing initiatives to manage LRFF stocks for sustainability. In Koon, Maluku, a private sector group is working with the World Wildlife Fund for Nature (WWF) on a marine conservation project to help fishing communities manage their own resources by establishing territorial use rights fisheries (TURF), where communities have control over fishing in their area. And in Palawan, with assistance from the Asian Development Bank (ADB), a number of projects are being implemented to support sustainable LRFF management. These include coral mapping based on satellite imagery, LRFF policy analysis and income profiling in 10 municipalities, ecosystem approach to fisheries management (EAFM) with LRF as entry point, establishment of new marine protected areas (MPAs) based on areas that are biologically important to LRF, and fisheries management for LRF.

Mariculture is often put forward as part of the solution to meeting future demand. The basic theory is that increased production can create alternative supply, dampen prices, and reduce demand for wild fish. In practice, however, this approach does not encourage management of LRFF, because the prestige status of wild reef fish as a luxury item keeps demand price inelastic, which indicates promoting mariculture does not necessarily create an alternative supply to wild caught fish. Instead, it creates two separate demands: one for mariculture and another for wild caught fish.

Farmed grouper is among the worst environmental performers due to feed inefficiency, cage farming effluent and habitat impacts, potential for disease transfer, etc. If the environmental community were

to focus on better grouper farming practices, aquaculture would be limited, lowering the incentives for farming and further exacerbating pressure on wild fish populations.

Government can facilitate and support certain directions in mariculture but the industry will draw mainly from what is happening in the market. A good example is the hybrid grouper – it has come out of nowhere in the last few years as an industry and has now become a large industry.

Trade interventions can compel industry players to manage LRFFT for sustainability, and because HK is the major chokepoint in the trade, it is an obvious place to look at for opportunities to put in place intervention measures, such as:

- 1) Improving existing systems to help stem the illegal trade of LRFF:
 - a. Fix the HK imports loophole
 - b. Link import data with export data
 - c. Control vessel-based imports
 - d. Track HK export data
 - e. Improve granularity of Chinese import data
 - f. Implementation of CITES II by China
- 2) Creating new trade measures to substantially restrict the flow of LRFF
 - a. Create a requirement for air-only transportation of LRFF
 - b. Export quotas
 - c. Import and export tariffs
 - d. Improved traceability systems
 - e. Lacey Act equivalent in Hong Kong or China
 - f. Trade bans and moratoriums

Discussion

Indonesia – Besides China and Hong Kong, are there other significant markets for LRFF. My view is that we should be thankful that we have such a lucrative market for these fish species, otherwise they will only end up in trawl nets and sold at a very low price. Also, I would like to point out that we have a quota in Indonesia – no fish goes out of Indonesia without being checked and reported by our quarantine office, so I am most interested to know where the 50,000 specimens of Napoleon wrasse that enter China are coming from.

Dr. Muldoon – Malaysia and Singapore are also significant markets for LRFF, but HK and China account for 80 percent of the trade. I agree with you that what we have here is a high-value fishery, which makes it all the more crucial that we manage the trade to make sure that we can get the product to market over the long term. The fact that we have a regional quota of 2,000 specimens and still find 50,000 specimens being traded means we need to know more about what's happening in LRFFT so we can more effectively manage it.

Malaysia – One of your proposals to restrict the trade is to allow shipment only by air from designated hubs. I think this is going to be difficult to implement because part of the trade is shipped by boat, not by air. It is not viable to export lower value fish by air because air freight cost is high and fluctuates frequently with fuel prices. Perhaps we should consider introducing a traceability system which has been very successful in the salmon industry in Norway and Chile and also for Pangasius in Vietnam, where you impose traceability requirements on suppliers so you can track the fish as it goes through the chain of trade.

Dr. Muldoon – I agree that the transport of certain species by air is not economically viable. I also mentioned in my presentation that there should be designated hubs for shipping LRFF, which works as well for sea transport. This is a good way of simplifying the trade for monitoring and improving traceability.

Philippines –Our 50 million dollar question is this: Where do the 50,000 specimens of Napoleon wrasse that enter China come from, given that our regional quota is only 2,000 specimens? This is a question that requires regional collaboration to answer. I am happy that SEAFDEC is involved in this meeting because this is an issue that we should discuss with the SEAFDEC Directors during their meeting in April. What I can tell you now is this: While it is true that we have a ban on the export of coral trout in the Philippines, we cannot claim that there is no coral trout coming out of our country. This is a reality that we have to discuss seriously and my sense is that we need to collaborate regionally because we're not just talking about coral trout here. Coral trout is only a symptom of a bigger problem that goes beyond LRFFT.

Presentation 3 – Ensuring the future of LRFFT: Mechanisms for stakeholder engagement

Mr. Kevin Hiew and Mr. Gopinath Nagaraj, FanLi Marine and Consultancy Sdn Bhd

This presentation is based on a paper produced in 2012 and presented at the Regional Exchange on the Implementation of EAFM Activities in the Coral Triangle in May of the same year. The paper, which has since been updated, proposes a multi-stakeholder Forum for LRFFT to help improve sustainability of the trade through dialogue, networking and technology and information transfer among the member countries. It is based on a study commissioned by USCTI to the presenters according to the following terms of reference: (1) To identify a suitable Forum to bring together LRFFT stakeholders in the region; (2) to propose a multilateral legal framework to support the establishment of an appropriate institutional setup; and (3) to develop an implementation plan for establishment of Forum. The paper offers recommendations for the countries to consider as they make their own determination of what kind of stakeholder Forum is most suitable and how it should take shape.

Below are some highlights of the study:

- 1) Profile of LRFFT in the region:
 - a. Started around 1970s in HK.
 - b. Value of trade exceeds USD1 billion per year
 - c. Southeast Asia supplies more than 85 percent of the aquarium trade and nearly all of LRFFT
 - d. Main producers are Indonesia, Malaysia and the Philippines
 - e. Major LRFFT focal points:
 - i. Live reef fishes exported to HK, Mainland China, Taiwan, Singapore, Japan, Thailand
 - ii. Largest markets of live reef fishes are HK and China
 - iii. HK imports approximately 15,000 – 20,000 tons annually, valued at approximately USD350 million
 - f. Size of the trade:
 - i. Indonesia – 15,000 tons per year (1997-2002), sourced mostly in the central (30-40 percent) and eastern (60-70 percent) parts of the country
 - ii. Malaysia -- 1,300 tons (2009), mostly coming from Semporna, Tawau, Sandakan and Kudat
 - iii. Philippines – 500 tons (2009), from Palawan, mainly the municipalities of Taytay, Araceli and Roxas
 - iv. PNG – 8.62 tons per year (1991-2005), from New Ireland (Bougainville, Milne Bay, East New Britain and Central Province) and Manus (Hermit Island)
 - v. Solomon Islands – 33 tons (1997), from Roviana, Rendova, Marovo and Ontong Java
 - vi. Timor-Leste – no LRFT of any significance at present
 - g. Commodity profile:
 - i. The bulk of the trade consists of groupers (*Serranidae*), snappers (*Lutjanidae*) and wrasses (*Labridae*)
 - ii. Small numbers of emperors (*Lethrinidae*), sweetlips (*Haemulidae*), seabream (*Sparidae*) and members of a few other families are also been traded.
 - iii. Humpback grouper, Humphead wrasse and Leopard coral grouper have the highest unit value
- 2) Issues:
 - a. Fingerlings or juveniles being caught
 - b. Cyanide used for certain species
 - c. Lack of hatchery technology for most reef species
- 3) Functional environment (the environment that the Forum is expected to operate):

- a. Economic environment
 - i. Commodity producers tend to work in highly competitive environments, and are often beholden to their buyers
 - ii. For producers and traders, there are no other viable options where markets are concerned
 - b. Industry structure
 - i. LRFFFT is made up primarily of small- to medium-scale companies, most of them family owned
 - ii. A grouping of the diverse LRFFFT stakeholders would have to rely on consensus building to reach any unified decisions
 - c. Ethnic and national diversity
 - i. There is little interaction between LRFFFT stakeholders
 - d. Lack of a compelling unifying
 - i. Currently no compelling reason for the establishment of the Forum from within the industry itself.
 - ii. The sole buying country, China, has no regulations relating to the sustainability of the live reef fish trade.
 - e. Leadership
 - i. Failures and/or lack of successes of many trade groupings, industry organizations and farmers associations stem from poor leadership and management skills of the people selected to represent the stakeholders.
- 4) Given the characteristics of the trade, the Forum model should:
- a. Avoid a cartel-type structure/focus - In a market heavily dominated by one buyer country, creating a producer cartel may lead to more fragmentation as the dominant buyer tries to keep the status quo.
 - b. Be embracing of ethnic and national diversity.
 - c. Recognize that local issues should be resolved locally by local stakeholders and not by a regional fiat.
 - d. Avoid being underpinned by a transient compelling factor that would cause the Forum to become irrelevant when such factor becomes inconsequential.
- 5) Out of all the different models for producer-based organizations considered in the study, the chamber of commerce and industry was found to be the most appropriate model for a multi-stakeholder LRFF Forum because:
- a. It is essentially a mutual self-help club where members come together to promote the interests of their respective businesses.
 - b. It embraces diversity and heterogeneity while having a common focus (some future contribution that stakeholders can bring to the group that will benefit members, e.g. access to LRFFFT information/intelligence).
 - c. It has the least possibility of conflict, most sustainable outlook, and greatest possibility of international linkages.
- 6) The host institution should be:
- a. Multilateral in nature and not simply be supported by one-off funding from development agencies.
 - b. Able to embrace all CT6 nations.
 - c. Bring value to the Forum and not just act as a secretariat.
- 7) Among the different institutions studied, INFOFISH was found to be the most appropriate host institution for the proposed multi-stakeholder LRFF Forum because:
- a. It has the widest coverage.
 - b. It is business-oriented and has had considerable success bringing industry operatives in tilapia, tuna and ornamental fish industries together.
 - c. It is a market-oriented organization reputed for being able to supply up-to-date market pricing/intelligence for many commodities in the global seafood trade.
- 8) Terms of reference and modalities of implementation: The Forum will be organized to:
- a. Enable networking among members for business and social benefit of all parties.

- b. Engender business and social linkages and mutual bonding between members within each chamber and between various chambers.
 - c. Represent the interest of members in resolving problems and issues facing members of the chamber, whether at the local, national or regional level.
 - d. Develop industry guidelines and standards for acceptance and implementation by members.
 - e. Enable members to optimize their businesses by providing information and intelligence on various aspects of their operation.
 - f. Develop linkages and liaison between the chamber and various consumer groups
- 9) Proposed structure
- a. The Forum will have three levels: Local/sub-national, national and regional.
 - b. A number of local LRFFT groupings already exist in Malaysia, Philippines and Indonesia but need to come together at the national and regional levels.
 - c. The national level Forum will include the “champions,” who will likely be the bigger, more influential producers.
 - d. The regional level is where the consuming countries will be engaged in dialogue with the producing countries. (In LRFFT, it is the buyers that have the leverage, so they need to be brought into the conversation).
- 10) Role of government
- a. To spur the formation of the various chambers at the various locations where the industry is aggregated by:
 - i. Organizing the industry players.
 - ii. Providing and ensuring that the necessary legal/administrative mandate to formalize the establishment and operations of the chambers are in order.
 - iii. Providing necessary manpower, funding and technical support for the formation and operations of the Forum at least in its initial stages.
 - b. To provide advice to the chambers on technical, legal and management issues as they arise.
- 11) Sustainable financing
- a. Local organizations should sustain themselves on membership subscriptions alone
 - b. National organizations need to make the initial investments necessary to create an environment conducive to getting stakeholders together at the national level.
 - c. The host institution would need to host regional level meetings where information can be shared and discussed.
 - d. Funding must come from the various governments of the CT6 nations to support this regional initiative
- 12) Implementation roadmap
- a. 2013
 - i. Identify and document local groupings that are already operational within each country.
 - ii. Where no local groupings exist, initiate immediate steps to encourage their formation.
 - iii. Establish local chamber/Forum in each country
 - iv. Hold national meeting in each country
 - b. 2014
 - i. Hold first regional meeting

Discussion

Philippines – The last presentation provided us with some insights on how things can move forward. But let me just be clear on this: First, this is an intergovernmental Forum, and this intergovernmental Forum is likely not going to listen to things other than suggestions. And second, in INFOFISH, which I happen to chair this year, we discuss a wide range of sectors, including trade in tuna and other species. Our concern about LRFFT is not really just about

the fish but the structures that produce the fish and make it possible for traders to bring that fish to market. The last presentation proposed a Forum made up of traders. While there is value in having a traders' Forum, I think what we need more is an intergovernmental Forum, perhaps with some private sector participation but primarily government, that can look at how the trade can continue without endangering the resource base. This is by no means an imposition or a prescription, but for a country like the Philippines, LRFFT, if not managed right, can be more of a threat than an opportunity. So what we need is a Forum that includes those who need to look at what the traders are doing, because what's at stake here is not just LRFF. When you kill the resource base of LRFFT, you don't just kill the trade, you also kill the people who rely on the resource base, even those who do not depend directly on the extraction of LRFF for income. LRFFT is important, but it represents probably not even 2 percent of the trade in reef resources that it can potentially adversely impact.

Malaysia– We know that in the Sulu-Sulawesi Marine Ecoregion (SSME), there is a transboundary network of MPAs managed by Indonesia, Malaysia and the Philippines for the protection of marine resources. We can use this area as conservation and replenishment area for wild stocks. Malaysia has a marine park in the SSME that has been very successful working with fishing communities in conserving reef resources.

Dr. Sadovy–To effectively replenish stocks, MPAs need to be big enough, and they need to be generally no-take. Most no-take areas in the region are just not big enough to effectively function as replenishment areas, and unfortunately MPAs also do not address fishing effort. So while MPAs are certainly one of the strategies to manage for sustainability, they are not a panacea. They should be implemented as part of a set of solutions.

Mr. Nagaraj–I would like to respond to the Philippines' comment and clarify that when we use the word "stakeholder," we are referring to a broad range of sectors with a stake in LRFF, not just industry players, but also including the management agencies. I agree: If LRFFT dies, the worst hit would be the poorest communities that depend on them and, if we are to have a Forum that can tackle these concerns, it should be an intergovernmental Forum.

Malaysia–There are many regional and international bodies for tuna, for example, that we can use as a model.

Philippines–I agree with Malaysia. Some of us here are familiar with the RFMO (Regional Fisheries Management Organization) model, which is concerned with both trade and resource management. This is one model that we should perhaps consider because it involves government and the private sector, those who regulate and those who are regulated, including suppliers and buyers. With the supply and demand sides sitting together with government, inevitably there's going to be pressure coming from the buyers themselves for producers to manage wild stocks for sustainability, and for government to regulate the trade more rigorously. In the European Union (EU), for example, there is a growing consciousness among consumers to buy only tuna that are certified as sustainably caught. The other model of course is SEAFDEC. Most of the countries present here are already members of SEAFDEC, which also covers management and trade. The good thing about these two models is the composition: They include those who will eventually turn agreements to policy and those who implement policy, so there's a good mix of interventions, capacity and power.

Indonesia–I agree, and I must point out that we are also both producers and consumers of this commodity. But allow me to go back to the presentation of Mr. Nagaraj and Mr. Hiew. I understand that they are proposing a Forum at three levels: local, national, and regional, with INFOFISH as host organization. If we agree to have this structure, I suggest that each country should establish a national Forum by 2013 or 2014 and once it works, we can talk about

creating the regional Forum. My next question then would be, can we do this without a host institution?

Malaysia—My view is that we need a host organization that can provide us with the technical support needed to properly manage the trade. We need a study on the resource, and a detailed study on the trade. And I think the most suitable organization to help us with this is SEAFDEC, because SEAFDEC has the expertise needed to do the studies.

Philippines—The presentations we heard today provide us with enough material to start considering regional actions on LRFFT. May I request the secretariat to also consider for discussion at the upcoming SEAFDEC Council meeting the important points discussed in this meeting?

Chair—The report from this Forum will be forwarded to the SEAFDEC Council for their consideration. For the information of this body, the head of delegation of the Philippines (Atty. Perez) is the incoming chair of the SEAFDEC Council.

Indonesia—I think we should also consider the CTI-CFF Regional Secretariat as the possible host institution and CTI-CFF as the umbrella organization. LRFFT is a major concern of the CTI-CFF, which aims to achieve sustainable fisheries and food security as ultimate objectives.

Malaysia—If SEAFDEC is our hub, we can bring this to the ASEAN through the SOM-AMAF (Senior Officials Meeting-ASEAN Ministerial Meeting on Agriculture and Forestry) and then the APT, which includes China as a member,

Chair—From SEAFDEC perspective, after this meeting we will go to the Council and we will bring this to the ASEAN, and after that to SOM-AMAF. We can assure you of our full support from SEAFDEC, and we are trying to finalize our memorandum of understanding (MOU) with CTI. We recognize that the LRFFT issue is significant to people in our region, LRFFT involves large numbers of people. If we don't manage the trade, it will have tremendous impacts on people's livelihoods and the ecosystem. We must take more proactive measures and adopt the precautionary approach to safeguard the sustainability of our reef resources. We need adequate policies from government to help us address the problems before it is too late. I'm afraid that once the resources are lost, they would be very hard to recover and we may have to spend much more to rehabilitate them.

Co-chair – CTI has its own bureaucracy. For every step that the Regional Secretariat has to take, we have to ask the countries' permission, and we've had no opportunity yet to ask the countries about our partnership with SEAFDEC. The CTI working group is where technical policy is formed, and from there we generally bring the agreement of the working group to the Senior Officials Meeting (SOM). Between SOMs, the Regional Secretariat can ask the countries for what we call "intersessional agreement," which can be done through email or letter. So if we have a solid agreement coming out of this Forum, we can get the senior officials' agreement intersessionally. There are so many species that we have to take care of in the CT, but we cannot talk in general terms. We need to tackle the species one by one, and LRFFT species are a priority concern for CTI under its RPOA. I will take the discussion from this meeting to the SOM.

Chair – The MOU between CTI and SEAFDEC will be a general one, not LRFFT-focused. The objective is to have a formal channel through which SEAFDEC and CTI can communicate with each other.

Philippines –I suggest that since the CTI SOM has decided that decisions can be made intersessionally, perhaps the CTI-CFF Regional Secretariat would be kind enough to send out to the senior officials the communication on the MOU so we can move forward on this. I will

make sure that the Philippine representative to the SOM will decide in favor of approving the proposal. This is what I propose, because most of the countries present here are also sitting in the SOM.

SESSION 2. COUNTRY PRESENTATIONS AND DISCUSSIONS

This plenary session included five country presentations interspersed with questions and comments from the floor. The five countries that presented were Indonesia, Philippines, Malaysia, Timor-Leste and Vietnam, in that order. Because of unforeseen travel delays, the delegate from Solomon Islands was unable to arrive on time for the country presentations.

The Chair announced that the afternoon sessions would be moderated by Dr. Victor P.H. Nikijuluw, the head of the Indonesian delegation.

Country Presentation 1: Indonesia

Presented by Dr. Victor P.H. Nikijuluw, Head of Indonesian Delegation and Executive Secretary, National Coordinating Committee (NCC)-Indonesia

Indonesia's basic strategy for LRFFT is to try to maintain wild capture fish production and at the same time increase aquaculture. Aquaculture grew substantially in the last two years, on track to the government's target for production, excluding seaweeds, to exceed that of wild capture fisheries. Total grouper and wrasse production in 2011 was 30,000 tons, about half of which was Leopard coral grouper. Napoleon wrasse production was estimated at 1,232 tons in the same year, well below the catch quota of 2,000 tons set by the government in 2010.

Indonesia has several fishing grounds, producing not only live fish but all kinds of fish, with most of the LRFF catch come from the eastern side of the country. Fishing is mostly by selective gear, such as guiding barrier, portable trap and other traps. Production from fishing using these types of gear has been on a steady downward trend since 2005.

Production from the culture of groupers was 10,200 tons in 2012, and the target is to produce 20,000 tons by 2014 in line with the government's strategy to maintain wild capture production and increase aquaculture/mariculture. To reach this target, the government has allocated about 4 percent of the 2013 national budget of the Directorate-General of Aquaculture (DGA) to grouper production, especially for the development of the hatchery industry. While acknowledging the differences between the demand and market for cultured groupers and those for wild capture groupers (the taste is different, consumer preferences are different, and consequently, prices may be different), the government is confident that it has set reasonable targets because the Indonesian market for groupers is growing and international demand remains strong.

Table 2.2. Assignment of catch quota on Napoleon wrasse

Species	Catch	Export	Fishing Ground
<i>Chelinusundulatus</i> (Napoleon)	130		North Sumatra (571, 572)
	200		Riau (711)
	270		East Kalimantan (713)
	270		South Sulawesi (713,
	500		Mollucas (714, 715, 718)
	630		Papua (715, 717, 718)
TOTAL	2,000	1,900	

Export quota on Napoleon wrasse is 1,900 tons, 95 percent of the total catch quota, which is set by the Ministry of Forestry (MOF) and divided among the provinces (Table 2.2). Because it is red-listed, Napoleon wrasse is currently under the jurisdiction of the MOF, which is the Indonesian authority on the implementation of CITES, but the process of transferring the species to the Ministry of Marine Affairs and Fisheries (MMAF) has started. Research is being conducted to improve fish supply used in farming and restocking.

The government is also trying to address several issues in the management of wild stocks, as follows:

- 1) Maintain stock size, set allowable catch limits based on scientific studies, and distribute catch quotas between the 11 fisheries management areas (FMAs) in the country (spatial and seasonal distribution).
- 2) Manage for sustainability of resource.
- 3) Address IUU fishing and destructive fishing (blast and cyanide) using a community-based monitoring approach to detect and deter violations.
- 4) Engage small-scale/artisanal fishers, who account for majority of LRFF production, in resource management
- 5) Address issues related to regulating remote, isolated LRFF sources, lack of information, and asymmetric price formation caused by a buyers' market, where traders dictate the price and producers (local fishers and collector) are merely price takers.
- 6) Regulate the spread of the trade, which is driven mostly by international and interisland traders seeking out producers
- 7) Improve reporting (data currently run about two years behind)

Following the rapid expansion of aquaculture in recent years, production has changed substantially from fishing to farming. With the development of hatcheries (mainly for groupers, the species being promoted), there has also been a noticeable decline in capture-based culture and an increase in full-cycle aquaculture (FCA).

With respect to marketing, Indonesia has laws on quarantine and fish transportation, and most of the fish that are exported go through the country's quarantine system. Based on government records, in 2011, total landings of groupers (including "dead" fish) amounted to USD 109 million, of which 3,000 tons worth USD 16 million (16 percent of the value of total landings) consisted of live fish. Some species that used to be considered by-catch are now target species.

Since it started promoting conservation, the government has increased Indonesia's marine conservation areas to 15 million hectares, 75 percent of its 2020 target of 20 million hectares. Sustaining management remains a challenge. The government is promoting EAFM by harmonizing the management of MPAs, FMAs and seascapes; collaborative management; and the establishment of fishing boundaries. Some management initiatives are entirely community-driven, with no government intervention at all. In one area, for example, local producers have organized themselves and are defining their own fishing seasons, fishing boundaries, fishing methods and even catch limits.

Restocking and resource enhancement are also among the government's priority activities. Hatchery-produced fries that are not sold are used to restock open waters in Lampung and Ambon Bay. The idea is simply to make use of overproduction of fries, so no post-stocking evaluation is being done. Indonesia has four government-owned hatcheries and several private hatcheries with a combined production of 187 million fries in 2011.

Indonesia supports the proposal for regional cooperation to ensure sustainability of LRFF resources. The six member-countries of CTI-CFF (CT6) should work collaboratively to implement provisions in the CTI-CFF RPOA and their respective national plans of action (NPOAs) the relevant to LRFFT management. To achieve this, the EAFM working group can be expanded to include fishers and traders in a sub-grouping focused on LRFFT. Alternatively, the APEC working group on fisheries can

provide a Forum for dialogue as it already includes producers and buyers among its members.

Discussion

Dr.Sadovy—I hear that most Humphead wrasse juveniles are captured using cyanide so I'm curious about Indonesia's strategy to combat IUU and destructive fishing.

Indonesia—The government has patrol groups assigned to every locality that is responsible for detecting and controlling destructive and IUU fishing and at the very least, we penalize violators. Also, in each village, we have a community-based patrol system that encourages people to report violations. I cannot deny that cyanide fishing still happens in Indonesia, but structurally, we try to combat it.

Dr. Muldoon—You estimated the value of trade at USD 16 million. I think this is pretty low. If you average the price of fish at USD 5 per kilo, 3,000 tons would probably be close to USD 60 million, which would give you a good argument for managing the trade and a good reason for government to provide funding for its management.

Indonesia—Thank you for the suggestion. We will try to recalculate. The value was based on a report from traders, so it should probably be higher.

Country Presentation 2: Philippines

Presented by Atty. Asis G. Perez, Head of Philippine Delegation and National Director, Department of Agriculture-Bureau of Fisheries and Aquatic Resources

The legal framework for managing the Philippines' marine waters can be quite challenging because of the many institutions involved. Generally, local government units (LGUs) have primary jurisdiction over municipal waters, which include marine waters from the shoreline up to 15km, and the national government, primarily the Bureau of Fisheries and Aquatic Resources (BFAR), has the responsibility for managing the bigger sea. In Palawan, there is another institution called the Palawan Council for Sustainable Development (PCSD) that is involved. As the main institution responsible for governance, implementation and policy direction of the Palawan Strategic Environment Plan (SEP), PCSD can exert considerable authority on matters relating to LRFFT. Besides these, other agencies are in charge of various aspects of coastal and marine management, including the Department of Environment and Natural Resources (DENR) and the different law enforcement agencies. While the intention is good (to ensure that adequate attention is given to every aspect of resource management), overlapping and conflicting functions and jurisdictions can make for a challenging situation where everyone assumes that the job is someone else's responsibility and, in the end, nobody takes action.

In the case of LRFFT, the fisheries bureau works with the LGUs, the police and other enforcement authorities, the trade department, DENR, and others, including PCSD in Palawan, to monitor and manage all activities related to the trade.

The government keeps fairly good records of legal trade in LRFF, which by definition in the Philippines also include farmed, freshwater and marine reef fish, crustaceans and mollusks. The major species traded are yellow eel, eel, stonefish, lobster, sea mantis, mud crab, sand crab and nylon shell, sourced primarily in the provinces of Bulacan, Bacolod, Isabela, Iloilo, Cotabato and Palawan, the Zamboanga peninsula and the Bicol region. There were 58 LRFF exporters on record in 2012 with a combined export volume of more than 13,000 tons valued at almost USD 108 million.

In addition, the Philippines has a significant trade in non-food LRF (ornamentals), with approximately 450 fish species exported, sourced mainly in Zambales, Quezon Province, Batangas, Cebu, Zamboanga and Palawan. The country has 47 registered exporters of ornamental fish. Total volume of exports in

2012 was nearly 4,500 tons valued at about USD6.47 million.

In terms of volume, mud crabs are the biggest exports, accounting for 33 percent of total export volume in 2012. But in terms of value, groupers, which made up 19 percent of total exports last year, are the biggest exports. Napoleon wrasse is not reported because it is a red-listed species, protected by Philippine law and therefore should not be traded at all. Whether or not Napoleon wrasse is illegally exported from the Philippines would be difficult to say. The government has no official statement confirming or denying the existence of Napoleon wrasse smuggling in the country.

The Philippines is also exporting a significant amount of Yellow eel, but there is a law prohibiting export of the elder eel.

The top buyers are HK (43 percent), China (21 percent), Taiwan (20 percent), Singapore (7 percent), Macau (7 percent) and Malaysia (2 percent). Most the LRFF come from areas where there is a large population and the level of poverty is high. What the trade does and what happens to it can therefore significantly impact some of the country's most vulnerable communities, including those that are not directly dependent on the trade but rely on its resource base for food and livelihood.

Live grouper exports has been on an uptrend since 2008 both in volume and value – the relative affluence being experienced by China, the biggest consuming country, is driving both demand and prices up. About 82 percent of live grouper exports from the Philippines go to and through HK.

Exports of live stonefish have been rising steadily from 53,993kg in 2009 to 140,462kg in 2012, with prices increasing nearly 40 percent between 2011 and 2012. The marked increase in prices in 2012 needs to be studied more closely but could be attributed to higher demand from a more affluent market.

Tropical fish exports in 2008-2012 ranged between 3,500 tons and 6,000 tons and, except for a sharp increase in 2009 and a significant drop in 2011 that still need to be analyzed, prices stayed within a fairly narrow band during the period. The U.S. is the biggest buyer of tropical fish from the Philippines, accounting for nearly 56 percent of total exports of the commodity in 2012.

Although trade in non-food live fish (tropical fish) is not as big as LRFFT, it is an important part of any discussion on the sustainability issues in LRFFT, not only because of its economic value but also because these species share the same habitat as LRFF species.

While most issues related to LRFFT are local problems that need local solutions, the area where the trade operates covers the entire region. The Philippines, Indonesia and Malaysia share a common border that is fairly porous and difficult to monitor; these countries need to sit together, along with other countries supplying LRFF, and agree on a common position as producers before facing the buying countries.

Discussion

Dr. Muldoon—I would just like to thank the head of the Philippine delegation for his refreshingly honest presentation. Looking at the list of live products that the Philippines is exporting, what you said earlier about taking the discussion beyond just live food fish makes more sense now.

Country Presentation 3: Malaysia

Prepared by Mr. Jephrrin Wong and Mazuki Hashim. Presented by Mr. Jephrrin Wong, Department of Fisheries Malaysia, Ministry of Agriculture and Agro-based Industry

Total food fish production in Malaysia in 2010 was about 1.73 million tons, valued at USD1.8 billion. Live marine food fish trade, mainly from cage aquaculture was valued at about USD50 million in 2010, sold most to HK (95 percent) and China.

Marine capture fisheries constitute 82 percent of Malaysia's fish production valued at USD3.3 billion. Coastal fisheries are a major contributor, accounting for 77 percent of total marine capture production at maximum sustainable level of exploitation. The government's main focus is on increasing fish production to support increasing demand for fish, mainly through aquaculture development and fishing in international waters.

The major player in LRFFT in Malaysia is Sabah, where most of the country's coral reefs are found. The state has the longest coastline in Malaysia (1,600km), 75 percent of the country's coral reefs, and more than 23,000 fishers (about 17 percent of the total number of fishers in the country) and 10,000 fishing vessels. Marine fish landing in 2010 was almost 175,000 metric tons, earning about USD236 million and helping attract visitors to Sabah through seafood tourism. Tourist arrivals in Sabah were estimated at almost 3 million in 2012.

Sabah has three main fishing grounds, namely, South China Sea, Sulu Sea and Sulawesi Sea, with a combined area of more than 51,000 km². There are 29 importers/exporters of LRFF, 763 aquaculture/mariculture operators (mainly fish cages and fishponds with an average growout cycle of one year), and 22 hatcheries. The hatcheries supply more than 90 percent of the juveniles and fries used in fish farming. In 2011, total hatchery production was estimated at more than 5.8 million tails.

Sabah's production of LRFF in 2010 was about 1,702 tons valued at more than USD28 million, about 1 percent of the state's total marine fish production and more than one-half of Malaysia's total LRFF production. Total export volume in 2010 is estimated at a little over 1,025 tons valued at USD23 million (60 percent of total production), 90 percent of which go to HK and the remainder to peninsular Malaysia, Singapore and Brunei.

Fish are transported mostly by sea (in LRF transport vessels), and for the more expensive ones, by air. Most of the fish exported are sourced from aquaculture/mariculture, mainly in the east coast of Sabah, especially in Lahad Datu and Tawau. Every month about two ships from HK come to Sabah and leave with about 55 tons of fish. Main export species are Tiger grouper, Bleekers grouper, Giant grouper, Malabar grouper, Bar cheek coral trout and Coral trout. Coral trout, once plentiful and a common fare in local restaurants, has become scarce. Now restaurants in Sabah serve mostly cultured groupers.

One major breakthrough in the culture of grouper in Malaysia is the Sabah Hybrid. First developed by scientists at the University Malaysia Sabah (UMS), the Sabah Hybrid has gained popularity among fish growers for its fast growth rate and low mortality rate. Several variants have since been produced in private hatchery facilities.

Sabah used to import large quantities of fry from Indonesia, but since 2001, imports of LRFF (mostly fries from Indonesia) have been going down while exports have increased.

Sabah has several laws governing the management and use of marine resources in general that also cover LRFFT. These laws are implemented mainly by the Malaysia Maritime Enforcement Agency (MMEA). They include (1) Fisheries Act of 1985 (Act 317); (2) Sabah Fisheries Ordinance of 1964; (3) Sabah Inland Fisheries and Aquaculture Enactment of 2003; (4) International Trade In Endangered

Species Act of 2008 (Act 686); (5) Parks Enactment of 1984; (6) Wildlife Conservation Enactment of 1997; (7) MMEA Act of 2004 (Act 633); and CITES

The Department of Fisheries (DOF) supports the development of LRFFT in Sabah by (1) zoning/identifying areas suitable to LRFF culture; (2) providing training in LRFF culture; (3) providing fish farmers with in-kind subsidies such as cage materials, nets and fries; (3) registering and monitoring fish growers to promote compliance with good aquaculture practices (GAqP); (5) issuing import and export permits (all LRFF importers and exporters are required to register); and (6) conducting research on fry production.

At the regional level, Malaysia is involved in several intergovernmental initiatives that address LRFFT concerns. These include CTI, SSME, Brunei-Indonesia-Malaysia-Philippines East Asia Growth Area (BIMP-EAGA) and ASEAN-WEN (Wildlife Enforcement Network). At the national level, DOF is working alongside other groups to manage LRFFT, including the Department of Marine Parks Malaysia, WWF, Sabah Parks, UMS, Marine Fish Farmers Association of Malaysia and the LRFF traders groups. The department's collaboration with WWF, in particular, has produced the following results: (1) Non-detrimental finding (NDF) study on Humphead wrasse (*Cheilinus undulatus*) to determine export quota (2008); (2) Humphead wrasse buyback and stock enhancement (2010); (3) formation of LRFF traders groups in Sabah (district and state level); (4) increased awareness on LRFF preference among consumers; (5) regional LRFFT understanding and collaboration (e.g., through a study visit to Palawan, Philippines in April 2012), and (5) establishment of the Tun Mustapha Marine Park (TMP) north of Sabah. At one million hectares, TMP is Malaysia's largest MPA (Malaysia has more than 40 MPAs, five of which – soon to be six – are in Sabah).

Managing LRFFT in Sabah poses several challenges, including:

- 1) Increasing demand for marine fish/LRFF due to population growth and the increasing numbers of foreign tourists visiting Sabah;
- 2) Overexploitation of resources;
- 3) Smuggling of LRFF/IUU fishing;
- 4) Inadequate supply of fries;
- 5) Competition with other sectors;
- 6) Destructive fishing methods (cyanide and blast fishing);
- 7) Encroachment of foreign vessel on Sabah's water; and
- 8) Inadequate enforcement capacity.

The government has identified several measures to address these challenges. They include:

- 1) Aquaculture zoning;
- 2) Promotion of GAqP among the LRFFT cage operators and fish farmers;
- 3) Subsidies/incentives to encourage establishment of new private hatcheries;
- 4) Promotion of FCA to reduce pressure on wild stocks;
- 5) Campaign to promote increased demand for sustainably-captured and cultured LRFF among restaurants and wholesalers;
- 6) Engagement of fish farmers associations in co-management of LRFFT
- 7) Implementation of export quota/ban on Humphead wrasse (a ban on Humphead wrasse exports from Sabah has been in effect since 2010, but fishers are still able collect Humphead wrasse from the wild using fish pots)
- 8) Promotion of compliance with international certification requirements (e.g. health certification, certification of origin, traceability documentation, etc.)
- 9) Establishment of network between LRFF importing and exporting countries to strengthen LRFFT management at the regional level

Discussion

Moderator—Malaysia and Indonesia are pursuing the same policy to increase aquaculture, so I have a number of questions for Malaysia: (1) That type of feeds do you use in fish culture? (2) Do you see any price discrimination against cultured groupers? (3) You said you have more than 700 cage operators in Sabah. Who regulates aquaculture in Sabah? In our experience, to protect the environment, we have to manage the local fishers.

Malaysia—Most of our fish growers are using mainly trash fish, and others use pellets. Wild-caught groupers are generally more expensive because they are relatively scarce compared to cultured groupers which have a more steady supply. Most of the aquaculture facilities in Sabah are run by big companies. We have some small operators, but they are not that many. The small operators are assisted by government through in-kind subsidies such as fries and cages. We have the president of a fish farmers association here who can tell us more about how they operate.

Fish Farmers Association President—In our place, the fish farmers and fishers are two different players. I think 90 percent of commercial farms are growout operations. Our association is made up mostly by small fish farmers. Our products are exported mainly by boat to HK and China.

Indonesia—You talked about your buyback program. What price did you pay for the fish? And how effective was the program? Are you imposing penalties on those who continue to catch or does the government simply keep buying back the fish?

Malaysia – We did that only for Humphead wrasse. We bought back the fish from the farmers and released them in selected protected areas.

Mr. Wong (WWF) – When the Humphead wrasse export ban was implemented in January 2010, a number of traders were taken aback because on two previous occasions, the DOF announced the ban but did not push through with its implementation, leading them to believe the ban would never happen. As a result, a number of traders were left with Humphead wrasse they couldn't export. What the DOF and CTSP did was to buy back the fish. I'm not sure what the price tag of the buyback was because it was done by the accounts people together with the traders. But all the fish were bought back, released into five undisclosed MPAs selected for their carrying capacity and suitability as habitat for Humphead wrasse. The release process took six months (the fish were tagged by UMS scientists before they were released). Based on observations from the most recent monitoring dive (November 2012), at least 20 percent of the released fish are still in the MPAs. We also had a DNA analysis done, which showed that (1) the released fish actually came from three breeding families. (2) two of the families carried old DNA from Sabah, and (3) the third one had a very newly established DNA profile that probably came from neighboring areas, such as the Philippines. It would be interesting if DNA analyses are carried out in the Philippines and Indonesia and more tests are done in Sabah to see if any new fish in the MPAs can be traced back to those that were released. This will tell us if the released fish are spawning.

Country Presentation 4: Timor-Leste

Presented by Mr. Julio Da Cruz, Chief of Aquaculture Department, NDFA-MAF, Ministry of Agriculture and Fisheries

Timor-Leste has no export trade in LRFF, but there is a local market for live fish. Fishers sell directly to consumers, or to middlemen and restaurants. The government is ready to support LRFF-related activities and has passed a law to regulate fisheries. Current aquaculture activities are limited to seaweeds, tilapia and milkfish. Timor-Leste imports milkfish fingerling from Indonesia. A non-profit organization will also start next year an aquaculture project in collaboration with the fisheries ministry.

Country Presentation 5: Vietnam

Presented by: Dr. Tuan Anh Pham, Director-General Fisheries Administration, SEAFDEC Council Director for Vietnam

LRFFT accounts for only three percent of total fisheries production in Vietnam. Production consists mostly of groupers, for which there is increasing demand from both domestic and international markets, particularly China and HK. LRFF exports come mainly from aquaculture, very rarely from capture fisheries. To promote aquaculture, the government has made significant investments in hatchery development. Three major hatcheries were recently established in three regions.

The government is also investing in the development of commercial feeds to reduce reliance on trash fish. Growout operations in Vietnam still rely heavily on trash fish as feeds. The objective is to fully substitute trash fish with commercial feeds, promote sustainable aquaculture and thus reduce pressure on wild stocks. To protect the environment and reef habitats, the government is maintaining several MPAs, including three that were established recently.

To support aquaculture development, the government will pursue the following actions:

- 1) Develop commercial feeds.
- 2) Established MPAs.
- 3) Improve enforcement of regulations to minimize destructive fishing – the government has recently adopted a fisheries surveillance system to monitor and control fisheries and protect marine resources.
- 4) Advocate for a regional agreement between LRFF producing countries and consuming countries to address issues related to LRFFT – there is a need to emphasize not only the role of the producing countries but also the role and involvement of buying countries.

Discussion

Mr. Nagaraj–Vietnam is also a significant producer of lobster. What is your current production volume for lobster?

Vietnam–It's about 15,000 tons per year, all exported live.

Moderator–What's the figure for LRFF and how much is consumed locally?

Vietnam–It's about 10,000 tons per year, consisting mostly of groupers. Some 50 percent of the total LRFF production is consumed locally. Per capita consumption of fish in Vietnam is around 20kg.

Malaysia–Do your hatcheries provide enough fries for aquaculture?

Vietnam–For grouper, most of the fingerlings come from hatcheries, but for lobster, the juveniles are still collected mostly from the wild. We're also trying to develop lobster hatcheries but the work is still at the very early stages.

Discussion and synthesis on options for national and regional actions

In this plenary session, the country delegates discussed policies and actions that they need to pursue individually or collectively to manage LRFFT for sustainability. The session was moderated by the head of the Indonesian delegation, Dr. Nikijuluw.

To start off the discussion, Indonesia presented the following list of “potential interventions” based

on discussions in the previous sessions:

- 1) A clear regional policy framework for all parties in the trade to comply with:
 - *Exporting Nations*
 - Develop “reliable” cyanide detection test (CDT) and establish laboratory facilities at major live fish collection points.
 - Establish a regional system of data gathering and monitoring that provides useful, accurate and appropriate data.
 - Ban or restrict /modulate the trade of especially vulnerable species such as the Napoleon wrasse (*Cheilinusundulatus*).
 - *Importing Nations*
 - Monitor live fish imports and provide data to export countries (linking import and export data)
- 2) Improvement of the resource management of live reef fish resources in the region by:
 - Reviewing and updating draft national management and development plans relevant to LRFFT
 - Consulting with implementation agencies for better enforcement
 - Employing co-management and EAFM.
 - Banning destructive and dangerous methods (i.e. cyanide/hookah)
 - Banning fishing on spawning aggregation fishing around new moon phase during known spawning months
 - Establishing of scientific based export quotas on Napoleon wrasse and other important species.
 - Designating MPAs especially in aggregation grounds to protect the spawning aggregations of reef fish
- 3) Establishment of consultative mechanisms on LRFFT to improve practices through market incentives and disincentives through:
 - Form a working committee or council among management agencies from the various governments concerned, including both the buying and producing countries.
 - Establish a Forum where the producers and buyers can come together to ensure the sustainability of the trade.
- 4) Establishment of consultative mechanisms to increase collaboration and cooperation between exporting and importing countries:
 - Engage with demand country governments using existing Forums (i.e. APEC, ASEAN) to identify action plans to improve management and practices along supply chain.
- 5) Improvement of quality standards of live reef fish resources:
 - Establish LRFFT Accreditation Program with emphasis on traceability of traded stock.
 - Regulate the trade through upgraded import/export permit control and CITES Certification.
 - Control the trade through licensing of all players.
- 6) Promotion of best-practice closed cycle aquaculture:
 - Encourage and facilitate the use of hatchery bred seed stock where these are available.
 - Undertake regional research collaboration into captive breeding of reef species where such hatchery technologies are not available.
 - Improve feed technology

Noting that the proposed interventions “are by and large things we can agree to do,” the Philippines suggested that the countries should narrow down the list to five priority interventions, “keeping in

mind that PNG, Solomon Islands and Timor-Leste are just starting and can learn from our mistakes.” The discussion below ensued:

Philippines—The Philippines would like the body to consider the following suggestions: (1) Establish an accreditation system that provides incentives for traders who are willing to trade properly and disincentives for those that do not want to be regulated. The system should include mechanisms to monitor compliance, including a network of accredited cyanide detection laboratories to check LRFF shipments. We cannot test all the fish that cross our borders, but we can do random tests on shipments, where a positive result can mean the seizure of the entire shipment and the suspension of the trader’s license. (2) Establish a common data gathering and reporting system to improve trade monitoring. We have 50,000 specimen of the CITES-protected Napoleon wrasse being traded in China against a regional quota of 2,000 specimens. Most of the countries present here are parties to CITES, and China is a signatory as well, so why is the Napoleon wrasse trade happening at all? We need to monitor all transboundary trade, both formal and informal, that passes through both the front doors and back doors between our countries. This needs regional collaboration. Finally, we need to (3) establish a regional Forum, which may be formal or informal, that meets regularly to discuss trade and resource use issues and solutions.

Dr. Somboon Siriraksophon (SEAFDEC)—MPAs are effective tools for managing reef habitats, but they are often not large enough to protect the full range of habitats that LRFF species use. Many species on the reefs have spawning and nursery grounds outside the reefs, and usually outside MPAs, that also need to be managed and protected. Perhaps, in addition to MPAs, the establishment of fish *refugia* should also be considered here. I think this can benefit the regional effort to manage LRFF.

Moderator—Indonesia has 15 million hectares of MPAs, and by 2020, we expect to have 20 million hectares. Most of our MPAs were established by local governments, and they have been very effective, sometimes even more so than those established by national government. We can effectively expand protection by encouraging local governments to establish their own MPAs.

SEAFDEC (Mr. Magnus Torell)— Sometimes it’s just juggling of words or different acronyms, and perhaps it’s only a matter of what we call it. For example, fish *refugia* might be the responsibility of fisheries agencies, while in many countries, MPAs are managed by the environment agencies. The key is to build upon good management practices. As mentioned earlier, MPAs tend to be small in size and, for the purpose of managing fisheries, maybe too small. So then you could have a fisheries conservation area which could include MPAs, and the good management of this area could be part of the management of an even larger area, which could even be transboundary. Or you can have a sequence of different managed areas under different rules, and even managed by local governments or communities. It’s just how you balance the different tools that you can use to manage the different resources in different ways for the good and benefit of people.

Moderator —Sometimes we use different terms to mean the same thing, or use the same term when referring to different things. So perhaps standardizing the term “MPA” in our context would be useful. We need to define its scope, boundaries, purpose, etc. Perhaps the Regional Secretariat can share with us the progress of MPA work in the CTI so far.

Dr. Hendra Siry (Regional Secretariat) – We are working toward the establishment of the Coral Triangle MPA System (CTMPAS), where we want MPAs in the region to interconnect with each other.

Mr. Jatulan (USCTI) – CTMPAS is a framework that provides a roadmap for connectivity of MPAs across the region. It is still being developed, but it could benefit LRFF, especially if we factor

in spawning aggregation areas in the system. On another matter, IUU fishing is a major concern in LRFF, and one recommendation that came out from a recent workshop on IUU fishing was for the NCCs to develop target areas where concerned countries can work together to address specific IUU fishing issues and where collaboration can make maximum impact.

Dr. Siry—Related to that, the MPA Technical Working Group (TWG) will have a meeting in March. Perhaps the recommendations from this Forum pertinent to MPAs and the CTMPAS can be forwarded to the MPA TWG for their consideration.

Mr. Jatulan—Country representatives who participate in MPA workshops and discussions on CTMPAS come from different agencies. We need to make sure that this Forum's recommendations are communicated to the right people so this conversation is continued.

Co-chair—As far as I understand, most MPAs are established to protect endangered and threatened species and important ecosystems. Although we have many examples that show that MPAs increase the productivity of the entire reef ecosystem, it is perhaps important to emphasize for the purpose of this Forum one or two statements about protecting reef fish in general, including those that are not threatened or endangered. Also, we need to remember that there are two groups of countries here at different levels of development in LRFF. In addition to the concerns of Indonesia, Malaysia and the Philippines, we have to be careful to also look at this from the perspective of PNG, Solomon Islands and Timor-Leste,

Solomon Islands—We do have LRFF in Solomon Islands and we do share the concerns raised by our colleagues from other countries.

Indonesia—Considering the impacts of LRFF on the reef ecosystem, it is important for governments to strengthen export regulation. As a private sector representative, I have four recommendations in this regard that I hope the government would consider: (1) Require exporters to show proof that the commodity comes from sustainable resources; (2) Require exporters to show proof of sustainable management of reef ecosystem; (3) Designate an independent body that checks and monitors LRFF exports to complement the government's regulatory/accreditation system; and (4) Require exporters to ship only from designated transport hubs.

Philippines—Thank you for making those suggestions. In the Philippines, we call it suggestion against interest. I congratulate you for being bold and brave and honest to provide us with those thoughts. Sometimes government tries to avoid imposing more regulations because regulations are regarded as a restraint of trade. But you're right. LRFF may constitute only a small proportion of total fisheries production, but it is important enough economically and has tremendous impact on other resources that we in government really have no choice but to regulate it. As far as the Philippines is concerned, we will consider your suggestions.

Mr. Wong—With regard to IUU transboundary trade in LRFF, I would like particularly zoom in on southern Palawan and Kudat. Nine months ago we were in a PCSD meeting and there was a good attendance of Kudat traders. I am seeing some progress toward legalizing the trade, which I hope will happen in the near future. I just got hold of some news that there is a ferry from Brooke's Point to Kudat that will become operational soon. Maybe we could use that as a platform on how to manage transboundary LRFF between southern Philippines and Kudat. If we don't do anything about this, this trade will remain an unknown figure. Perhaps half of the 50,000 Humphead wrasse specimens reportedly being traded in China actually go through this route, but we would never know if the trade remains underground. On data reporting, perhaps the three governments of Indonesia, Malaysia and the Philippines can develop a common data reporting system, so the three countries are reporting the same

type of data. Traders know if a fish is grown out or cultured or wild caught; governments probably don't. I think the three countries should start reporting the same level of detail, so when we talk to the market we know what we're talking about. The same goes for PNG, Solomon Islands and Timor-Leste.

Moderator—We have identified important points from the long list of proposed interventions presented at the start of this session. We saw some interlinking ideas—for example, the comments of our friend from the private sector in Indonesia are related to the Philippines' suggestion on an accreditation system for LRFFT. Tomorrow we will continue our discussion and hopefully come up with an agreement on these key points.

Chair—Thank you, Indonesia, for moderating this session. It has been an informative day. The LRFFT issue is very, very broad. We have identified a lot of measures that need to be undertaken. The secretariat will summarize the important points and tomorrow we will identify common priorities that we can agree on. We've had an interesting discussion on many issues. I want to underscore the point made by Dr. Sadovy this morning about how aquaculture is being promoted as a substitute for wild capture fisheries without consideration of its adverse impacts on wild stocks. I'm happy that the issue has been brought up, because it raises some serious questions: Is it rational to promote aquaculture strongly? Should aquaculture operations be kept small-scale or should it be heavily invested? This is something that the countries should discuss. Hopefully at the end of tomorrow's sessions, we will have a common policy on the sustainability and utilization of LRFF resources that will benefit this generation and generations to come.

The meeting was adjourned for the day at 5:00p.m., after an announcement from the secretariat that discussions would resume at 8:00a.m. on Day 2, a half hour earlier than originally scheduled.

The Chair called the meeting to order at 8:12a.m., and immediately opened the day's first session (Session 3),

SESSION 3.MOVING FORWARD

This session consisted of three parts: (1) presentation of summary of Day 1 and outline of goals for Day 2; (2) presentation and discussion on the engagement of China and options for tracking LRFFT; and (3) facilitated discussion to develop and finalize meeting resolutions.

Summary of Day 1 and Outline of Goals for Day 2

The summary below was presented by the Chair:

- 1) *Key points highlighted in expert presentations that served as basis for discussion:*
 - LRFFT is one of the priority concerns identified in the CTI RPOA.
 - Most of the major LRFFT species are classified by the International Union for Conservation of Nature (IUCN) as near threatened, vulnerable or endangered. Napoleon wrasse is the first reef food fish to be listed in the IUCN Red List Appendix 2.
 - China and HK are the biggest consumers of LRFF, where there is a doubling of per capita consumption of seafood.
 - Projected demand in general is greater than projected supply especially for high-value species. In Beijing Napoleon wrasse can fetch prices of up to USD600per kg of fish, not only because of high demand but also because of diminishing supply.
 - LRFFT is spreading across the region, largely in response to declining supply.
 - There are major challenges to as well as major opportunities for achieving sustainability in LRFFT.
 - Major species are susceptible to being overfished because of their slow life spans and reproductive behavior (spawning aggregations), so they need to be managed.
 - Supply and demand problems cannot be solved simply by mariculture/aquaculture, because mariculture/aquaculture and capture fisheries are very much interrelated and interlinked:
 - A few species are LRFF are hatchery-raised but majority are still captured from the wild.
 - Most seed for growout come from juvenile capture fisheries (capture-based mariculture)
 - Food fish for people are being caught to feed fish for export.
 - Mariculture/aquaculture may take away income from communities – many of the poorest communities may not be able to benefit from mariculture/aquaculture.
 - With rare exceptions, restocking does not demonstrably lead to wild population recovery
 - International measures to combat IUU fishing do not specifically address LRFFT. For example, the estimated trade in Napoleon Wrasse based on surveys conducted with traders in China in 2011 is about 50,000 specimens, 25 times higher than the regional catch quota of 2,000 specimens.
 - MPAs have been demonstrated to be an effective management tool, but they do not address fishing effort. MPAs are just one of the possible solutions – they should be part of a set/toolbox of solutions.

- Stakeholders (including government and others with no direct interest in LRFFT) need to come together to exchange information, address common issues and collaborate on shared areas of interest to promote sustainability in LRFFT. The model suggested by the resource persons is the chamber of commerce, with INFOFISH acting as host institution at the regional level. (Other host organizations suggested: SEAFDEC, Regional Secretariat)
 - Indonesia suggested that the CT6 should each organize a national Forum and, by 2014, bring together the countries to a regional Forum.
- 2) *Country reports on status of LRFFT generally confirmed expert findings/observations of diminishing supply and increasing demand.*
- 3) *Discussion points were consolidated into a list of “potential interventions” for the countries to consider. Based on this list, participants agreed to consider top five priority actions that the countries can commit to. The priority actions put forward for the body to consider in today’s (Day 2) discussion include:*

A. MPAs/Fish Refugia

- Establish fish refugia to protect species both inside and outside MPAs
- Identify areas that can be included in the CTMPAS, where countries can work together to protect LRFF spawning aggregation sites; (Note: If the body agrees to include this as a priority action, this can be considered by the MPA WG during their meeting in March; Discussions on MPAs to support LRFFT must include agencies responsible for MPAs, which are often different from those that handle fisheries)
- Establish transboundary protected areas to protect important ecosystems and long-range threatened/endangered species Standardize terminologies and definitions

B. Accreditation System

- Develop an accreditation system that includes incentives/disincentives designed to encourage LRFF suppliers/traders to follow sustainable and fair trade practices and a network of cyanide testing laboratories to detect violations and promote compliance
- Designate an independent body to monitor and check LRFF exports to complement the government’s regulatory/accreditation system,
- Identify hubs for shipment of LRFF to simplify trade and streamline/simplify regulation
- Proposed conditions for accreditation: a) show proof that export commodity comes from sustainable source; b) show proof of sustainable management of reef ecosystem; c) show certificate of compliance issued by an independent body designated to monitor and check LRFF; d) secure permit from designated shipment hubs

C. Common Reporting System

Establish a common system (e.g. forms, type of information to be gathered) for data gathering/reporting

D. IUU Fishing

Address IUU issues related to LRFFT (Kudat and Balabac areas), Note: IUU on LRFFT was also considered a priority concern during the CTI-CFF-organized IUU Transboundary Workshop

E. Regional Mechanism/Forum

- Promote collaboration among countries through a regional Forum which may be informal but meets regularly

The Chair explained that the summary would input into a facilitated discussion scheduled for the latter part of this session. The discussion would focus on developing a resolution to support sustainable LRFFT, to be adopted by participating countries at the end of this Forum.

Malaysia, with the Philippines' support, requested that the comments they made on Day 1 about promoting regional collaboration be included in the proceedings report from this Forum.

Presentation 4 – Challenges to Engagement of China and Options for LRFFT Tracking

Mr. Irwin Wong, WWF-Malaysia

International trade in LRFF operates in an hourglass supply chain system, where there are a lot of players at the bottom (fishers) and at the top (retailers). In the middle of the hourglass are a few packers and a few Hong Kong importers who do the wholesale trading. It is here where the trigger or pressure points can be found – the number of traders is relatively small, they use modern communication technology and they have a good group of knowledge workers, people who know what is going on in the system.

The chain of custody process for wild capture LRFF involves the following steps: (1) fisher collects fish, (2) fish are tagged, (3) support inputs go in (medicines, ice), and (4) fish are passed on to live fish carriers and through the logistics system. For aquaculture, the chain includes fry gatherers or hatcheries, fish farms where the fish are tagged and support inputs (feeds, ice) are provided, and logistics.

From there, the fish go to packing facilities or processing plants and they are transported by air or sea to HK or China and then warehoused, before they eventually end up in the restaurant or retail market. Here, the air cargo and shipping links seem to be the perfect trigger or pressure points for monitoring the trade.

What we are looking for is an integrated database system that can record and track the fish as they go from fisher (10-15 fish) to cages, from where they are transported by lorry (80-100 fish per lorry) to the packer (450-480 fish per packer) then to courier (1,500 fish per flight). There are four daily flights that operate between Kota Kinabalu and HK, so in Kota Kinabalu alone, a minimum of 6,000 tails of fish maybe exported daily from one packer (there are 58 packers in Kota Kinabalu).

Hatcheries in Indonesia provide Malaysian fish growers with the fries, while feed mills in Thailand provide the feeds. The fish are farmed in Malaysia, sent to packing/processing facilities and the cycle starts over. Given the number of players and countries involved, a regional database system is paramount. The countries in this meeting need to consider developing a work plan or roadmap for the development of the system so the trade can be monitored to facilitate regulation and support resource management. The system can be hosted by either ASEAN or INFOFISH. When the countries support a common database system, they will have a common reporting system.

The biggest LRFF market, China, is the world's most populous country with 1.3 billion people. According to FAO, in 2007, average per capita fish consumption was about 19.4kg in China, 64.4kg per capita in HK, and 55.8kg in Macau. In comparison, per capita fish consumption in the ASEAN countries was estimated as follows: Malaysia – 56.1kg, Indonesia – 24.3kg; Philippines – 35.4kg; Singapore – 48.9kg; Thailand – 31.1kg and Brunei – 27.1kg (regional average: 37.15kg).

China's per capita consumption is likely to have gone up now to around 25kg. If China's per capita fish consumption rises to even 37.5kg, there will be tremendous pressure on Southeast Asia's fish

resources.

There has been continuing effort in the last few decades to develop faster growing fish to meet the demand of an ever growing market. In 1996, UMS achieved a breakthrough in the development of the Type 1 hybrid grouper, which is a cross between Giant grouper and Tiger grouper. It is fast growing and has a relatively low mortality rate. On average, the culture cycle is about two years and production is 8kg per cage. The Type 1 hybrid is popularly known as the Sabah grouper, but this may change with the introduction of new variants.

When UMS slowed down research on hybrid grouper, a group of private sector hatcheries from Taiwan invested in developing a stability line that is more stable, more robust, more resilient to disease and can survive in low temperatures. They have been re-crossing the hybrid with other grouper species to produce the F4, which has been proven to survive in low temperature sea water (15-16 degrees Celsius). Because of this, hybrid groupers are available in Hong Kong even during winter and prices have been going down.

There is also a variant line – researchers are developing more and more varieties of hybrid grouper in order to create the niche markets that HK demands (HK consumers want to have something they have never had before). Type 3 and Type 5 are available in China now, and the research does not stop there. Researchers are now working on Types 6-11, and there is no stopping them from looking for that special variant that would create a new market in China.

When a new variant is first introduced into the market, it usually comes with a high price tag, but the price decreases very fast. In contrast, the price of Tiger grouper has been going up since 2000.

ASEAN producers share some common characteristics relative to LRFFT:

- 1) All ASEAN countries are at least a 2-hour flight to Hong Kong, compared to Taiwan, which is only about an hour away.
- 2) Both HK and China have a winter season, when the sea temperature is about 18-20 degrees Celsius. What the traders in Kota Kinabalu do is to avoid competing with table size fish and concentrate on oversized fish, which is greater than 3kg. By doing this, they have the opportunity to harvest the eggs for reproduction or hatchery purposes. Also, fish bigger than 3kg fetch better prices, and there is a growing local market in Sabah, because of the influx of foreign tourists.

There are certain times during the year in China and HK when the prices of LRFF are higher and therefore the demand for fish from ASEAN countries goes up. The peak seasons for fish consumption are as follows:

- 1) Chinese New Year (usually from the middle of January to end of February)
- 2) Buddha's birthday/Tuen Ng (May-middle of June)
- 3) Cheung Yeung/National Day (September-October)
- 4) Winter Solstice/Christmas (December)

Because of winter season, the aquaculture period in China can last only between 9 and 10 months. In addition, during the summer (May to 1 September), China imposes a ban on fishing in its water. The high price period coincides with the monsoon season in producing countries (Malaysia, Indonesia and the Philippines).

One challenge in dealing with HK is HK's business mindset to take profit (buy low, sell high) in six months to cover for six months of uncertainty. Because of this, during the low season, a fisher in Kudat might be earning RM35 from selling a kilo of fish that is selling at up to RM600 per kg in China.

Traders are asking government these questions: (1) should government stop them from sending fish

to China during the low season? And (2) how do we develop a platform for more equitable profit-sharing?

The regional Forum being proposed here would be a good start toward addressing these questions.

Discussion

Malaysia—My question is on the logistics of tracking: Are you proposing that every fish that is intended for export should be tagged and what kind of equipment should be used for tagging? Also if you use tags, at some point you will want to have them returned.

Mr. Wong—WWF-Malaysia proposed a study visit to Taiwan because the little tags that are used for this purpose were first developed in Taiwan. Taiwan can tag 8 million fish a year under their traceability program, so it is not impossible for the producing countries in Southeast Asia to tag the smaller quantity of LRFF they export every year. LRFF is a very small portion of these countries' total trade but it is high value so I think it is worth the investment. It is a huge task but we can do it one small step at a time. The proposed study visit is supported by CTSP. I spoke to Maurice Knight (CTSP) in early January and I have his full support to go for this tagging device. Initially the proposal was to test it out in Kota Kinabalu but I thought I should share it with this group so all three countries, if they are interested, can participate and we can all learn more about the system

Indonesia—My experience is that tagging the tail can cause infection. I think about 90 percent of the fish get an infection, so I asked a scientist in Bali how the infection can be cured. He said they have a special treatment for the tag and if you come to Taiwan we will share you. He did not want to share the information.

Mr. Wong—That is what he told us as well, that we should visit Taiwan.

Vietnam—My first comment is on tagging. We have a number of tagging systems. We don't have to worry about infection if we know the type of tag to use. Mostly tagging is done for research or selective breeding rather than growout because it would be very expensive for small-scale fishers. So I wonder what your recommendation is. My second question is about hybrid groupers. Malaysia has been producing a lot of hybrid groupers. It is good in one way, but it also poses a risk to wild stocks. You need to use hybrids carefully because it is very easy for them to escape into the wild and interbreed with wild fish.

Mr. Wong—I agree. In fact, on two separate occasions I was asked to identify wild-caught fish that turned out to be the Type I hybrid grouper. But this is what the market is driving hatcheries to do. We are involved in the grouper dialogue which includes farmers, governments, scientists, etc. We hope we can discuss this issue there. I do share the concern, because I have seen with my own eyes two hybrid specimens that were caught in trawl nets. That is sounding a lot of alarm bells in my office alone.

Dr. Muldoon—A couple of points: (1) It is interesting to note that prices of Sabah grouper are going down while prices of Tiger grouper are going up. We can see clearly what's happening. It's not the first time I've seen this in this trade, so I'm surprised that people have not taken more care in understanding the market better. But it's clear the price of Tiger grouper is going up because there is no supply and Sabah grouper is going down because there's too much supply. These points actually point to the potentially useful role that a trade Forum can play, not necessarily an inter-governmental Forum but something that involves the traders themselves. (2) I also would like to make a point about the price differentials between fishers and buyers. It is important to remember that the prices presented are gross prices without costs taken into account. The further along the supply chain you go, the greater the cost of

getting the fish to the market, the greater the transaction cost becomes, and also the greater the risk becomes of the fish dying and the buyer losing a lot of money. I'm not saying those prices are reasonable, perhaps the fishers should be receiving more. But again this is one issue that the industry coming together can address, and perhaps a cartel is a good thing, not a bad thing as mentioned yesterday. And finally, (3) about tagging, perhaps you don't necessarily need to look at tagging every individual fish. You can look at the possibility of tagging a group of fish in each well, and you know that the well came from a particular cage so when it gets to HK they can identify it. This would avoid some of the problems mentioned by Indonesia and Vietnam.

Mr. Wong—I agree with Dr. Muldoon. We are still in early discussions about the tagging system. The three countries have not decided yet on what method to use. This is just one of the ideas put forward, and the well system may also work, as well as perhaps the cage system, which Mr. Razali (Malaysia) might propose. In the cage system, fish coming out of a cage will all enter into a batch and that batch will be tracked.

Mr. Rene Acosta (USAID)—I would just like to add to what has been said about the potential environmental safety issues related to the development of these hybrid species. We may be creating monster species here. You said just now that the Sabah grouper is now found in the wild. Have there been discussions or initiatives on environmental safeguards? Also, on intellectual property rights – is this a Taiwan technology or a Southeast Asian technology? Who owns and who controls the stability and variant lines that are being developed? These are questions we need to resolve because this is a significant trade that involves millions of dollars and people's lives depend on it.

Mr. Wong—I will answer your second question first: After UMS achieved the breakthrough in 1996, they did not continue the research but instead focused on another species, and recently they shifted focus again and are now concentrating on Humphead wrasse. The researchers who worked on the hybrid went on to work with private companies that invested a lot of money to develop more hybrids. So now we have 12 variants of the hybrid grouper. I'm not sure that UMS owns this technology, but I would think that they don't, otherwise it would not have evolved into the huge market that it is now, where you could potentially end up with millions and millions of new variants.

To answer your first question, from the WWF point of view, we are very concerned but we have no long term plan to address the issue yet. We hope that through the grouper dialogue an action plan will be developed and that it will involve a lot of stakeholders. The hybrids are not capable of natural reproduction – they have to be injected with hormones to bear eggs. But there is no guarantee that the hormones that induce spawning are not found in fertilizers or pesticides used for the agriculture industry. Fertilizers and pesticides can contaminate the sea as runoff and if they contain the right hormones, there is potential for these hormones to induce spawning in any hybrid groupers that escape into the wild.

Chair—This discussion on the risks associated with the development of hybrid groupers tells us that this is a good time for an inter-governmental Forum to be established. It is the role of government to keep a close eye on issues like this because when a technology is developed to follow market demand, it can run out of control and before we know it, cause damage on the environment. As far as I understand, hybrid groupers are raised in cages in open waters, where there is high risk that they will leak into the wild. We may think these hybrids are not fertile, but we don't know the capacity of these animals to adapt to their environment. Thailand has one example of this in the freshwater carp fish hybrid. In the beginning we were quite sure that the hybrid was infertile and later on we found out that it could breed. Governments must address this issue, at least take a precautionary approach and make risk assessment a priority. So thank you, Vietnam, for bringing up the issue.

Ms. Mikell O’Mealy (USAID) –I worked for over 10 years in the U.S. on issues exactly like this with salmon hatcheries. When hatchery-bred salmon escaped into the wild, it devastated wild stocks and polluted the very few streams we had left where wild stocks could spawn. We are still struggling with this. It takes serious regulation of those hatcheries to make sure that those hybrid fish don’t escape into the wild. We haven't figured it out yet and we’re struggling to make that precautionary approach real. So I really appreciate the value you're placing on this issue. I think you’re going to be a model for a lot of places in the world.

Philippines –I would just like to add my appreciation and thank our colleague from Vietnam for this discussion, because at first we were really only looking at the ringgit and dollar signs. This is why there needs to be an inter-governmental Forum separate from that involving those whose interest is to earn money. This is where the distinction lies. If a Forum is focused only on how to generate profit or income, then the priority becomes the short term because people live only for a short time, and they want to enjoy life as fast as they can. But government is responsible for generations and generations to come and it is in this context that government must take a more active if not stronger role in all of these endeavors. Aquaculture is promising, but as yesterday's discussion showed us, it does not solve the problem in the wild because you have to catch wild fish to feed cultured fish. And if you need 7kg of wild fish to produce 1kg of cultured fish, you’re actually decreasing, not increasing, production. This is one issue about aquaculture that we really need to look at, because from the standpoint of nutrition, protein is the same whether it comes from grouper or trash fish, and if we’re converting a more affordable protein into something that only the well-off segment of our society can afford, we really need to rethink our priorities. This discussion may not provide us with solutions, but it is giving us a good understanding of the issues involved and that, I think, is a good beginning.

Chair–If I may add another point based on our experience: Animals behave differently under different conditions. This is a crucial point. In South Asia we did a study on three Indian major carps, Catla, Rohu and Mrigal and found Catla to perform best, followed by Mrigal and Rohu was the worst performer. But when introduced to Thailand, Rohu and Mrigal performed best and Catla performed worst. These are two very different sets of results from two habitats that are not even really that far apart. So risk assessment is really needed to make sure that when we interfere on natural phenomena, we are not harming to the environment.

Indonesia–As a fish grower, I work with local fishers who catch the fish that we grow in our cages. Right now we are trying to impose a minimum size limit (currently 600kg body weight). This is to make sure that every fish we stock in our cages has spawned at least once before it is caught. We also subsidize the use of big hooks so fishers do not catch juveniles. We have been doing this for 2 years now, and we hope that in four years we will see the impacts.

Chair–I am happy to note that the private sector has a long-term vision. I know of another example in Australia, where they take measures to ensure that natural brooders used in abalone culture have been allowed reproduce before they are collected.

Philippines (to Mr. Wong) –Have you assessed the organoleptic properties (taste, texture, etc.) of the hybrid? How different is the hybrid from the parent fish? This could be the main factor that has implications on price determination.

Mr. Wong – Food enthusiasts in Hong Kong say that the meat of the hybrid grouper Type I has the same consistency as the Giant grouper, but the skin is not as thick as that of the parent fish, In mainland China and Hong Kong, fish skin is a delicacy, so species with thick skin are highly valued. In a blind taste test in Kota Kinabalu, on the other hand, local Sabah consumers indicated they did not like the texture of the hybrid meat – they said it was not firm enough and did not measure up to their standards.

Facilitated Discussion on Meeting Resolutions

In this session, the countries focused on crafting a resolution that contained their general commitments toward promoting sustainable LRFFT in Southeast Asia and the CT Region. Atty. Asis Perez, the head of the Philippine delegation moderated the discussion, which the Chair described as “one of the most important sessions” of this Forum. The discussion, based primarily on the five priority areas of concern presented at the start of today’s sessions (see **above**), centered on getting a consensus agreement on each priority area (i.e., whether or not it should be included in the resolution) and the wording of each commitment statement. The Moderator asked each country to verbally manifest their assent or objection to every point under each priority area that was put on the table.

Below are the outcomes of the discussion, annotated with participant comments. The final revised summary based on the results of this discussion and further review by the Forum secretariat was included in a preliminary summary report submitted to the Chair on 6 February 2013 and appended here as Annex **A6**.

Outcomes of discussion

- 1) All six participating countries generally agreed to include the five priority areas of concerns in the resolution.**
 - a. Malaysia proposed that, in addition to the five priority items, the resolution should address the risks associated with the hybridization of grouper. “We feel the hybridization of grouper has reached an alarming level and should be addressed by ASEAN governments in particular because it can have a very high impact on the ecosystem,” they stated. Vietnam concurred, saying issues related to aquaculture need to be considered.
 - b. Malaysia accepted the Moderator’s suggestion to include the topic as a major agenda item for the countries to consider in future meetings.

- 2) All six countries agreed on the points under “Marine Protected Areas/Fish Refugia,” with the following qualifications.**
 - a. Indonesia pointed out that their proposal to “standardize terminologies and definitions” was more about promoting a common understanding of the boundaries and the responsibilities of the different agencies within the region that are tasked to manage MPAs.
 - b. Dr. Muldoon suggested that the definitions and agreements on MPAs should include not only spatial protection but also temporal considerations.
 - c. The Moderator said Indonesia’s and Dr. Muldoon’s comments would be included in the minutes of the meeting. He noted, however, that “it may be too early to talk about the fine details.” For the purpose of passing a resolution, he said, what was important was for the countries to agree in principle to establish MPAs/fish *refugia* and have “a common understanding of what they mean.”

- 3) The countries accepted with modification the items under “Accreditation System.”**
 - a. Vietnam sought clarification on which agency or “independent body” should be given the task of accrediting LRFF suppliers and traders. They expressed concern that the accreditation requirements might be too restrictive and make doing business complicated. “In Vietnam, we try to simplify administrative procedures,” they said.
 - b. Addressing Vietnam’s concern, the Philippines said that, for governments constrained by manpower and infrastructure challenges, outsourcing or delegating “to some

extent” the accreditation process to private entities that meet the requirements for accreditation bodies can be effective, “provided the government can demonstrate that even though they are not the ones doing the accreditation, they have full control and authority over those private entities.”

- c. Malaysia agreed with Vietnam’s point that government regulations should not be too restrictive, otherwise the exporters will find a way to go around it and may become less forthcoming with information “when we want transparency in the sector.” But they allayed Vietnam’s concern about accreditation, saying they were already implementing some of the measures proposed for accreditation, such as allowing shipments only through a few hubs and requiring exporters to get permits (from customs). “The only thing we don’t have is accreditation for sustainability, which is outside the expertise of our customs agents, but this is probably where the DOF can come in,” Malaysia suggested.
- d. Malaysia also proposed the Fish Marketing Organization (FMO) in HK to serve as an accreditation body. “It does not have to be one body, it can be several bodies,” they added. “HK accounts for 90-95 percent of our exports, and China gets 60 percent of the 90-95 percent, so the pressure point is in HK. The problem is HK authorities do not make it mandatory for the fishing boats that carry live fish to report. If we can work with the HK government or FMO, this issue on accreditation for sustainability can be resolved.”
- e. Responding to Malaysia’s last comment, Dr. Muldoon informed the body about a resolution passed in 2012 by the HK legislative council requiring fishing boats to maintain records of LRF coming into HK. The information is collected mainly for food health and safety regulation but it is not mandatory for authorities to share it. “But perhaps this is an opportunity for this group to open a dialogue with the HK government to discuss how that information may be shared to support your own information needs,” Dr. Muldoon suggested.
- f. Dr. Muldoon and Malaysia sought clarification on the term “hubs.” The body agreed that the hubs are government-operated facilities through which LRFF for export must pass through and that it is government that should issue permits to export.
- g. Solomon Islands reiterated a point made earlier by the Moderator that the resolution should not cover the fine details. “What we are aiming for here is to come up with a framework to guide us on the general principles we all agree on,” they said. “The little details will come after.”
- h. Noting Solomon Islands’ comment and Vietnam’s concerns, the Moderator said the general agreement is that an accreditation is necessary, and “the rest are guidelines on how each country may proceed, as may be appropriate.”
- i. The countries agreed to the suggestions of Indonesia and the Philippines to reword some of the action items to make them broad enough to cover all the differences in the way the countries manage and regulate LRFFT.

4) The countries agreed that having a reporting system is useful for promoting consistency in data collection, reporting processes and traceability but should not be mandatory.

- a. Malaysia pushed the inclusion of a reference to the need to establish a “consistent reporting and traceability system,” but the other countries (and resource persons) expressed reservations about the various governments’ capacity to implement the system.
- b. Dr. Muldoon noted questions from industry players about the importance and relevance of a traceability system to the market “because it can be an added expense to the industry without bringing in any additional benefits.”
- c. Malaysia explained that in countries where environmental consciousness is high, consumers will benefit from knowing that the fish they are using come from a sustainable source. In cases of a disease outbreak or other food health safety issues,

on the other hand, it would be the industry players themselves that could benefit the most from being able to trace quickly the source of the problem and bring credibility back to the market.

- d. Malaysia conceded that, while commercial fish growers can easily implement a traceability system, small fish farmers do not have the same capacity. They suggested instead that tagging and tracking can be done at the village or provincial level. “About 90 percent of our fish farmers are small-scale and they too are concerned about traceability. What we do is to have them work in a group so the cost is shared.”
- e. Noting that in discussions with the EU on the EU-IUU regulation, traceability was a sticking point for most Asian countries (“because we looked at it as a trade barrier”), the Moderator sought comments from the other countries, especially those that have bigger and more artisanal participants in LRFFT.
- f. Vietnam said they had set up a traceability system under the EU-IUU regulation and that the system could be done for LRFFT by requiring fish farmers to report the species of fish they culture and its source, the feeds they use and their source, their production volume, etc. But “it becomes more difficult when we have very small-scale fishers.”
- g. Indonesia said they shared Malaysia’s observation that traceability is fairly easy for large- and medium-scale operators, but can be very difficult for small-scale producers. In the case of tuna, they said they first “try to negotiate under our mutual recognition agreement (MRA) with each of our trading partners on the way traceability should be implemented.” In general, the government does not give the responsibility of traceability to small-scale producers, but to players in the supply chain one level above the small-scale producers. “For LRFFT, we need to find a way for traceability to be implemented without adversely affecting local producers, because this is what we’re still missing now,” Indonesia said.
- h. Speaking from a “private sector perspective,” Mr. Wong (WWF-Malaysia) maintained that having a tracking system “will help build up the capacity of producers and upgrade the industry altogether.” He related that by tracking from the source the fries and feeds that they use, his family’s aquaculture company has been able to determine, for example, the quality and survivability of the fries and that in some months, feeds from Gold Coin Mills and Uni President have higher protein content than in other months. “We find tracking very useful in decision-making, because we know which hatcheries and feedmills can deliver consistent quality,” he said.
- i. After notifying the body that he was temporarily taking off his moderator hat, the head of the Philippine delegation said that the Philippines agreed that traceability is important and acknowledged that Indonesia, Malaysia and Vietnam had indicated that they believed it could be done. However, the Philippines needs to see the benefit, “because government is looking at this in relation to regulation and to government, the proposed traceability and reporting system is material only if it will help us understand the impact of this business on the resource.” They said that while the Forum was not a binding meeting and there are no sanctions for not implementing any resolution that comes out of it, “the people here are the ones making decisions back home and if we agree to this, there is a possibility that, at least morally, this will become an obligation, because this is not a meeting of people with aspirations but a meeting of people with actual mandate.”
- j. Malaysia noted that in the case of the salmon and Pangasius industries, no government in Europe or the U.S. has ever imposed a traceability system, “It’s all a voluntary effort, and mostly buyer-driven.” HK, the biggest LRFF market, is currently not requiring traceability, “in the future they might,” they pointed out. “We also need some traceability system to guide our industry and to protect our reefs, so it’s good that we are discussing this now, and one day we hope it will become a reality.”
- k. Shifting back to his role as moderator, the head of the Philippine delegation suggested

that the action statement should be reworded to make it permissive or optional. The body agreed.

- l. Mr. Acosta (USAID) inquired how “consistency” might be reflected in the statement. After hearing a few examples from Malaysia and Indonesia, the Moderator suggested that the statement should indicate the minimum information requirement for reporting LRFFT, and Indonesia suggested species, date caught, size, and fishing area (source) should be reported. Both suggestions were accepted by the body.
- m. The body agreed that reporting would cover all LRFFT species, both wild-caught and cultured.

5) The countries agreed IUU fishing of LRFF is a priority issue and should be addressed regionally.

- a. Mr. Acosta (USAID) pointed out that the statement needed to underscore the transboundary nature of IUU fishing related to LRFFT. The body concurred.
- b. Indonesia suggested that the statement should address not only IUU fishing but also illegal trade in LRFF. He said illegal LRFF trade is common near the borders of Indonesia, where live fish transport vessels coming from HK receive deliveries of LRFF from Indonesian boats that take out the fish from Indonesian waters. “We in Indonesia don’t have the capacity to fully control this practice, which we think should be addressed regionally because it is probably also happening in other countries,” they said.
- c. Dr. Siry (CTI-CFF Regional Secretariat) reminded the body that most of the countries participating in this Forum are parties to RPOA-IUU (Regional Plan of Action to Promote Responsible Fishing Practices including Combating Illegal, Unreported and Unregulated Fishing in the Region). The Moderator said the resolution could include a footnote stating that “all of these are consistent with the RPOA-IUU.”
- d. Dr. Torell (SEAFDEC) said achievement of the resolution should be reported to the RPOA-IUU.

6) The body agreed that collaboration between participating countries should be promoted through a regional Forum based on the Regional Fisheries Management Organization (RFMO) model, and that information exchange, collaboration and continuous dialogue among stakeholders should be encouraged through national and local Forums.

- a. The body noted and accepted earlier suggestions for the proposed regional Forum to have a structure similar to RFMO. The Moderator described an RFMO as an organization under the UN Convention on the Law of the Sea (UNCLOS) formed by countries with fishing interests in the area. He explained that while RFMOs are primarily intergovernmental bodies that operate by consensus, they may invite the private sector to participate in discussions
- b. Indonesia reminded the body of the proposal presented on Day I for the establishment of local and national Forums, where stakeholders can discuss common concerns and possibly identify local and national issues that need to be brought up to the regional Forum. These points were thus incorporated in the resolution statement.
- c. Mr. Hiew (FanLi Marine and Consultancy) inquired if the countries might consider including HK, China and LRFF buyers in the Forum. The Moderator replied that there had already been an agreement that the regional Forum would be modelled after the RFMO. When established, the Forum can then decide to open membership to other countries, accept membership from other countries that may be interested, and invite various stakeholders to participate in discussions, “These are decisions that can be made later,” he added.
- d. Indonesia and Vietnam concurred with the Moderator’s statement. “It is better for us

producers to organize first and when we have rules and regulations binding our organization, we can decide if we want to include other organizations, including China and HK,” said Indonesia. Malaysia, however, maintained that involving the buying countries, particularly HK and China and possibly Taiwan, is necessary for the Forum to be effective, “but since they are not represented here, the best way to proceed is to establish the Forum and invite them as soon as possible.”

7) The countries agreed to designate SEAFDEC as Interim Regional Secretariat of the LRFFT Regional Forum with support from the CTI-CFF Interim Regional Secretariat and the USCTI Support Program.

- a. In response to a question from Malaysia, the Chair and SEAFDEC Secretary-General, Dr. Pongsri, explained that SEAFDEC has no specific mandate for LRFFT, but as a neutral technical organization and the technical arm of ASEAN, whose membership includes countries with significant interest in the trade, SEAFDEC was “very pleased that CTI approached us to involve us in this discussion.” He said SEAFDEC would be happy to support the regional Forum in its capacity, “but we need to have an official relationship between SEAFDEC and CTI first.” The Moderator added that SEAFDEC is a state-sponsored agency, established by the countries themselves, which is why its mandate is encompassing and its decisions are binding.
- b. Indonesia suggested that “since SEAFDEC member-countries intersect with CTI member-countries, this meeting should recommend that SEAFDEC and CTI manifest the collaboration to tackle LRFFT issues.”
- c. Malaysia, on the other hand, proposed SEAFDEC as host organization/secretariat of the LRFFT Regional Forum.
- d. Dr. Pongsri observed that “we have more CTI members here than SEAFDEC members” and that CTI should lead and SEAFDEC would have a supporting role.
- e. Mr. Acosta (USAID) said between CTI and SEAFDEC, SEAFDEC would be the stronger host organization because “SEAFDEC makes binding decisions and CTI is just emerging and is non-binding, while RPOA is a coordinating structure.”
- f. Indonesia, in consultation with the moderator, agreed with Malaysia’s proposal for SEAFDEC to serve secretariat of the LRFFT Regional Forum, “with support from CTI and USAID.” Mr. Acosta (USAID) interposed, saying that while they appreciated hearing affirmation of USAID support for the program, “we cannot commit USAID in an agreement as formal as this.” He suggested that it would be more accurate for the resolution to refer to the USCTI Support Program, which has a clear program mandate and timeframe with an end date of September 2013. The body accepted his suggestion.
- g. Dr. Pongsri expressed appreciation for the countries’ endorsement of SEAFDEC, adding that the endorsement should get the SEAFDEC members’ approval quite easily “because we already have here many of the members of the SEAFDEC Council.”
- h. Speaking in his capacity as SEAFDEC Council Chair, Atty. Perez (Philippines/Moderator) vowed to take “the necessary effort to have this particular portion for the resolution approved by the Council.”

SESSION 4. PRESENTATION AND CONFIRMATION OF RESOLUTION AND NEXT STEPS

Presentation of resolution

At the start of the afternoon session, the Chair, Dr. Pongsri (SEAFDEC) handed over the chairmanship to the Philippines. Atty. Perez, as head of the Philippine delegation, presided this formal session. Upon his request, the secretariat (Mr. Jatulan) presented the draft resolution. The resolution, titled “Resolution on Sustainable LRFFT for the Southeast Asian and CTI-CFF Countries” was

approved in its final revised form by the participating countries (see Appendix A7)

Next Steps

The countries deliberated and agreed on the next steps, which were summarized by the Chair (Atty. Perez) as follows:

- 1) Report the results of this Forum and forward a copy of its resolution to the SEAFDEC Council meeting on 1 April 2013, RPOA and eventually ASEAN.
- 2) Forward to SEAFDEC Council meeting on 1 April 2013 this Forum's endorsement of SEAFDEC to serve as LRFFT Regional Forum Interim Secretariat;
- 3) Hold LRFFT Regional Forum meeting before September 2013. (Indonesia offered to host the meeting in Manado.)
- 4) Meet with the demand side of the trade (USCTI offered to support meeting with Hong Kong and China).

Mr. Acosta suggested that the countries can take advantage of upcoming SEAFDEC, CTI-CFF or similar meetings to hold a caucus among Forum members to discuss priority concerns, such as how to deal with the demand side of the trade. He said that in addition to USCTI support for a meeting between LRFF-producing countries and HK/China) "if the countries are interested in learning about the traceability program, there is opportunity for CTSP to support representatives from the countries, but this will follow after the dialogue with HK."

In addition, Mr. Acosta reminded participants of the need for follow-up talks between SEAFDEC and the CTI-CFF Interim Regional Secretariat on the MOU on SEAFDEC-CTI collaboration.

Mr. Rudianto (Regional Secretariat) requested SEAFDEC (as LRFFT Regional Forum Interim Secretariat) to draft the terms of reference (TOR), roadmap and near-term objectives of the LRFFT Regional Forum.

Dr. Pongsri remarked that, based on the results of this Forum, the LRFFT Regional Forum "already has a lot of items on its agenda."

SIGNING OF RESOLUTION AND CLOSING

At 3:00p.m., the heads of delegation or designated representatives of the participating countries signed the "Resolution on Sustainable LRFFT for Southeast Asian and CTI-CFF Countries." The signing was immediately followed by the closing session, which was presided by Dr. Pongsri. Dr. Pongsri called on his Co-chair, Mr. Rudianto (Regional Secretariat), to give his closing message.

Mr. Rudianto expressed "surprise" over the results of the Forum. "We made more progress than expected," he said, commending the delegates and participants for their work. He vowed that the Regional Secretariat would take the following "immediate next steps" to follow through on decisions made at this Forum: (1) Report results of this Forum to the Chair of the CTI-CFF Council of Ministers



Singing of "Resolution on Sustainable LRFFT for the Southeast Asian and CTI-CFF Countries," 1 February 2013, Centre Point Wireless, Bangkok, Thailand: (From left) Chumnarn Pongsri (SEAFDEC), Tri Hariyanto (representing Victor P.H. Nikijuluw), Indonesia; Mohamed Razali (representing Ismail Abu Hassan), Malaysia; Asis Perez, Philippines; Alex MendoMeloty, Solomon Islands; Julio Da Cruz, Timor-Leste; and Pham Anh Tuan, Vietnam, Eko Rudianhto (CTI-CFF). (Photo: US CTI PI/)

(Malaysia); (2) Distribute results of Forum to the CTI-CFF member-countries; (3) Synergize with and integrate the LRFFT Forum plan into the work plan of the CTI-CFF EAFM working group, who will meet not before May 2013; and (4) Bring recommendations on MPA to the MPA working group meeting in April 2013 and other results to relevant CTI-CFF meetings. The Regional Secretariat will also help the working groups to prepare decision documents to be submitted and adopted by the next CTI-CFF SOM.

Dr. Pongsri thanked delegates and organizers for their contributions to the Forum, which he said was “one of the more successful Forums” that SEAFDEC has been involved in. He announced that the proceedings report would be circulated to the countries after the Forum and requested participants to inform SEAFDEC of any further recommendations they have on the report. “In two weeks’ time if we do not receive any more suggestions, we will consider the report automatically approved by the Forum,” he added.

Dr. Pongsri also announced that he will bring the report to the SEAFDEC Council Meeting in Cebu, Philippines in April 2013, and subsequently to the ASEAN mechanism. “We can see the possibility of addressing the LRFFT issues at the higher authority level, particularly in the ASEAN and the APT,” he said.

The Forum officially closed at 3:12p.m.

ANNEXES

AI: AGENDA (as published, does not reflect changes during actual Forum)

Day 1: Thursday, 31 January 2013		Centre Point Wireless, Bangkok, Thailand
08:30-09:00	Registration	
08:30-09:00	Chair, Moderators, Resource Persons Caucus	Chairs, Country Moderators, Resource Persons
09:00-09:20	Opening Session and Welcoming Remarks	Chair: Dr. Chumnarn Pongsri, SEAFDEC Co-Chair: CTI-CFF Interim Regional Secretariat
09:20-09:30	Message	Alfred Nakatsuma, USAID Asia
09:30-09:35	Detailed review and agreement on agenda	William Jatulan, US CTI
09:35-09:45	Introduction of delegations including observer countries	William Jatulan, US CTI
09:45-10:00	Working tea break in meeting room	
10:00-12:00	Session 1. LRFFT Scene Setting and Regional Backdrop	Chair: Dr. Chumnarn Pongsri, SEAFDEC Co-chair: CTI-CFF Interim Regional Secretariat Moderator: Indonesia Head of Delegation
10:00-10:30	Paper 1: The science and challenges of sustainable fish supplies for the Southeast Asian LRFFT	Presenter: Dr. Yvonne Sadovy
10:30-11:00	Paper 2: Challenges for sustainable Southeast Asian LRFFT from the institutional and demand-side perspectives	Presenter: Dr. Geoffrey Muldoon
11:30-12:15	Synthesis and Discussion	Chair: Dr. Chumnarn Pongsri, SEAFDEC Co-chair: CTI-CFF Interim Regional Secretariat Moderator: Indonesia Head of Delegation
12:15-13:30	Lunch	

Day 1: Thursday, 31 January 2013		Centre Point Wireless, Bangkok, Thailand
13:30-14:30	Session 2: 13:30 – 17:30. Government Presentations and Discussions	Chair: Dr. Chumnarn Pongsri, SEAFDEC Co-chair: CTI-CFF Interim Regional Secretariat Moderator: Malaysia Head of Delegation
13:30-13:50	Indonesia	Heads of Delegation
13:50-14:10	Philippines	
14:10-14:30	Malaysia	
14:30-14:40	Papua New Guinea	
14:40-14:50	Solomon Islands	
14:50-15:00	Timor Leste	
15:00-15:10	Viet Nam	
15:10 -17:00	Discussion and synthesis of options for national and regional actions	Moderator: Malaysia Head of Delegation
17:00-17:30	Summary	Dr. Chumnarn Pongsri, SEAFDEC Co-chair: CTI-CFF Interim Regional Secretariat
18:30	Dinner together at a venue TBD and discussions among delegations and participants/resource people.	Hosted by US CTI

Day 2, Friday, 1 February 2013		Centre Point Wireless, Bangkok, Thailand
0830 – 1300	Session 3: Moving Forward	Chair: Dr. Chumnarn Pongsri, SEAFDEC Co-chair: CTI-CFF Interim Regional Secretariat Moderator: Head of Philippine Delegation

Day 2, Friday, 1 February 2013		Centre Point Wireless, Bangkok, Thailand
08:30-9:00	Summary of Day 1 and outline of goals for Day 2	Dr. Chumnarn Pongsri, SEAFDEC Co-chair: CTI-CFF Interim Regional Secretariat
09:00-09:20 (including discussion)	Presentation 4: Challenges to engagement of China and options for LRFFT tracking	Irwin Wong
09:20-10:40	Tea/coffee Break	
10:40-12:00	Facilitated discussion on meeting resolutions <ul style="list-style-type: none"> • Summary from the moderator of issues, actions and decisions that are on the floor. • Agreement among delegations on key priorities. • Proposals from each delegation on national and regional actions and agreements, as well as resolutions for decision from the meeting (Coral Triangle LRFFT Resolutions) under existing mandates • Decision on joint inter-governmental actions to form the LRFFT Regional Forum 	Moderator
12:00-13:00	Lunch	Venue
13:00-14:30	Session 4: 1400 – 1700. Presentation of written resolutions and agreement and confirmation of agreements and next steps	Dr. Chumnarn Pongsri, SEAFDEC Co-chair: CTI-CFF Interim Regional Secretariat Moderator: Head of Philippines Delegation
14:30-15:00	Confirm agreements and identify next steps for strategic institutional support to the CTI-CFF	Moderator
15:00-15:30	Closing Remarks	Dr. Chumnarn Pongsri, SEAFDEC Co-chair: CTI-CFF Interim Regional Secretariat

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A3. LRFFT Inter-Governmental Forum Partners

A3.1 Coral Triangle Support Partnership (CTSP)

The Coral Triangle Support Partnership (CTSP) is a five-year project of the US CTI Support Program executed through a cooperative agreement with USAID to the World Wildlife Fund (WWF). This includes a consortium of WWF, Conservation International (CI), and TNC. CTSP works with government, private sector, and local partners to catalyze transformational change by assisting governments with enabling policy support, strengthening capacity building and institutions, building constituencies, and building decision support capacity.

A3.2 CTI Interim Regional Secretariat

The CTI Interim Regional Secretariat is hosted by the Government of Indonesia and resides in Jakarta. The Secretariat provides long-term, wide ranging support to the CTI governments and partners for implementation of the CTI Regional Plan of Action, particularly through direct support for the various coordination mechanisms. The CTI Regional Secretariat provides coordination, technical, and communications support for CTI-related activities such as the ministerial and senior official meetings, the technical working groups, partners, and the national coordination committees.

A3.3 Southeast Asian Fisheries Development Center (SEAFDEC)

The Southeast Asian Fisheries Development Center (SEAFDEC) is an intergovernmental organization established in December 1967 for the purpose of promoting sustainable fisheries development in the region. Its current Member Countries are Brunei Darussalam, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam. Representing the Member Countries is the Council of Directors, the policy-making body of SEAFDEC. The chief administrator of SEAFDEC is the Secretary-General whose office, the Secretariat is based in Bangkok, Thailand.

A3.4 US CTI Support Program Integrator (PI)

The US CTI Support Program Integrator (PI) provides overarching coordination support to the USG for the implementation of US CTI Support Program. The PI is responsible for coordinating inputs from various US Government (USG) agencies and partners, and for facilitating a unified USG response to the CTI. Activities include facilitating networking and cooperation; promoting information exchange; providing administrative support to USAID's Regional Development Mission for Asia (RDMA); supporting communications and alliance building among USAID, USG, and other donors to harmonize assistance to the CTI; and providing technical support to the CTI mechanisms to facilitate implementation of the CTI Regional and National Plans of Action.

A4: Participants Breakdown by Gender and Organization

A.4.1. Gender

Country Delegates		
Male	22	81%
Female	5	19%
TOTAL	27	100%
Partners/Resource Persons		
Male	16	67%
Female	8	33%
TOTAL	24	100%
OVERALL TOTAL		
Male	38	75%
Female	13	25%
TOTAL	51	100%

A4.2. Country Delegates' Institutions

Government	21	78%
Academe, private sector, NGOs and CBOs	6	22%
TOTAL	27	100%

A5: LIST OF PRESENTATIONS AND OTHER WORKSHOP MATERIALS

Presentations and other materials from the Live Reef Food Fish Trade Inter-Governmental Forum, held on 31 January and 1 February 2013 in Bangkok, Thailand, can be viewed electronically at the US CTI Support Program Integration Portal at www.uscti.org under the Workspaces Section. To access the portallog in through username: **coral** and password: **triangle** (non-case sensitive).

- 1) Forum Overview
Mr. William Jatulan (USCTI)
- 2) The science and supply-side challenges of sustainable fish supplies for the Southeast Asian LRFFT
Dr. Yvonne Sadovy de Mitcheson (University of Hong Kong)
- 3) The Demand for Live Reef Food Fish in Southeast Asia: Consequences and Institutional Challenges
Dr. Geoffrey Muldoon (WWF Coral Triangle Program)
- 4) The Live Reef Food Fish Trade in the CTI Region: Status, Challenges and Opportunities (Handout)
- 5) Ensuring the Future of LRFFT: Mechanisms for Stakeholder Engagement
Mr. Gopinath Nagaraj and Mr. Kevin Yiew (FanLi Marine and Consultancy)
- 6) Proposal for a Multi-Stakeholder Forum on Live Reef Fish Trade (Handout)
- 7) Indonesia's LRFFT
Dr. Victor P.H. Nikijuluw (Executive Secretary, NCC-Indonesia)
- 8) Status of LRFFT and Management in Malaysia
Jephryn Zefrinus Wong and Mazuki Hashim (Department of Fisheries Malaysia Ministry of Agriculture and Agro-based Industry)
- 9) Status of Live Reef Food Fish Trade in the Philippines
Atty. Asis G. Perez (National Director, Department of Agriculture-Bureau of Fisheries and Aquatic Resources)
- 10) Moderator's Notes: Session 2 Points of Discussion
- 11) Challenges to Engagement of China and Options for LRFFT Tracking
Mr. Irwin Wong (WWF-Malaysia)
- 12) Final Report for Workshop on Market-Based Improvements in Live Reef Food Fish Trade (Handout)
- 13) Final Report for Workshop on Market-Based Improvements in Live Reef Food Fish Trade (Handout)

A6: PRELIMINARY SUMMARY REPORT: LIVE REEF FOOD FISH TRADE INTERGOVERNMENTAL FORUM, JANUARY 31-FEBRUARY 1, 2013, BANGKOK, THAILAND

Note: This preliminary report was submitted to the LRFFT Intergovernmental Forum Chair, Dr. Chumnarn Pongsri, on 6 February 2013.

The Southeast Asian Fisheries Development Center (SEAFDEC) in collaboration with the Interim Regional Secretariat of the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF) and the US CTI Support Program hosted a CTI-CFF Intergovernmental Forum on the Live Reef Food Fish Trade (LRFFT) from January 31 to February 1, 2013 in Bangkok, Thailand. Fifty one government and private sector representatives from Indonesia, Malaysia, Philippines, Solomon Islands, Timor-Leste, and Vietnam attended the meeting.

The purpose of the meeting was to bring together senior officials, including heads of fisheries agencies of countries in the Coral Triangle and Southeast Asian regions with significant trade in LRFF to share and identify common solutions to support the development and sustainability of the LRFF industry in each country and the two regions as a whole. This meeting was also organized in support of the CTI-CFF target of effectively achieving a more sustainable trade in live reef fish and reef-based ornamentals.

By the end of the two-day meeting, a number of concrete outcomes were agreed to and confirmed. These included a roadmap and a resolution, signed by the senior government representatives from the six countries, to address the negative impacts of live reef fish trade in Southeast Asia and the Coral Triangle and pursue measures to ensure its sustainability.

Among the measures called for in the resolution are (1) to establish marine protected areas that will protect fish species involved in live reef fish trade; (2) to develop an accreditation system designed to encourage live reef fish trade suppliers to follow sustainable and fair trade practices; (3) to consider developing a reporting system to capture relevant data and support traceability; address illegal, unregulated and unreported fishing practices; and (4) to promote collaboration among participating countries.

Meeting Highlights

1) Expert presentations underscored the following key points that served as the basis for discussion:

- LRFFT is one of the priority concerns identified in the CTI-CFF RPOA.
- Most of the major LRFFT species are either near threatened, vulnerable or endangered (IUCN). Napoleon wrasse is the first food fish to be listed on the IUCN Red List (Appendix 2).
- China and Hong Kong (HK) are the biggest consumers of LRFF, where there is a doubling of per capita consumption of seafood.
- Projected demand in general is greater than projected supply especially for high value species. In Beijing, Napoleon Wrasse can fetch prices of up to US\$600 per kg of fish, not only because of high demand but also because of diminishing supply.
- LRFFT is spreading across the region, largely in response to declining supply.
- There are major challenges to as well as major opportunities for achieving sustainability in LRFFT.
- Major species are susceptible to being overfished because of their slow lifespans and reproductive behavior (e.g. forming spawning aggregations), so they need to be managed.
- Supply and demand problems cannot be solved simply by mariculture/aquaculture, because mariculture/aquaculture and capture fisheries are very much interrelated and interlinked:

- A few species are LRFF are hatchery-raised but the majority are still captured from the wild.
- Most seed for growout come from juvenile capture fisheries (capture-based mariculture).
- Food fish for people are being caught to feed fish for export.
- Mariculture/aquaculture may take away income from communities – many of the poorest communities may not be able to benefit from mariculture/aquaculture.
- With rare exceptions, restocking does not demonstrably lead to wild population recovery.
- International measures to combat IUU fishing do not specifically address LRFFT. For example, the estimated trade in Napoleon Wrasse based on surveys conducted with traders in 2011 is about 50,000 specimens, 25 times higher than the regional quota of 2,000 specimens.
- MPAs have been demonstrated to be an effective management tool, but they do not address fishing effort. MPAs are just one of the possible solutions – they should be part of a set/toolbox of solutions.
- Stakeholders (including government and those with no direct business interest in but are impacted by LRFFT) need to come together to exchange information, address common issues and collaborate on shared areas of interest to promote sustainability in LRFFT.
 - Several models of collaboration were proposed including:
 - National fora conducted by each country by 2014 which would be followed by a regional fora;
 - A chamber of commerce model, with INFOFISH acting as host institution at the regional level
 - Other host/partner organizations/models including SEAFDEC, the Regional Secretariat, Regional Fisheries Management Organization [RFMO], ASEAN, etc.

2) Country reports on the status of LRFFT generally confirmed expert findings/observations of diminishing supply and increasing demand.

3) Discussion points were consolidated into a list of “potential interventions” for the countries to consider. Based on this list, participants agreed to consider top five priority actions that the countries can commit to. These priority actions were discussed and clarified further on Day 2, as follows:

A. Marine Protected Areas/Refugia

- Establish fish *refugia* to protect species both inside and outside MPAs.
- Identify areas that can be included in the Coral Triangle Marine Protected Areas System (CTMPAS), where countries can work together to protect LRFF spawning aggregation sites; (Note: If the body agrees to include this as a priority action, this can be considered by the MPA Working Group during their meeting in March 2013. Discussions on MPAs to support LRFFT must include agencies responsible for MPAs, which are often different from those that handle fisheries).
- Establish trans-boundary protected areas to protect important ecosystems and long-range threatened/endangered species.
- Standardize terminologies and definitions within the region.

B. Accreditation System

- Develop an accreditation system that includes incentives/disincentives designed to encourage LRFF suppliers/traders to follow sustainable and fair trade practices and a network of cyanide testing laboratories to detect violations and promote compliance.
- Each country may identify and collaborate with an independent body to monitor and check LRFF exports to complement the government’s regulatory/accreditation system.
- Each country may identify export hubs for shipment of LRFF to simplify trade and streamline regulation.

- Each country may consider the following conditions for accreditation: a) show proof that export commodity comes from sustainable source; b) show proof of sustainable management of reef ecosystem; c) show certificate of compliance issued by an independent body designated to monitor and check LRFF; d) secure permit from designated shipment hubs.
- C. Reporting System
 - Each country may develop and establish a necessary and appropriate reporting and traceability system (e.g. forms, type of information to be gathered – species, date caught, size, fishing area) for LRFF.
- D. IUU Fishing
 - Address IUU issues related to LRFF in respective countries
 - Collaborate and extend cooperation to prevent trans-boundary IUU fishing and illegal trading practices.
- E. Regional Mechanism/Forum
 - Promote collaboration among countries through a regional Forum (similar to that of an RFMO) which may be informal but meets regularly.
 - Each country may develop and establish local and national fora for LRFF.

4) A presentation that highlighted progress in the development of hybrid groupers in Malaysia generated interest among participants.

- Vietnam expressed concern about the high possibility of the hybrids escaping into the wild, a concern echoed by other participants.
- The presenter agreed, relating that on two separate occasions he was requested to identify wild-caught grouper specimens, which turned out to be hybrids.
- SEAFDEC noted that this is “a good time for an intergovernmental Forum to be established.” He called on the countries to address the risks associated with the emergence of hybrids and make “at least a precautionary approach or risk assessment” a priority.

5) Participating countries adopted a five-point resolution to support sustainable LRFF for Southeast Asia and the CTI-CFF member countries. The resolution reads in part as follows:

- Establish Marine Protected Areas (MPAs) that may involve the following actions in support of LRFF:
 - Identification of spawning aggregation areas and other trans-boundary ecosystems that may be included in the Coral Triangle Marine Protected Area System (CTMPAS);
 - Establishment of fish *refugia* to protect LRFF species both inside and outside MPAs.
- Develop Accreditation System that includes incentives/disincentives designed to encourage LRFF suppliers/traders to follow sustainable and fair trade practices. To complement the system, each country may:
 - Establish a network of cyanide testing laboratories to detect violations and promote compliance;
 - Identify and collaborate with independent bodies to monitor and check LRFF exports and to complement the government’s regulatory system;
 - Designate export hubs for shipment of LRFF to simplify trade and streamline regulation;
 - Consider, among others, the following conditions for accreditation: a) Proof that export commodity comes from sustainable sources; b) Proof of sustainable management of reef ecosystem; c) Certificate of compliance issued by an independent body designated to monitor and check LRFF; d) Permit to export from designated shipment hubs.
- Consider developing and establishing necessary and appropriate reporting system to promote consistency in data collection, reporting processes and traceability. The basic information may include species, date caught, size, fishing area, and others as may be required.

- Address IUU issues related to LRFFT in respective countries (consistent with the parties' obligations under the Regional Plan of Action (RPOA) to Promote Responsible Fishing Practices Including Combating Illegal, Unreported and Unregulated (IUU) Fishing in the Region) and extend cooperation to prevent trans-boundary IUU fishing and illegal trading practices.
- Promote collaboration among participating countries through a regional Forum modeled after the Regional Fisheries Management Organization (RFMO) and encourage each country to develop and establish appropriate local and national fora to promote information exchange, collaboration and continuous dialogue among all stakeholders.

The parties likewise agreed to designate SEAFDEC as the Interim Secretariat with support from CTI-CFF Interim Regional Secretariat and the US CTI Support Program.

6) Participants agreed to undertake the following next steps:

- Submit resolution to SEAFDEC and ASEAN.
- Communicate to SEAFDEC council director the countries' endorsement of SEAFDEC as regional Forum secretariat.
- Organize next meeting, to be hosted by Indonesia, before September 2013.
- Organize a meeting with the demand side of LRFFT.
- Formalize SEAFDEC-CTI collaboration through an MOU.

A7:RESOLUTION ON SUSTAINABLE LRFFT FOR SOUTHEAST ASIAN AND CTI-CFF COUNTRIES



**CORAL TRIANGLE
INITIATIVE**
ON CORAL REEFS, FISHERIES AND FOOD SECURITY



RESOLUTION

on Sustainable Live Reef Food Fish Trade for the Southeast Asian and CTI-CFF Member Countries

We, country delegates from the fisheries ministries of the member states of the Coral Triangle Initiative on Coral Reef, Fisheries and Food Security (CTI-CFF) and the Southeast Asian Fisheries Development Center (SEAFDEC) who participated in the Live Reef Food Fish Trade (LRFFT) Inter-Governmental Forum held in Bangkok, Thailand on 31 January and 1 February 2013

Guided by the CTI-CFF Regional Plan of Action:

Acknowledging the importance of LRFFT as a significant economic activity with huge impacts on the region's valuable reef ecosystems and the food security of people who depend on fisheries for livelihood;

Recognizing that most major LRFFT species have been categorized by the International Union for Conservation of Nature as near-threatened, vulnerable or endangered;

Noting that LRFFT continues to spread across the region, largely in response to declining supply, and that supply cannot keep up with demand;

Conceding that supply and demand problems cannot be solved simply by mariculture and aquaculture because mariculture/aquaculture and capture fisheries are highly interrelated and interlinked;

Understanding the complexity of the trade and its trans-boundary nature;

In response to the challenges to sustaining the trade and its resource base and the opportunities for achieving sustainability in the long term;

DO HEREBY RESOLVE, without prejudice to the sovereign rights, obligations and responsibilities of the countries under relevant international laws and agreements, to:

1. Establish Marine Protected Areas (MPAs) that may involve the following actions in support of LRFF:
 - Identification of spawning aggregation areas and other trans-boundary ecosystems that may be included in the Coral Triangle Marine Protected Area System (CTMPAS);
 - Establishment of fish *refugia* to protect LRFF species both inside and outside MPAs.

2. Develop Accreditation System that includes incentives/disincentives designed to encourage LRFF suppliers/traders to follow sustainable and fair trade practices. To complement the system, each country may:
 - Establish a network of cyanide testing laboratories to detect violations and promote compliance;
 - Identify and collaborate with independent bodies to monitor and check LRFF exports and to complement the government's regulatory system;
 - Designate export hubs for shipment of LRFF to simplify trade and streamline regulation;
 - Consider, among others, the following conditions for accreditation: a) Proof that export commodity comes from sustainable sources; b) Proof of sustainable management of reef ecosystem; c) Certificate of compliance issued by an independent body designated to monitor and check LRFF; d) Permit to export from designated shipment hubs.

3. Consider developing and establishing necessary and appropriate reporting system to promote consistency in data collection, reporting processes and traceability. The basic information may include species, date caught, size, fishing area, and others as may be required.

4. Address IUU issues related to LRFF¹ in respective countries and extend cooperation to prevent trans-boundary IUU fishing and illegal trading practices.

5. Promote collaboration among participating countries through a regional forum modeled after the Regional Fisheries Management Organization (RFMO) and encourage each country to develop and establish appropriate local and national fora to promote information exchange, collaboration and continuous dialogue among all stakeholders.

The parties likewise agreed to designate SEAFDEC as the Interim Secretariat with support from CTI-CFF Interim Regional Secretariat and the US CTI Support Program.

¹ Consistent with parties' obligations under RPQA-II/III

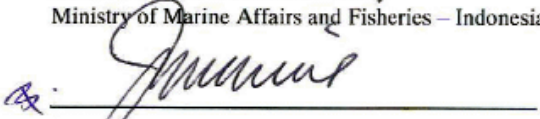
Done this 1st Day of February 2013 at Centrepoin Hotel, Bangkok, Thailand



Victor P. H. Nikijuluw
Executive Secretary of CTI-CFF Indonesia
Minister's Advisor on Public Policy
Ministry of Marine Affairs and Fisheries – Indonesia



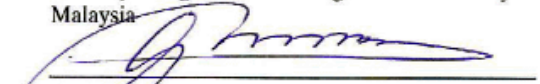
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