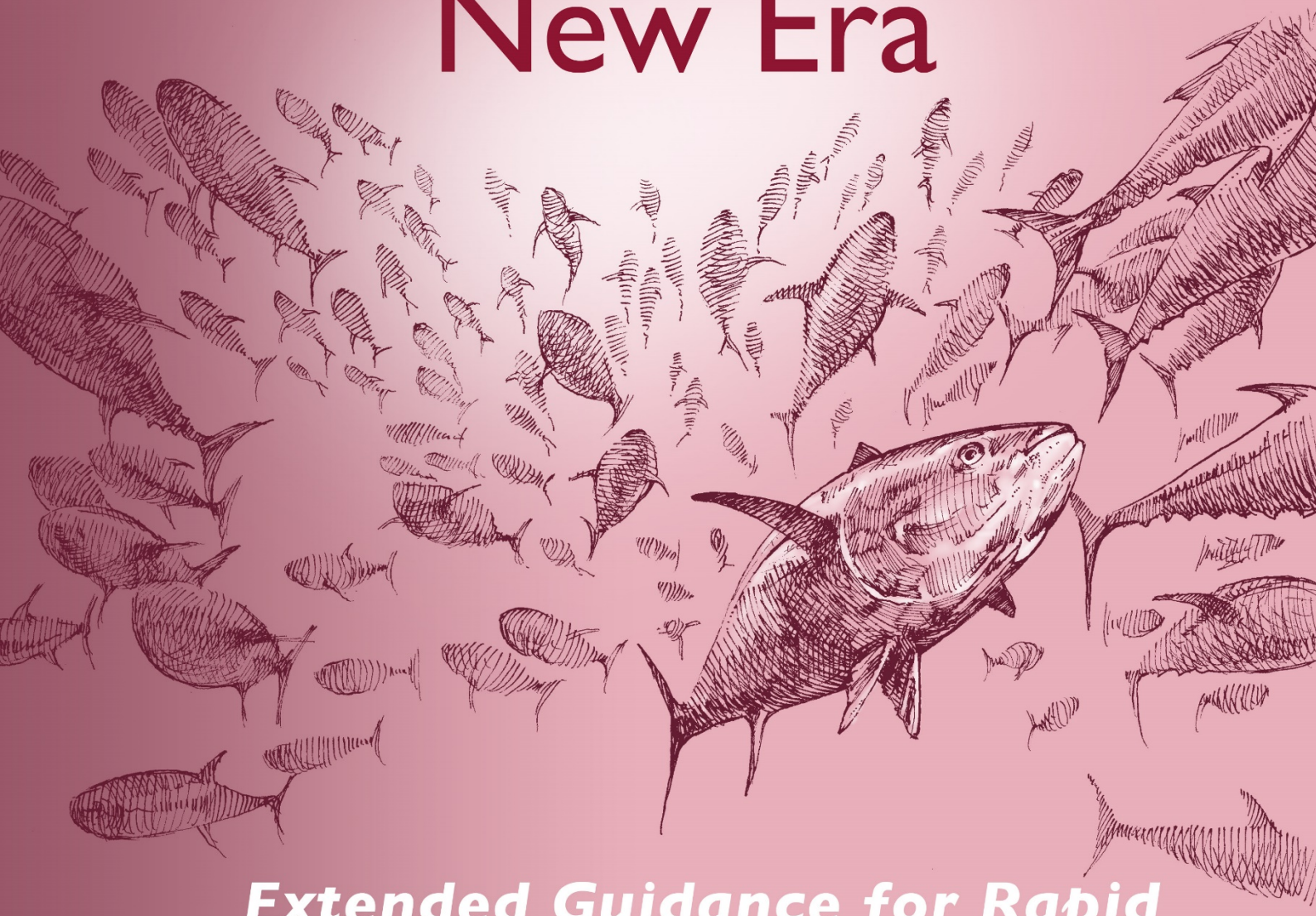
USAID
FROM THE AMERICAN PEOPLE

SEAFDEC

Assessing Fisheries in a New Era



Extended Guidance for Rapid Appraisals of Fisheries Management Systems

THE USAID OCEANS AND FISHERIES PARTNERSHIP

ABOUT THE USAID OCEANS AND FISHERIES PARTNERSHIP

The USAID Oceans and Fisheries Partnership (USAID Oceans) is a five-year activity that works to strengthen regional cooperation to combat illegal, unreported, and unregulated (IUU) fishing and conserve marine biodiversity in the Asia-Pacific region. USAID Oceans is a partnership between the U.S. Agency for International Development (USAID), the Southeast Asian Fisheries Development Center (SEAFDEC), and the Coral Triangle Initiative for Coral Reefs, Fisheries and Food Security (CTI-CFF) that works with public and private sector partners across Southeast Asia to develop and implement electronic catch documentation and traceability systems, improve sustainable fisheries management using an Ecosystem Approach to Fisheries Management, address human welfare and gender equity concerns, and develop public-private partnerships in support of these efforts.

For more information, visit *www.seafdec-oceanspartnership.org* or contact *info@oceans-partnership.org*.

THE USAID OCEANS AND FISHERIES PARTNERSHIP
Assessing Fisheries in a New Era:
Extended Guidance for Rapid Appraisals of Fisheries Management Systems

Prepared for the U.S. Agency for International Development
by Tetra Tech ARD under Contract No. AID-486-C-15-00001

April 2019

TABLE OF CONTENTS

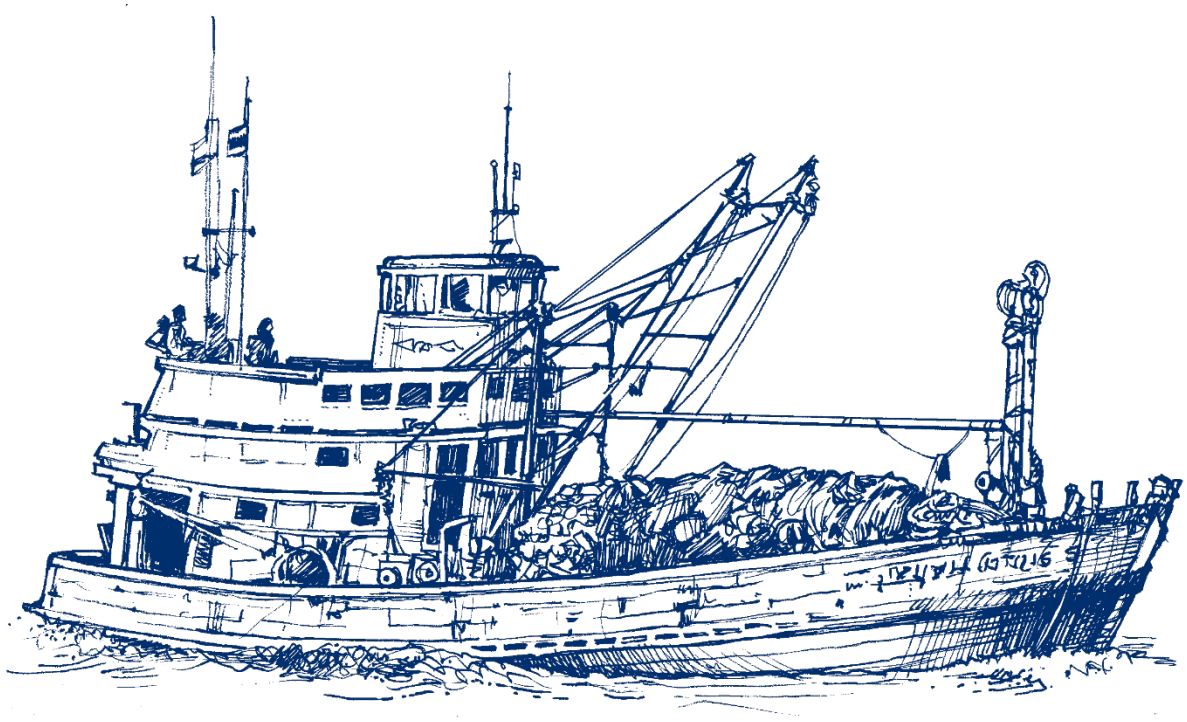
LIST OF TABLES AND FIGURES

LIST OF ANNEXES

The References and Annexes, referenced throughout the guide, that provide additional information and tools can be accessed and downloaded at www.seafdec-oceanspartnership/resource/rafms-technicalannexes.

ACRONYMS AND ABBREVIATIONS

ACDS	ASEAN Catch Documentation Scheme
AFS	Asian Fisheries Society
ASEAN	Association of Southeast Asian Nations
BAC	Bureau Administrative Circular
BFAR	Bureau of Fisheries and Aquatic Resources
CCRF	Code of Conduct for Responsible Fisheries
CDT	Catch Documentation and Traceability
CDTS	Catch Documentation and Traceability System
CTE	Critical Tracking Event
CTI-CFF	Coral Triangle Initiative on Coral Reefs Fisheries and Food Security
DOF	Department of Fisheries
EAF	Ecosystem Approach to Fisheries
EAFM	Ecosystem Approach to Fisheries Management
eCDT	Electronic Catch Documentation and Traceability
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
FMA	Fisheries Management Area
FMU	Fisheries Management Unit
FMS	Fisheries Management System
GAF	Gender in Aquaculture and Fisheries
GRVCA	Gender-Responsive Value Chain Analysis
ICLARM	International Center for Living Aquatic Resource Management (now WorldFish)
IMO	International Maritime Organization
IUU	Illegal, Unreported and Unregulated
KDE	Key Data Element
KII	Key Informant Interview
M&E	Monitoring and Evaluation
MCS	Monitoring, Control and Surveillance
MMAF	Ministry of Marine Affairs and Fisheries
MT	Metric Ton
NGO	Non-Government Organization
NOAA	U.S. National Oceanic and Atmospheric Administration
PGRM	Participatory Gender Resource Mapping
PRA	Participatory Rural Appraisal
RA	Risk Assessment
RAFMS	Rapid Appraisal of Fisheries Management Systems
RDMA	[USAID] Regional Development Mission for Asia
RFID/QR	Radio Frequency Identification/Quick Response
RRA	Rapid Rural Appraisal
RRSA	Rapid Rural Systems Appraisal
S-C-P	Structure-Conduct-Performance
SDG	Sustainable Development Goals
SEAFDEC	Southeast Asian Fisheries Development Center
SFMP	Sustainable Fisheries Management Plan
SOCCSKSARGEN	South Cotabato, Sultan Kudarat, Sarangani and General Santos City
SSI	Semi-Structured Interview
UN	United Nations
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
USAID Oceans	USAID Oceans and Fisheries Partnership
USD	US Dollar
VC	Value Chain
VCA	Value Chain Analysis
VMS	Vessel Monitoring System
WWF-WAMPO	World Wide Fund for Nature-West Africa Marine Program Office



ACKNOWLEDGEMENTS

The crafting of this guide, *Assessing Fisheries in a New Era: Extended Guidance for Rapid Appraisals of Fisheries Management Systems,* has been a truly participatory process among various experts and institutions who have joined together to conceptualize, co-author, and peer review this guide. The USAID Oceans and Fisheries Partnership (USAID Oceans) thanks each of its regional partners and international experts who have co-authored and provided feedback to this guide. Contributors to this guide include technical authors, Michael D. Pido (Dean, Graduate School, Palawan State University), Melvin Carlos (Deputy Executive Director, Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development), Sarah Esguerra (Research Assistant, WorldFish), Robert Pomeroy (Professor, University of Connecticut), Alice Prieto-Carolino (Gender Specialist, the National Network on Women in Fisheries in the Philippines (WinFish)), Paul Ramirez (Research Fellow, WorldFish), Marieta B. Sumagaysay (Gender Specialist, WinFish), Reiny A. Tumbol (Research, Sam Ratulangi University), and USAID Oceans team members Rebeca Andong, Elviro Cinco, Melinda Donnelly, Len Garces, Gina Green, Farid Maruf, John Parks, Purwanto, Arlene Satapornvanit.

USAID Oceans thanks international expert reviewers, Mr. Renato F. Agbayani, a socio-economic Freelance Consultant based in Quezon City, Philippines and Former Division Chief at SEAFDEC Iloilo, Philippines; Professor Neil Andrew of the Australian National Centre for Ocean Resources and Security (ANCORS) at the University of Wollongong and former Program Director, Natural Resources Management of WorldFish; Dr. Michael Fabinyi, Senior Lecturer at the School of Communication, Faculty of Arts and Social Sciences, University of Technology Sydney, Australia; Dr. Richard B. Pollnac, Research Professor, Department of Marine Affairs, Coastal Institute of the University of Rhode Island; Mr. Philip Townsley, Social Development Consultant (also a PRA/RRA expert) based in Viterbo, Italy; and Dr. Meryl J. Williams, Chair, Gender in Aquaculture and Fisheries Section of Asian Fisheries Society and former Director General of WorldFish.

Finally, USAID Oceans thanks its subcontracted researchers whose methodologies and findings helped to inform this guide, including WinFish and the Faculty of Fisheries and Marine Sciences, Sam Ratulangi University.

Illustrations by Donald Bason

FOREWORD

During the past two decades, several international instruments have been developed to guide governments in the sustainable development of fisheries and to ensure responsible practices that enhance the contribution of fisheries to food security, livelihood, and economic development. One of such instruments is the FAO Code of Conduct for Responsible Fisheries (CCRF) which was adopted in 1995. Guided by relevant provisions in the CCRF, the International Center for Living Aquatic Resources Management, presently known as WorldFish, developed the first version of the Handbook on Rapid Appraisal of Fisheries Management Systems (RAFMS) in 1996. The handbook has served as practical field guide for gathering the necessary information on current fisheries management systems adopted by the governments. Thus, for two decades, the RAFMS Handbook has provided significant basis for the formulation and implementation of activities that support not only the implementation of the CCRF, but also the recent works undertaken through the USAID Oceans and Fisheries Partnership (USAID Oceans) to strengthen regional cooperation to combat illegal, unreported, and unregulated (IUU) fishing, promote sustainable fisheries, and conserve marine biodiversity in the Asia-Pacific region.

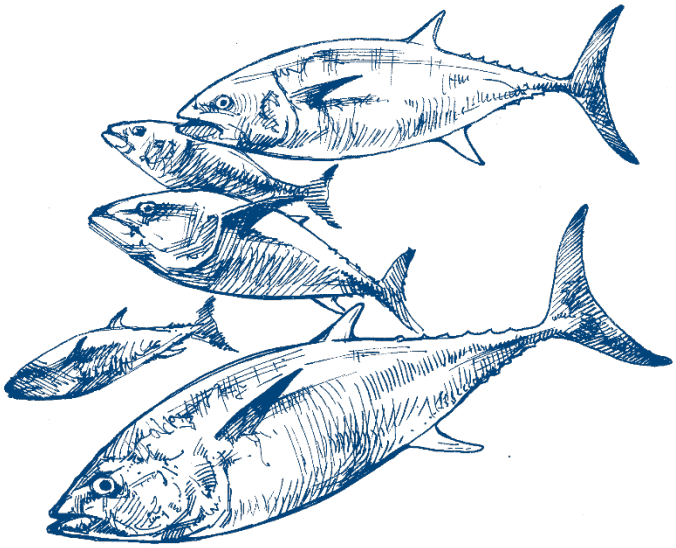
Recognizing that many project practitioners, researchers, and technical specialists involved in the sustainable management of fisheries are operating in a fisheries landscape that has evolved since the release of the initial 1996 Handbook, USAID Oceans has developed additional technical guidance for conducting Rapid Appraisals of Fisheries Management Systems, particularly to integrate relevant new concepts such as electronic catch documentation and traceability (eCDT) and the human aspects and needs of fisheries management. This guide makes extensive use of the concepts presented in the first version of the RAFMS Handbook, supplementing with new methodologies used under the USAID Oceans program. The guide seeks to provide updated guidance on how fisheries management systems could be appraised in a holistic and socially-relevant methodology that integrates the emerging concepts and requirements.

The Southeast Asian Fisheries Development Center (SEAFDEC) is a joint partner of USAID Oceans whose regional work and approaches align with those undertaken under the USAID Oceans program. SEAFDEC works to develop and promote the ASEAN Catch Documentation Scheme (ACDS), strengthen capacity for implementing the Ecosystem Approach to Fisheries Management (EAFM), and integrate gender considerations in fisheries and aquaculture. As a regional partner of USAID Oceans, SEAFDEC takes this opportunity to congratulate USAID Oceans on the development of this updated RAFMS guidance to accommodate new fisheries management challenges and approaches. We are confident this guidance will contribute to the successful development and implementation of future initiatives towards sustainable fisheries management systems not only in the Southeast Asian region but also beyond.

KS.15

Dr. Kom Silapajarn

Secretary General of SEAFDEC



ABOUT THIS GUIDE

Since its launch in 2015, the USAID Oceans and Fisheries Partnership (USAID Oceans) has been working across Southeast Asia to strengthen regional cooperation to combat illegal, unreported, and unregulated (IUU) fishing and conserve marine biodiversity. USAID Oceans seeks to improve integrated and sustainable fisheries management, focusing on priority species that are under threat and are vital for food security and economic growth. In its work, USAID Oceans has applied well-established fisheries management approaches and frameworks, as well as has developed new methodologies that have been tested across Southeast Asia in response to the quickly-changing nature of regional—and global—fisheries.

In 1996, the International Center for Living Aquatic Resource Management, now WorldFish, published the *Handbook on Rapid Appraisal of Fisheries Management Systems Version 1,* commonly referred to as the "RAFMS Handbook." This handbook provided a semi-structured research approach to quickly assess, document, and evaluate existing fisheries management systems within a given coastal community. The RAFMS Handbook was unique because of its ease-of-use, focus on fisheries management systems, and its consideration of their socio-economic, biophysical, and institutional contexts. Although it is now out of print, the RAFMS Handbook has been used around the world by numerous development agencies, non-government organizations, local government units, and field practitioners over the last 20 years.

As the state of the world's fisheries, and the approaches used to manage them, have changed greatly over the past two decades, it has been found that although the RAFMS tools and techniques have remained valid, the guide does not address modern issues of tropical fisheries management. As such, USAID Oceans has developed this guide, *Assessing Fisheries in a New Era: Extended Guidance for Rapid Appraisals of Fisheries Management Systems,* to provide additional guidance on how fisheries management systems can be appraised through more holistic, modern methodologies. This guide was developed over the course of 2017 and 2018 through a participatory process among various researchers and practitioners from social and natural sciences to harness the most knowledge and experience of some of the world's most experienced practitioners. USAID Oceans hopes that this guide will provide its partners across Southeast Asia, and beyond, with the knowledge and capacity to undertake advanced fisheries management approaches beyond the program's close in May 2020.

This guide contains four core sections:

- **Chapter One** introduces the guide and further explains the rationale for its creation. It is followed by the core, functional chapters that provide updated guidance for conducting Rapid Appraisals for Fisheries Management (RAFMS) that acknowledge three modern thematic areas of fisheries management.
- **Chapter Two: Ecosystem Approach to Fisheries Management (EAFM)** provides guidance on how to assess the status of an EAFM program or services in any Fisheries Management Area. It reviews the original guidance provided in 1996, as well as provides additional guidance, tools, and methodologies that can be used in the RAFMS process.
- **Chapter Three: Catch Documentation and Traceability (CDT)** provides guidance on collecting information to assess CDT needs, challenges, and opportunities to inform the development of electronic CDT systems that can support and strengthen fisheries management.
- **Chapter Four: Gender Integration in the Rapid Appraisal of Fisheries Management Systems** provides guidance on how to ensure the human aspects of fisheries are integrated in fisheries management plans and other development strategies.

All of the guide's annexes that include additional information and tools can be accessed and downloaded at www.seafdec-oceanspartnership.org/resource/rafms-technicalannexes.

CHAPTER 1: INTRODUCTION

By M. Pido, R. Pomeroy, L. Garces, J. Parks, A. Satapornvanit, and M. Carlos

Overview

Southeast Asia is home to some of the world's richest fisheries and accounts for more than half of the world's marine capture fisheries production. However, illegal, unreported, and unregulated (IUU) fishing greatly threatens the region's marine resources and livelihoods. In 2000-2003, annual losses attributed to IUU fishing in the Asia-Pacific region were estimated at 3.4-8.1 million tons of fish, valued at between US$3.1 billion and US$7.3 billion per year. This is equivalent to roughly seven to sixteen percent of the reported 48 million tons of catch from the Pacific Ocean in recent years. This devastation poses a grave threat to the food security and well-being of the region's more than 630 million people, as well as the global community, and requires coordinated fisheries management efforts that prioritize good governance, human well-being, and ecological resilience.

USAID Oceans was launched in 2015 to combat IUU fishing and conserve Southeast Asia's invaluable and unparalleled marine biodiversity. The program's approach couples strengthened seafood traceability through electronic catch documentation and traceability (eCDT), advanced fisheries management planning through an Ecosystem Approach to Fisheries Management, and improved human welfare and gender equity efforts for a holistic approach to fisheries development. Drawing from its experiences in the region since 2015, USAID Oceans has developed this guide to provide updated guidance and share its experiences on how fisheries management systems can be appraised using holistic, modern methodologies.

Contents:

Part I – Managing Fisheries as an Ecosystem

Overtime, fisheries management has evolved from a species-based approach to an ecosystem-based approach, with varying rates of adoption across countries and regions. For instance, in the Philippines and most Southeast Asian countries, the transition from species-based to ecosystems management has been a slow transformation during the last four to five decades as the political landscape has become more decentralized and participatory.

As such, fisheries management systems have evolved from a technically species-based approach to a holistic ecosystems approach that integrates the socio-economic traits of the community, the bio-physical characteristics of the fishery resources, and the institutional arrangements that define the rules and rights of the players in managing fishery resources. Conventional fisheries management not only often fails to stem declines in many fisheries, but also often fails to protect the people, communities, and societies that depend upon healthy and productive fisheries ecosystems for food, jobs, economic development, and coastal protection.

In 1995, the Food and Agriculture Organization (FAO) adopted the Code of Conduct for Responsible Fisheries (CCRF) to foster the application of new approaches to fisheries management that embraced conservation, environmental, and social and economic considerations (FAO 1995). The CCRF established principles and standards for the conservation, management, and development of all fisheries. Associated technical guidelines were also developed for a precautionary approach to fisheries, fishing operations, and integration of fisheries into coastal area management, with indicators later developed for the sustainable development of marine capture fisheries. The CCRF was later regionalized in Asia through regional capture fisheries guidelines. In 2011, the Resolution and Plan of Action on Sustainable Fisheries for Food Security for the Association of Southeast Asian Nations (ASEAN) Region Towards 2020 was adopted by the Senior Officials of the ASEAN-Southeast Asian Fisheries Development Center (SEAFDEC) Member Countries to guide the programs, projects, and activities of the Resolution in the Southeast Asian Region. From initiatives like the CCRF and Resolution and Plan of Action, the Ecosystem Approach to Fisheries Management was born.

The EAFM is considered by many organizations, including the Coral Triangle Initiative on Coral Reefs Fisheries and Food Security (CTI-CFF), to be the best practice for ensuring the long-term sustainability of fisheries and the ecosystem services provided to society (e.g., food security, livelihoods, economic security, coastal protection, human health and well-being). The EAFM approach—also referred to as the "Ecosystem Approach to Fisheries or (EAF) (FAO 2003)"—was advocated for by fisheries experts to improve fisheries management and balance diverse societal objectives. EAFM considers the ecological and human components of ecosystems and their interactions under an integrated approach to fisheries that is applied within ecologically meaningful boundaries. EAFM strives to balance diverse societal objectives in consideration of the knowledge and uncertainties of biotic, abiotic, and human components of ecosystems and their interactions (FAO 2003). As a systems approach, it binds integrated coastal management and ecosystem-level perspectives grounded on the principles of collaborative and adaptive approaches.

The EAFM is organized around three primary components:

(1) Ecological well-being - concerns that are bio-physical in focus such as destruction of fishery habitats and marine pollution
(2) Human well-being - socio-economic concerns that include livelihoods, fish processing facilities and population pressure
(3) Good governance - institutional concerns about the fisheries sector that cover law and policy, resource management, and enforcement and compliance

"Well-being is a state of being with others, which arises where human needs are met, where one can act meaningfully to pursue one's goals, and where one can enjoy a satisfactory quality of life." (McGregor, 2008)

An EAFM looks beyond seeing a fishery as simply "fish in the sea and people in boats," and covers the broader marine system including habitat components such as coral reefs and mangroves, the natural environment, and human activities from fishers, fishing communities, coastal development, and tourism. An EAFM focuses on development of fisheries and their provisioning of food and livelihoods for humans as a sectoral component of the more holistic and ecosystem-based management, which includes management of all other non-fisheries sectors.

An EAFM can be implemented across different spatial and governance scales and can be customized to accommodate multiple priority issues and objectives. At the heart of the EAFM process is an integrated Sustainable Fisheries Management Plan (SFMP) which is developed, implemented, monitored, and reviewed in a multi-year cyclical process. Through the SFMP, implementing partners put forth a plan that is adaptive, precautionary, tuned to resilience concepts, and centered on goals that are relevant to the scale and scope of EAFM. Methodologically, EAFM characterizes in an integrated manner a fishery's condition, identifies associated threats and issues, prioritizes fisheries management objectives, and presents a plan to address these threats. The following five steps (see Figure 1) make up the EAFM planning process: define and scope the fisheries management unit; identify and prioritize issues and goals; develop the EAFM plan; implement the EAFM plan; and monitor, evaluate and adapt.

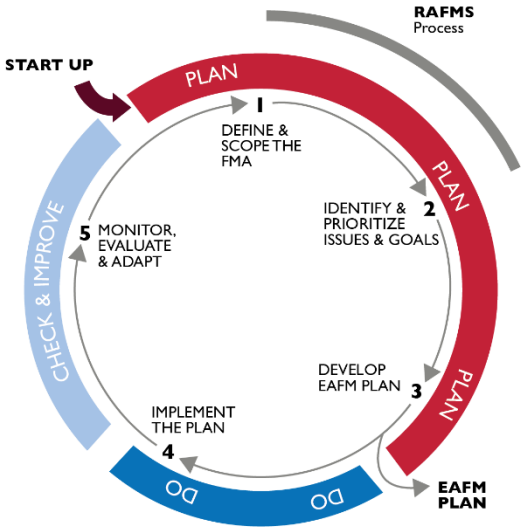


Figure 1. The EAFM Planning Process

The Evolution of Rapid and Participatory Methodologies in Coastal Fisheries

Researchers are continuously in search of cost-effective methods to collect data and information in the shortest possible timeframe with the maximum participation of all relevant stakeholders. These applied and participatory techniques have become popularly known as rapid rural appraisals (RRAs) and participatory rural appraisals (PRAs). RRA was formally introduced during a workshop of rural development practitioners at the University of Sussex, U.K. in 1978. McCracken et al. (1998) describe RRA as a "semi-structured activity carried out in the field by a multi-disciplinary team and designed to acquire new information, and new hypothesis, about rural life. Chambers (1980) notes that RRA has emerged to fill in rural development's need for information that is timely, accurate, and usable. Meanwhile, Mascarenhas et al. (1991) were among those who pioneered the use of the term PRA. Chambers (1992, 1994 a, b) provides some applications as well as challenges in using PRAs. Another term used is rapid rural systems appraisal (RRSA) (Sajise et al. 1990).

Since the 1980s, RRAs/PRAs have been most commonly applied in terrestrial environments. In such terrestrial settings (primarily used by the agriculture and forestry sectors), RRA and PRA encompass a wide range of approaches and shares strong conceptual and methodological similarities with the following research methods: Sondeo (Hildebrand 1981), informal agricultural survey (Rhoades 1982), informal methods and reconnaissance survey (Shanner et al. 1982), exploratory survey (Collinson 1981) and agroecosystem analysis (Conway 1985, 1987). Several training and/or methodological guides likewise came out (Sajise et al. 1990; Townsley 1993a). Both RRA and PRA approaches evolved from and partly alongside the farming systems research movement and integrated rural development.

Building off of the early development of the RRA/PRA in terrestrial settings during the 1980s, there were advances and initiatives to apply RRAs/PRAs within fisheries and aquatic environments during the late 1980s and 1990s. Howes (1987) assembled techniques for the rapid appraisal of coastal wetlands. Fox (1986) came up with a rapid appraisal guide for Philippine coastal fisheries. Townsley (1993a) developed rapid appraisal methods with application in the coastal communities in India as part of the Bay of Bengal Program. Meanwhile, Lamug (1996) crafted a PRA guide for community-based management of coastal resources in the Philippines. In the same year, FAO released its manual for monitoring and evaluation of fishing communities (Maine et al. 1996). Walters et al. (1998) came up with a PRA handbook for coastal resource assessment. Some

methodological guides are specific for aquaculture such as the FAO published PRA/RRA guide for aquaculture (Townsley 1996).

In 1996, the International Center for Living Aquatic Resource Management published the 'Handbook on Rapid Appraisal of Fisheries Management Systems (RAFMS) (Pido et al. 1996). This handbook provided a semi-structured research approach to quickly assess, document, and evaluate existing fisheries management systems within a given coastal community. The RAFMS Handbook was unique for its ease-of-use, its focus on fisheries management systems, and its consideration of their socio-economic, biophysical, and institutional contexts. Despite its release which is now over two decades ago, the RAFMS Handbook has been used around the world by numerous development agencies, non-government organizations, local government units, and field practitioners. The wide-spread uptake of the Handbook reflects the need for rapid/participatory appraisal methodologies to quickly assess the existing fisheries situation as well as collect relevant ecological, human and governance information.

Additional guidance and applications of RAFMS have emerged in the years following the RAFMS Handbook's release in 1996:

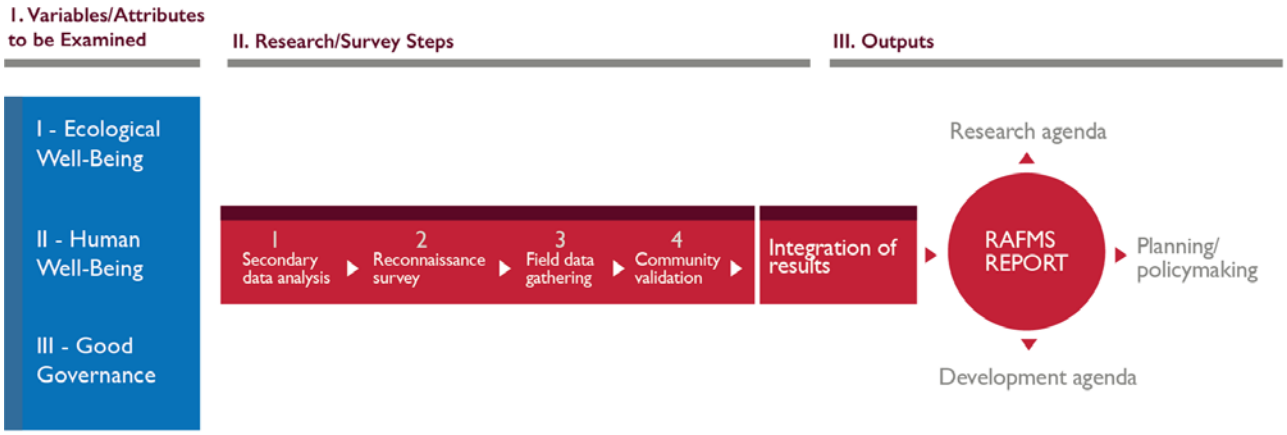
- Rapfish (FAO) - A rapid appraisal technique to evaluate the sustainability status of fisheries (Pitcher 1999, Alder et al 2000; Pitcher and Preikshot 2001; Pitcher et al. 2013; Eriksson et al. 2016);
- Coastal Participatory Rapid Appraisals for cockle harvesting activity in Kartong, Gambia (WWF-WAMPO 2012), in coral reef fisheries (Kittinger 2013), in the coastal ecosystem of Mt. Malindang, Misamis Occidental, Philippines (Metillo 2004).
- Rapid appraisal in nine landing sites in the Nzema East and Ahanta West districts, Ghana, to ascertain the spawning areas in the fishing grounds (Friends of the Nation 2010).

Significant improvements in fisheries' prospects will require major changes in societal priorities and values, with consequent improvements in policy and governance (Andrew et al. 2007). Changes in development policy and science reflect these imperatives but there is still a need for intra-sectoral management that builds resilience and reduces vulnerability to those forces beyond the purview of small-scale fishers.

Overview of the Rapid Appraisals for Fisheries Management Systems Methodology

Under the EAFM approach, Rapid Appraisals for Fisheries Management Systems (RAFMS) are used to identify the characteristics of fisheries management systems and describe how they will affect, either positively or negatively, resource use patterns through time. RAFMS establish the tentative relationships among contextual variables and their attributes (see Figure 2). Although its focus is on fisheries management systems, RAFMS also considers the socio-economic, biophysical, and institutional context of the target fisheries management area (FMA). Their evaluation is nested within broader coastal resources management and/or integrated coastal management. The RAFMS process is not necessarily a stand-alone methodology and may be used in complementation with the other guides, for example the FAO Voluntary Guidelines for Sustainable Small-Scale Fisheries.

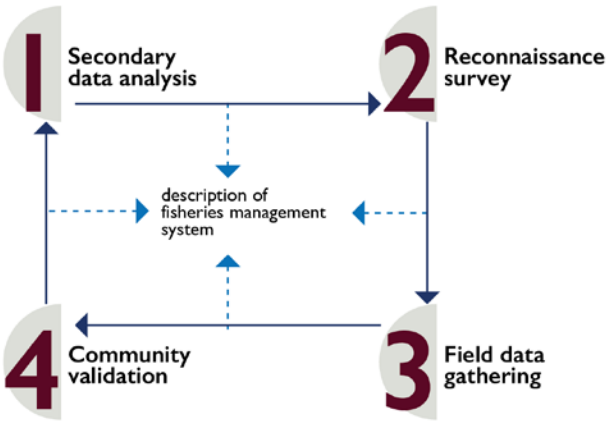
Figure 2. Data Acquisition and Verification Scheme for RAFMS



Source: Pido et al. 1996

The RAFMS Handbook introduced a four step-process called quadrangulation (see Figure 3), wherein secondary data analysis, reconnaissance surveys, field data gathering, and community validation all combine to produce a detailed description of the fisheries management system. Typical of many RRA processes, the 'truth' is approached by the RAFMS through the rapid build-up of diverse information rather than statistical replication (McCracken et al. 1988). For instance, the listed fishing gears during secondary data analysis (Step 1), could be visually checked through reconnaissance survey (Step 2), estimated through interviews during field data gathering (Step 3), and reconfirmed or ascertained during community validation (Step 4).

Figure 3. Overview of the RAFMS Process



Source: Pido et al. 1996

While the original RAFMS guidance and methodologies are still valid and widely applied, changes in regional and worldwide fisheries, their environments, and their actors have emerged and prompted new management concepts. In 2007, for example, WorldFish introduced a conceptual scheme for participatory diagnosis and management of small-scale fisheries (Andrew et al. 2007) which encompasses a fishery's external environment (ecological, social and economic processes arising outside the domain of the fishery); a diagnosis of threats and opportunities; a management phase comprising the management constituency (the conditions and relationships for action) and the management process; and the outcomes that flow from the system.[1] The emergence of additional guidelines and applications illustrates the recognition of the need for rapid/participatory appraisal methodologies to quickly assess the existing fisheries situation as well as collect the relevant ecological, human, and governance information. The following section details additional examples of changes in fisheries and their management that have prompted movements towards updated technical guidance for RAFMS. Further, detailed information on the RAFMS methodology can be found in Chapter Two.

[1] Examples on the application of this participatory diagnosis approach, as proposed was to identify, prioritize and mobilize around factors that constrain effective governance and management in tropical small-scale fisheries are presented in Erikkson et al. (2016).

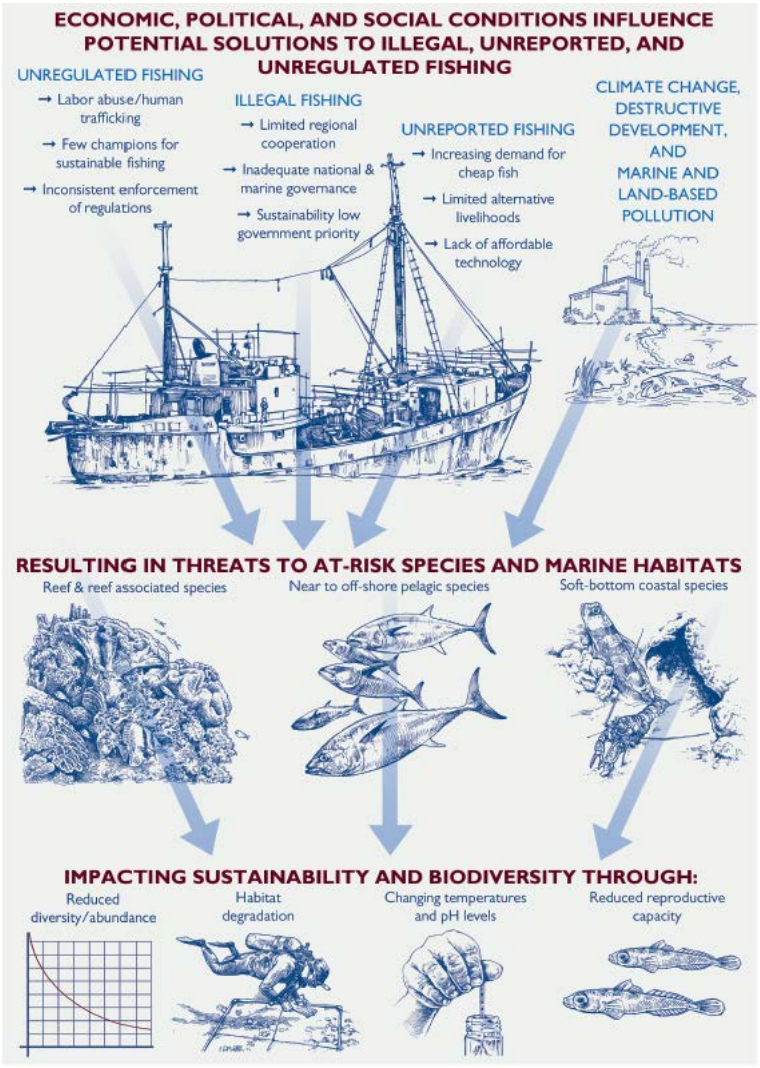
Part II – Overview of Changes in Tropical Fisheries Management

Threats to Tropical Marine Fisheries

The seafood industry is highly globalized, possessing the largest global supply chain of any animal protein sector (Holland 2015). The global importance of marine fisheries cannot be understated, and without its resources the lives of many would be put at stake that rely on the sector for food and livelihoods. Although fishing accounts for only about one percent of the global economy, marine fisheries contribute more to the world's supply of protein than beef, poultry, or any other animal source (Safina 1995). Hence, fishery products play a crucial role in global food security. The United States alone imports about 90% of its seafood, nearly half of which are sourced from Southeast Asia (NOAA).

Fisheries management in Southeast Asia is complex, with many new challenges. Some 30 years ago, overfishing and dramatic declines in coastal fish stocks in the region were documented (Silvestre and Pauly 1997; Pauly et al. 1998, 2000) and continue to evolve and impact the region. Fish stocks and marine habitats are in danger as a result of unsustainable fishing practices, which threaten biodiversity, food security, and livelihoods (see Figure 4). Overfishing combined with IUU fishing, destructive fishing, and seafood fraud are causing fisheries to collapse. Therefore, fisheries management needs to be improved to sustain the continuing supply of these fishery resources and protect marine biodiversity.

Figure 4. Current Threats Facing Southeast Asia's Fisheries



New and evolving problems and issues associated with the coastal and marine environment, such as the impacts of climate change, ocean acidification, and the need for disaster risk reduction, now must be taken into consideration by fisheries managers. Effective fisheries management requires multiple resource extraction and conservation objectives to be balanced and achieved simultaneously. In the short term, some of these objectives may conflict with each other. For example, a national agency may need to control fishing effort at a specific level (a biological objective) that is in opposition to commercial fishing interests that want to maximize their harvest income (an economic objective). Changing ecological, socioeconomic, and governance conditions over the past two decades have encouraged a collaborative, ecosystem approach to fisheries management.

Source: USAID Oceans

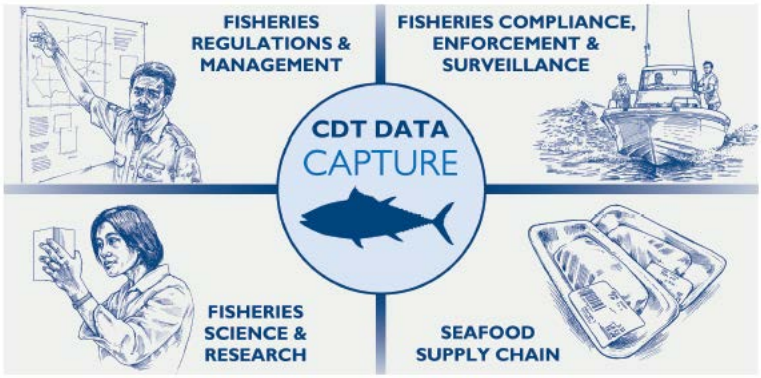
Increased Data Needs and the Emergence of New Technologies

Today, EAFM is a widely accepted approach to fisheries management that requires the acknowledgement of interactions among the core elements of the fishery (the fish and the fishers); habitats (coral reefs, sea grass, mangroves), ecological, oceanographic, and environmental conditions that interact with the fisheries; and the social, economic, and governance systems surrounding and affecting them. Since 1995, EAFM has evolved considerably to acknowledge additional, specific core elements, for example small-scale fisheries (FAO 2003, 2005, 2007 and 2014; Garcia et al. 2008).

This widespread adoption of EAFM has required new traditional fisheries information and knowledge, including science-based information and local knowledge acquired through pertinent and high-quality data from sophisticated and current methodologies. Required data may cover the status of fish stocks, economics of fisheries trade, livelihoods of fishing communities, and aspirations of stakeholder groups, to name just a few. Unfortunately, some tropical developing countries lack the necessary technical expertise and/or financial resources to undertake the necessary stock assessments and detailed socio-economic surveys using the conventional scientific methods. In such cases, fisheries managers may have to rely on applied research methodologies that maximize the involvement or participation of fishers and other relevant stakeholder groups. Applied or practical research methodologies are needed for this purpose as more formal research methods are costly and may require highly specialized technical skills.

Given the gaps in available science-based information and high-quality data, new electronic catch documentation and traceability (eCDT) technologies have been developed that can be leveraged to collect and provide additional data for fisheries management (see Figure 5). eCDT can be used as a valuable EAFM intervention to address issues of IUU and the sustainability of seafood sources.

Figure 5. Applications of Catch Documentation and Traceability



Source: USAID Oceans

To be effective, an eCDT system must be coupled with an EAFM plan that provides direction for achieving multiple short-term and long-term fisheries management objectives. Therefore, relevant elements of the eCDT system need to be integrated into the EAFM plans. For example, Key Data Elements (KDEs) recorded by the eCDT system need to be linked with relevant EAFM indicators and variables, harmonized along each link in the supply chain—from point of catch to the end customer. At the point of catch, for example, common elements may include species composition, catch per unit of effort and other catch trends, fishing grounds, fishing methods, and species harvested. At the stage of buyers and receivers/suppliers, common information between EAFM plans and the eCDT system may include buyer concentration, seller concentration, market channels, name of buyer/receiver company and buyer/receiver business registration number. In the case of governance/institutional arrangements, both the EAFM plans and eCDT system should consider the fisheries management regime, regulatory mechanisms, and government catch certificates, such as the Philippines' Bureau Administrative Circular (BAC) 251, and related anti-IUU management measures.

Increased Attention to the Human Aspects of Fisheries

In tropical fisheries management, the gender aspects of fisheries have historically been among the least explored dimensions. Due to the perceived dominance of men in the fisheries workforce, there has been a tendency to be non-specific on the sector's gender aspects. Consequently, women's roles and contributions in fisheries have commonly been undervalued and less recognized. This has implications on strategic policy development, research agenda, and management interventions that should be responsive to the specific needs of the women and men in the fisheries industry and coastal communities. Growing awareness of concepts such as "gender and development," gender equity, and women's empowerment, however, has shifted the discourse on fisheries as studies and anecdotal references have begun to highlight the number and proportion of women who are also involved in fisheries activities, working alongside men.

As part of the growing recognition of women's significant roles and contributions to fishing households, fishing enterprises, governance, and the larger community, there has also been recognition of women's roles in fisheries management, directly and indirectly, which historically has been limited due to lack of opportunities for involvement and capacity. Currently, there are additional opportunities to involve women in fisheries management activities, especially in low-income fishing communities where women are constrained by limited access to education, capacity-building activities, economic opportunities, mobility, and cultural beliefs and expectations. Although historically women's primary responsibility has been reproductive tasks and the home, women are also still expected to do productive or economic tasks to augment men's earnings to ensure there is food on the table, the children can go to school, sanitation is maintained, and medical care can be availed of. Thus, it is imperative to consciously work for the recognition and acknowledgement of women's contributions within and outside the home, without neglecting similar needs for men. Accordingly, a 'gender lens' should be applied in all EAFM interventions to better serve all individuals in the fisheries value chain. USAID Oceans strongly encourages partners to utilize rapid appraisal methodologies with a gender lens to ensure inclusivity of all actors affected by and involved in fisheries management.

Part III – Development of this Guide

USAID Oceans was launched in 2015 to combat IUU fishing and seafood fraud, promote sustainable fisheries, and conserve marine biodiversity. To achieve these objectives, USAID Oceans has utilized four strategic approaches—fisheries management, catch documentation and traceability, public-private partnerships, and human welfare and gender equity. Through its experiences in supporting ASEAN member countries, the program has worked to incorporate each of these aspects in its fisheries management initiatives and, in turn, to equip its partners to undertake holistic fisheries management. These experiences have provided USAID Oceans with unique knowledge and expertise in inclusive fisheries management, which it has drawn upon to develop and provide real-world examples for this guide.

Objectives

As part of its work to strengthen regional fisheries management using an Ecosystem Approach to Fisheries Management, USAID Oceans has developed this guidance to complement the 1996-published RAFMS methodology for the rapid appraisal of fishery systems. USAID Oceans has worked, in collaboration with a host of its regional and international partners, to develop supplemental guidance on rapid appraisal methods that reflect current fisheries management trends in Southeast Asia, acknowledge new technologies, and integrate gender considerations that can strengthen sustainable fisheries management plans. These rapid appraisals can be used as supplementary or practical diagnostic tools to support fisheries management planning, identify and address management gaps, and guide the design and development of fisheries management efforts. This guide seeks to broaden the spectrum of fisheries management considerations used in RAFMS processes

and further capacitate fisheries management practitioners to conduct enhanced appraisals that will ultimately strengthen regional cooperation, combat IUU fishing, and conserve marine biodiversity.

Development Process

USAID Oceans and its partners worked collaboratively to develop this technical guidance over the course of 2017 and 2018, with development beginning in December 2017. To launch the project, a "writeshop" was held in the Philippines to convene contributing authors and USAID Oceans' supporting staff. Participants conducted an initial assessment of the past application of the RAFMS Handbook based on reported experiences of its users and literature citations; developed and streamlined new and existing indicators/variables (under the bio-physical, socio-economic and governance dimensions) for each area of updated technical guidance; and selected rapid appraisal outputs and case studies from USAID Oceans' learning sites that would serve as real-world examples to support the guidance (Annex I).

Out of the writeshop, the contributing authors, including original RAFMS Handbook authors, developed draft guidance intended to guide EAFM fisheries management planning as a technical supplement to the RAFMS Handbook technical supplement, similar to the Climate Change Guide, as well as provide guidance for conducting effective CDT gap assessments, inclusive CDT system design/development and road mapping, and strategic planning that acknowledges the human and gender aspects of fisheries. The drafts, further revised by contributing authors in early 2018, were then peer reviewed by six internationally-renowned volunteer technical experts. A full list of contributors can be found in the guide's Acknowledgements section.

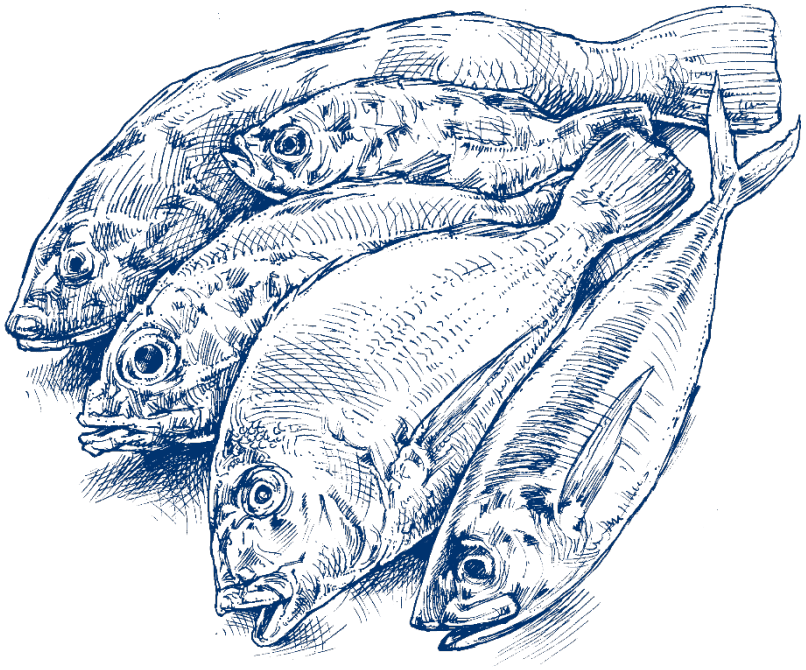
Vision for Use

USAID Oceans, a panel of expert various practitioners, and institutions involved in tropical fisheries management have developed this guide as a capacity building tool to equip and capacitate its regional partners coming from the academe, civil society organizations, development agencies, local government units, national government agencies, and research institutions. USAID Oceans hopes that this guide will benefit and support regional institutions, such as its partner SEAFDEC, in their work with their respective member countries. USAID Oceans has worked to capture essential knowledge in this guide to equip its partners across Southeast Asia, and beyond, with the necessary skills and tools to undertake advanced fisheries management approaches beyond the life of the USAID Oceans program.

This guide has been designed for use by seasoned researchers and disciplinary experts. Practitioners are encouraged to develop teams of at least two members: one from social science and one from natural science. The social science expert may be an anthropologist, economist, or sociologist. The natural science specialist could be a fisheries scientist, habitat expert, marine biologist, or may specialize in other areas such as natural resources management, policy analysis, or public administration. The exact disciplinary divide is not critical, but the ability of the team to work in a team environment, manage, and understand the required indicators or variables is imperative. New or novice researchers may be involved in a support capacity. For the human and governance research pillars, the main research tool is interview. Hence, field workers must be well versed in conducting both individual interviews (key informant interviews or KIIs) and group interviews (focus group discussions or FGDs). Ecological research may require knowledge about the taxonomy of various fish species and familiarity with habitat assessment skills such as manta tow surveys for assessing coral reef cover.

It is paramount for the research team to understand that the RAFMS, just like the conventional rapid appraisal, is both an extractive and a participatory tool. Extracting the relevant data/information from an array of stakeholders must be done in the most participatory manner possible. As a rule of thumb, field researchers must be adaptive and need to adjust to the schedule of the respondents or stakeholders. Moreover, the RAFMS is designed to produce results of sensible 'approximation' rather than statistical 'precision.' The latter is more appropriate for conventional and statistically-valid samples. Cornwall and Pratt (2011) and Campbell (2001) provide some critiques about several pitfalls and abuses of PRAs and RRAs that may also be applicable

to the RAFMS. In some of the case studies, the researchers documented the 'unwillingness of key informants or community members to participate' that could also inform a much larger discussion surrounding ethics and ethical research in the RAFMS. Practitioners should take care to practice ethical research principles, such as gathering free and prior informed consent, maintaining data confidentiality, providing sufficient background information to research participants, and managing expectations of benefits.



This chapter may be cited as:

Pido, M., R. Pomeroy, L. Garces, J. Parks, A. Satapornvanit, and M. Carlos. 2019. Introduction, p. 7-16. In USAID Oceans. 2019. Assessing Fisheries in a New Era: Extended Guidance for Rapid Appraisal of Fisheries Management Systems. USAID Oceans and Fisheries Partnership (USAID Oceans), Bangkok, Thailand. 47. p. + Technical Annexes 54 p.

CHAPTER 2: FUNDAMENTALS OF THE ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT AND RAPID APPRAISAL METHODOLOGIES

By R. Pomeroy, M. Pido, P. Ramirez, Purwanto, R. Andong, M. Carlos and L. Garces

Overview

The Ecosystem Approach to Fisheries Management (EAFM) is considered the preferred option and best practice for long-term fisheries sustainability and the services its ecosystems provide to society, including food security, livelihoods, economic security, coastal protection, human health and well-being. This chapter provides guidance to assess the status or condition of any Fisheries Management Area (FMA) using the Rapid Appraisal of Fisheries Management Systems (RAFMS).

EAFM strives to balance diverse societal objectives by considering knowledge about living (including people) and non-living components of ecosystems and their interactions, and by applying an integrated approach to fisheries within ecologically, socially, and governance-wise meaningful boundaries (FAO, 2003).

Contents:

Part I – Introduction to EAFM and Rapid Appraisals of Fisheries Management Systems

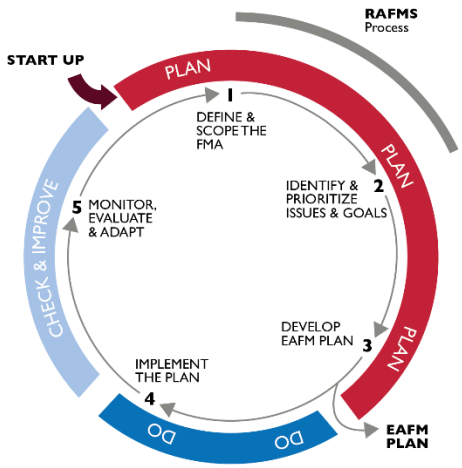
The EAFM is a process—at the heart of which is an integrated fisheries management plan that is developed, implemented, monitored, and reviewed in a multi-year cyclical process. The plan not only explicitly identifies the fisheries problems/issues but also the management strategies and actions; it also identifies roles and responsibilities among the agencies, partners, and stakeholders that will be involved. It includes stakeholder involvement throughout, through which implementing partners put forth an EAFM Plan that is adaptive, precautionary, tuned-in to resilience, and centered on goals that are relevant to the plan's scale and scope.

The EAFM planning process is composed of five sequential but interactive steps (Figure 6). Through this process, information is collected to assess how much EAFM is already being done, what EAFM activities are currently being implemented in the FMA, what gaps exist in current EAFM practices and implementation, and recommendations to address these gaps. Answering these questions can help stakeholders better understand

the EAFM process, since many activities or programs such as fisheries resources management, habitat protection, water quality management, livelihoods, food security, and climate change may already be active in the FMA but are not being implemented in the integrated and coordinated manner prescribed by the EAFM.

The RAFMS is methodological tool that can be used to assess and develop an EAFM plan. Rapid appraisal is a semi-structured activity carried out in the field by a multi-disciplinary team that is designed to acquire new information and a new hypothesis about a particular issue or question (McCracken et. al. 1988). More specifically, the RAFMS is a diagnostic tool used to assess the current status or condition of EAFM in a given FMA and consequently recommend appropriate management actions. The RAFMS process is undertaken in steps one and two of the EAFM process.

Figure 6. The Five Steps of the EAFM Process



Source: Pomeroy et al. 2013; Staples et al. 2014. (Figure 6 for reference only, identical to Figure 1).

RAFMS can be useful as a critical applied research step in documenting the state of the fisheries sector and how it is managed, given that limited funds, time and human resources, often prevent the conduct of more formal studies (such as time-series fisheries stock assessment) or in-depth surveys (census or statistically-valid social survey of coastal communities). It is a semi-structured tool designed to quickly document and evaluate the existing fisheries management systems in a given coastal community. The RAFMS is a participatory tool, requiring the involvement of the local researchers, local communities, and other stakeholder groups.

RAFMS are focused on documenting and evaluating the existing informal (including traditional) fisheries management systems in a coastal community and their relationship with the more formal fisheries management systems being administered by the government bodies. What makes the RAFMS unique is its focus on fisheries management systems taking the broader context of socio-economic, bio-physical and institutional dimensions, as well as its relative ease of use by trained practitioners. As a research tool, the RAFMS is designed to extract, in a relatively short span of time, relevant information from the members of fishing community and other coastal stakeholders to be used by fisheries managers, policy makers and development workers who need to gain a broad understanding of the fisheries management system at the community level in order to make the necessary policy, planning or development interventions.

While RAFMS has been traditionally focused on evaluating the status of fisheries management under the aspects of habitats, fisheries, socio-economic, markets, and institutions, this chapter builds on the original RAFMS framework but streamlines the core aspects of analysis to ecological, human well-being (including gender), and governance (including institutions and policy). This chapter also offers new tools, attributes, indicators and measures, aligned with the three pillars of an EAFM and the seven principles

Areas of Interest under the Three Pillars of an EAFM

Ecological –

- overfishing
- fishing effects on marine habitats and ecosystem resilience
- impacts of coastal pollution on fishery resources
- by-catch species

Human –

- livelihood options
- health and safety of fish workers
- post-harvest and processing facilities
- interactions of fisheries with other coastal economic sectors such as tourism and maritime industries

Governance –

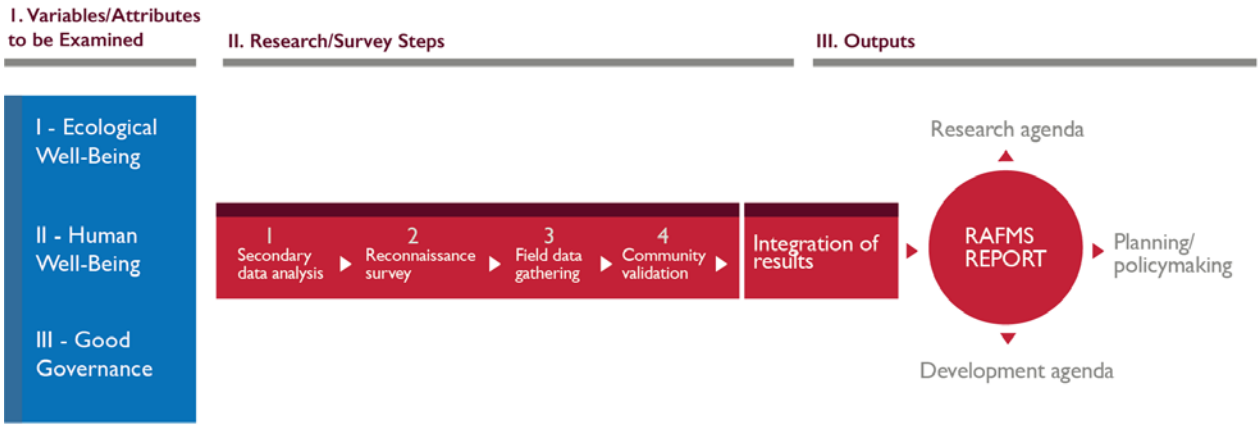
- institutional arrangements
- fisheries management bodies
- fisheries rules and regulations
- enforcement concerns and external drivers

of EAFM (good governance, appropriate scale, increased participation, multiple objectives, cooperation and coordination, adaptive management and precautionary approach). It also describes tools and techniques for conducting the rapid appraisal; attributes, indicators and measures for analyzing the status of EAFM in an FMA; and outputs to be generated by the analysis.

Part II – Using the EAFM Framework and RAFMS Process

The RAFMS is carried out in steps one and two of the larger EAFM Process. The RAFMS framework consists of three major parts: the variables and attributes to be examined, the research and survey steps used to examine them, and the outputs that result from the research (Figure 7).

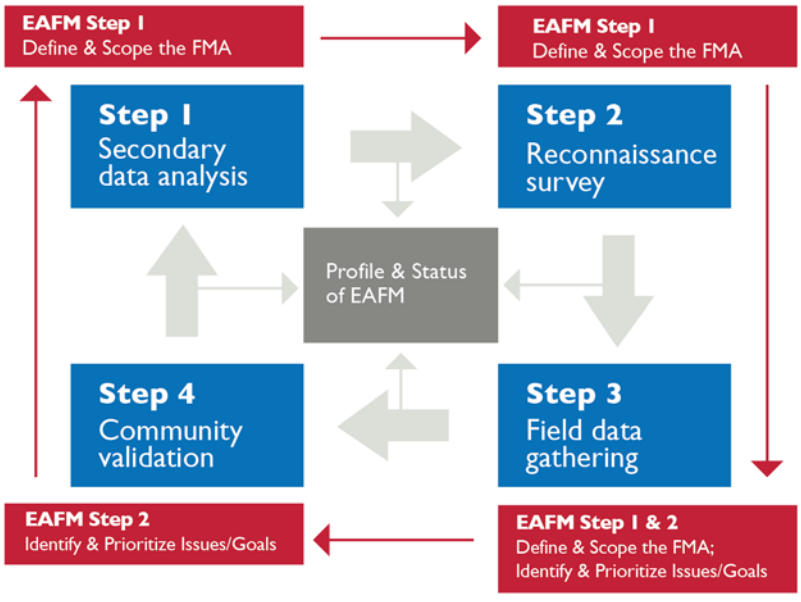
Figure 7. The RAFMS Framework



Source: Pido et al. 1996. (Figure 7 for reference only, identical to Figure 2).

The RAFMS process has seven generic steps from preparatory activities up to final report writing, with various written products and/or outputs produced at each step. These are detailed on the following page, in Table 1.

Figure 8. Data Gathering Quadrangulation Process



During Steps One and Two of the RAFMS process, information is collected and analyzed to inform planning and management. Step One requires that the area of study be defined, a vision agreed upon, and a scope established. In Step Two, issues and goals are identified and prioritized for each of the three EAFM pillars (ecological, human, governance). These variables/attributes and the research/survey steps used to examine these variables follow a cyclical manner, as guided by the original RAFMS framework (Figure 8). This RAFMS data gathering methodology of quadrangulation (secondary data analysis,

reconnaissance survey, field data gathering and community validation)[2] is linked with the larger EAFM planning process steps.

At the end of the four-step quadrangulation process, the key output is the status and gaps of EAFM implementation. These outputs can be used by stakeholders to develop recommendations to address the identified and prioritized threats, issues, and gaps that are aligned with relevant development, research, and planning/policy making agenda.

The following table provides an overview of the RAFMS steps, activities, and outputs of each. Each of these steps is further detailed in Section III, along with practical tools and techniques.

Table 1. Generic RAFMS Steps and Outputs

Generic RAFMS steps	Actions/Activities	Outputs
1. Preparatory activities	• Define and agree upon RAFMS objectives • Select FMA/FMA • Organize RAFMS team • Compile literature • Complete literature review/annotated bibliography	• Status of the FMA (fisheries and habitats) • Socio-economic status of households and communities • Fisheries industry/market profile • Governance structure and system profile
2. Reconnaissance survey	• Develop data gathering instruments • Undertake initial field visit • Collect preliminary/initial data	• Checklists • Survey Questions • Interview Guides and Questions *(refer to Part III for full list)*
3. Field data collection / gathering	• Undertake individual or group interviews • Do personal observation • Complete, annotate checklist • Transcribe key informant and group interviews	• Primary/field data (annotated checklists, notes for personal observations, raw photos and transcripts of both individual and group interviews)
4. Preliminary analysis of data	• Analyze checklists, drawings, interview transcripts	• Partial analysis of primary data
5. Initial organization of results	• Develop synoptic formats such as maps, charts, drawings, tables and matrices	• Initial set of status and assessments results (maps, charts, drawings, tables and matrices)
6. Community validation	• Validate results	• Validated data and results
7. Final report writing	• Complete report	• Final report

Part III – RAFMS Tools and Techniques

The 1996-published EAFM Handbook provided guidance for undertaking a seven-step RAFMS, with each step linked with the quadrangulation process, covered in Section II, wherein core field data gathering tools and techniques are employed to complete the research (Table 2). While the original RAFMS tools/techniques remain largely relevant to generate the desired data and information under each of the three EAFM pillars, updated tools and techniques developed over the last 20 years can also be used to complement these original tools and techniques. These include the use of additional or complementary tools such as value chain analysis (VCA), gender analysis, and new 'short-cut' methods of fisheries stock assessment such as surplus production models that generate quantitative data that can be accessed and generated more easily and cost effectively than previous manual methods of resource and product mapping. This section presents an overview of the original set of tools and techniques, as well as recommendations on additional tools that can now be used that take

[2] In a common research parlance, 'secondary data analysis' may also be referred to as the 'literature review', 'reconnaissance survey' maybe regarded as simple 'reconnaissance' or initial field/scoping visit, while 'community validation' could simply mean the 'stakeholder validation.'

advantage of new technologies, methodologies, and acknowledge new fisheries management priorities. Updated sets of ecological, human, and governance indicators and variables to be evaluated (including their measures and scales) are included in Annex II.

Table 2. Summary of RAFMS Steps, Tools, and Techniques

Generic RAFMS steps	quadrangulation steps	Core Tools and Techniques			Visualization Techniques			
		Observation	Key informant interview (KII)	Group interview (FGD)	Space[1]	Time[2]	Flow[3]	Others[4]
1. Preparatory activities	1) Literature review/secondary data analysis	Desk-based Research						
2. Reconnaissance survey	2) Reconnaissance survey	✓	✓	✓				
3. Field data collection/ gathering	3) Field data collection/gathering	✓	✓	✓	✓	✓	✓	✓
4. Preliminary data analysis					✓	✓	✓	✓
5. Initial organization of results					✓	✓	✓	✓
6. Community validation	4) Community validation							
7. Final report writing								

Note: [1]mapping, transect making; [2]calendars, historical transects, timelines; [3]process charts, decision trees; [4]Venn diagrams

Step 1 – Preparatory Activities

Resulting outputs from this step will provide current information to evaluate how much EAFM is currently being done in the FMA and to identify data/information gaps for the data collection phase. With the advancement of computer-based technologies since the 1996 Handbook's release, internet and various maps (e.g. spot, resource, market, etc.) can now be easily accessed or generated as an output of this step. The data collection tools or techniques to be used for the succeeding steps will depend on the assessed data gaps based on available secondary sources.

In this step, the site should be selected, team organized, and secondary data collected and analyzed. To select the site, a list of site selection criteria can be used that include but are not limited to: willingness of stakeholders to participate in the process, importance of fisheries as an economic sector, approval from government officers to allow the conduct of RAFMS, presence of significant resource use conflicts, and presence of some forms of EAFM being undertaken.

The size of the RAFMS team may vary according to the size of the FMA. At a minimum, it must consist of one social scientist (such as economist, sociologist or anthropologist) and one from the natural sciences. Although it is ideal to have a fisheries scientist, a marine biologist with a background in fisheries may suffice. The RAFMS team may be complemented by the local or site-based researchers, sourced or contracted from local academic institutions (state universities and colleges) or research units of relevant government agencies.

To the extent possible, all existing published and grey literature should be collected and archived in one location. Reliable sources include government agencies and institutions, national and local government offices, non-governmental organizations, universities, international agencies and donors, as well as project offices. These may be complemented by internet-based sources, which may be used to locate the FMA as well as identify species of fish and mangroves. A systematic literature review (as

a group, if possible) is recommended to cover the relevant variables/indicators (samples included in Annex II) under the three EAFM pillars. The aim is to generate a quick profile of the fisheries sector's status and identify the gaps.

Step 2 – Reconnaissance Survey

RAFMS team members must be familiar with the context of EAFM in the FMA, established during Step One. Based on the results of the reconnaissance survey, the team will have the opportunity to further refine the data collection materials to be used in Step Three. It is strongly recommended not to 'by-pass' the reconnaissance step. Undertaking this initial field visit shall enable the team to make a crucial decision whether to proceed with data collection and will provide first-hand experience if there are conditions that might endanger the RAFMS team members (such as a peace-and-order situation) or have a 'body language feel' if the community members and/or local authorities are willing to actively participate in the process.

Example: For its RAFMS work in the Sarangani Bay, Philippines, USAID Oceans was supported by counterpart researchers with expertise in socio-economics and fisheries from Mindanao State University and the Regional Office of the Bureau of Fisheries and Aquatic Resources (BFAR).

Using the 'power of observation,' the initial field visit serves several purposes, including to validate certain sets of information from the literature found in Step One. Utilizing a checklist of relevant ecological well-being, human well-being and good governance indicators may be very valuable in this step. As such, the team members can annotate visual observations related to bio-physical processes, social events, and observable relationships. Relevant photos can be taken to support the documentation process, with digital and video cameras now greatly facilitating visual documentation. Internet sources are also highly recommended and can be used for taxonomic classification of harvested species. To identify possible respondents, either individual key informants or focus groups, a one-page interview schedule may be administered to randomly selected key informants.

Step 3 – Field Data Collection/Gathering

Field data collection/gathering is the core step in the RAFMS process. This involves several techniques for generating data from stakeholders, particularly through individual and/or group interviews. The researchers shall also annotate their prepared checklists as they conduct Step Three to record any field or personal observations. As needed, the team may also undertake quick assessments of coastal marine habitats, such as a manta tow survey of coral reefs. The 1996 RAFMS provides tools for conducting rapid appraisals, such as the semi-structured or key informant interview (KII)—one of the most powerful of the RRA techniques (McCracken et al. 1998)—and group interview techniques, such as Focus Group Discussions (FGDs). During KII and FGD research, RAFMS practitioners are usually guided by an interview schedule designed to elicit information by talking to respondents. Although it is not recommended under the RAFMS protocol to undertake formal, statistically-valid social surveys using questionnaires, researchers may do so if they have enough manpower and resources.

In KIIs, informants are guided by the researcher in session interviews using a key, predetermined set of questions. Key informants may be those who have specialist knowledge, including representatives from regulatory fisheries agencies, senior fishers, middlemen, people's and civil society organizations.

Key informants are expected to cover all, if not most, of the identified indicators or variables. Hence, there is a need to carefully select informants. Responses should also be triangulated between and among key informants.

Visualization Tools:

Diagrams
Ranking
Stories
Portraits
Mapping
Timelines
Calendars
Process Charts
Decision Trees
Venn Diagrams

Group interviews are a type of KII, of which FGDs are the most popular version. Group interviews are a participatory exercise that can take many forms and may employ visualization tools such as diagrams, ranking, stories, portraits, and mapping. Mapping, for example, lays down important spatial features of an FMA on paper and can now be greatly facilitated by computer-based technologies. Including transects provides a cross-section representation of the study site. Other popular visualization techniques (see box) can help to facilitate discussions during FGDs.

To complete observational research, a researcher may use a checklist to note observational findings or take down on-the-spot, unstructured notes to record ideas or events that are happening in the field. Visualization techniques can also be used in this step. Maps, for example, can be sketched to represent the location of the fishing grounds and associated marine habitats such as mangroves, coral reefs, and seagrass beds; timelines may be used to describe the transformation of the fisheries from small-scale to commercial or industrial fishing; and process charts may represent the value adding of fishery products from the point of capture all the way to the ultimate consumer.

Steps 4 and 5 – Preliminary Analysis of Data and Organization of Results

In Step Four, researchers complete a partial analysis of primary data, including checklists, drawings, and all interview transcripts. In Step Five, the initial set of status and assessments results should be organized so that it is ready for validation with key stakeholders. This is a group activity undertaken by the research team where relevant patterns are determined with regard to the key questions for relevant variables/attributes. At this stage, findings will be summarized in synoptic formats such as maps, charts, drawings, tables and matrices.

Steps 6 and 7 – Community Validation and Report Writing

In this step, the research team will present the preliminary research results, invite feedback from relevant stakeholder groups, and validate the presented gaps and recommendations. In addition to presenting the research findings from the RAFMS process outlined in this chapter, researchers are encouraged to also present research findings on the catch documentation and traceability (CDT) and human aspects of the fishery, using research guidance presented in Chapters Three and Four. Following the validation process, the final report can be developed, integrating additional information learned in the validation process. Final report writing is covered in Part IV.

Part IV – Outputs of the RAFMS Process

The outputs from the RAFMS process are expected to provide an assessment of the FMA's current EAFM and recommendations on how to address identified gaps. In line with the principles of EAFM, recommendations should go beyond the management of a specific species or stock and should include aspects related to other living and non-living components of the ecosystem. The final report will present and analyze the data across the three main EAFM pillars to establish how much EAFM is already being done and what still needs to be done to achieve effective and integrated marine ecosystem management. In addition to the research outlined in

this chapter, researchers are encouraged to reference Chapters Three and Four for additional guidance on undertaking research that acknowledges CDT and human aspects of the fishery.

A sample of the structure of the final RAFMS report is presented on the following page, with four major sections.

Sample RAFMS Report Outline:

Preliminaries - Table of Contents, List of Tables/Figures/Appendices/Acronyms, Executive Summary, Acknowledgements

Section 1. Introduction - *covers the rationale and objectives as well as framework/tools/methods and data sources.*

1.1 Rationale and Objectives

1.2 Framework/Tools/Methods and Data Sources

Section 2. Profile and Status of EAFM Management - *provides a profile of EAFM in the FMA from information collected on key attributes and indicators; describes the ecological, human, governance, and over-all status of management and implementation.*

2.1 *Ecological Well-Being* Attributes, Indicators and Measures

- Fisheries/Biodiversity Attributes
- Habitat Attributes
- Water Quality Attributes

2.2 *Human Well-Being* Attributes, Indicators and Measures

- Macro-level Economic Attributes
- Livelihood and Income Source Attributes
- Access to Resources and Productive Assets Attributes
- Market Attributes
- Human Welfare/Gender Equity/Equality Attributes

2.3 *Governance* Attributes, Indicators and Measures

- Institutional Attributes
- Plan/Planning Attributes
- Knowledge and Information Attributes
- Management Attributes
- Enforcement and Compliance Attributes
- Law and Policy Attributes
- Climate Change/Disaster Attributes

Section 3. Assessment of Gaps in Current EAFM Practices and Implementation - *evaluates the potential gaps by comparing the current status with the essential attributes and indicators for an effective EAFM system.*

- Current EAFM Practices and Implementation in the FMA
- Elements of an Effective EAFM and Implementation
- Ecological Well-Being Status of EAFM
- Current CDT Capabilities in Relation to EAFM *(Chapter Three)*
- Human Well-Being Status of EAFM *(Chapter Four)*
- Governance Status of EAFM
- Over-all Status of EAFM

Section 4. Recommendations - *suggests how to improve the current system and provides other relevant recommendations based on the RAFMS results as they relate to the decision-making, policy-making, research, and development agenda.*

4.1 Recommendations to Address the Gaps

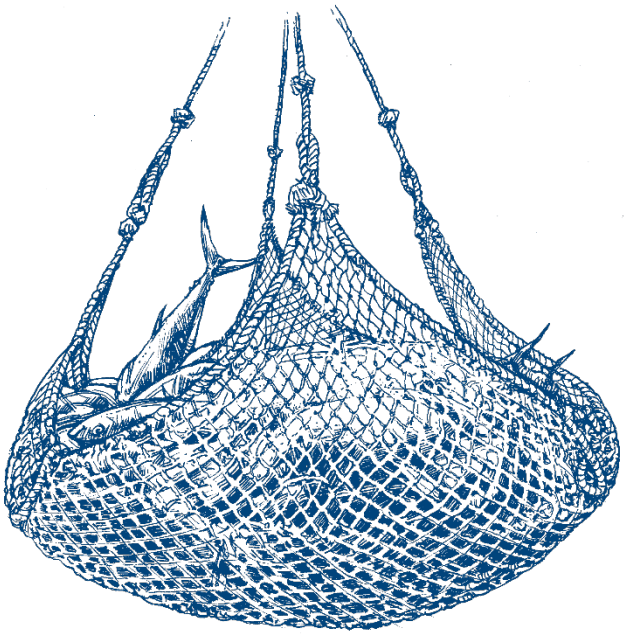
- Gaps Assessment EAFM Practices and Implementation in the FMA
- Over-all (Ecological, Human, Governance)

4.2 Other Recommendations and Future Direction

- Decision-making/Policy-making/Research/Development Agenda

References

Appendices



This chapter may be cited as:

R. Pomeroy, M. Pido, P. Ramirez, Purwanto, R. Andong, M. Carlos and L. Garces 2019. Chapter 2: Fundamentals of the Ecosystem Approach Fisheries Management and Rapid Appraisal Methodologies, p. 17-25. In USAID Oceans. 2019. Assessing Fisheries in a New Era: Extended Guidance for Rapid Appraisal of Fisheries Management Systems. USAID Oceans and Fisheries Partnership (USAID Oceans), Bangkok, Thailand. 47. p. + Technical Annexes 54 p.

CHAPTER 3: CONDUCTING CATCH DOCUMENTATION AND TRACEABILITY ASSESSMENTS

By: L. Garces, E. Cinco, J. Parks, M. Farid, G. Green, S. Esguerra and M. Pido

Overview

Catch documentation and traceability (CDT) is regarded as one of the most effective ways to combat illegal, unreported, and unregulated fishing. This chapter provides specific rapid appraisal guidance to assess the status of CDT in any Fisheries Management Area (FMA) and its supporting infrastructure, capabilities, and protocols.

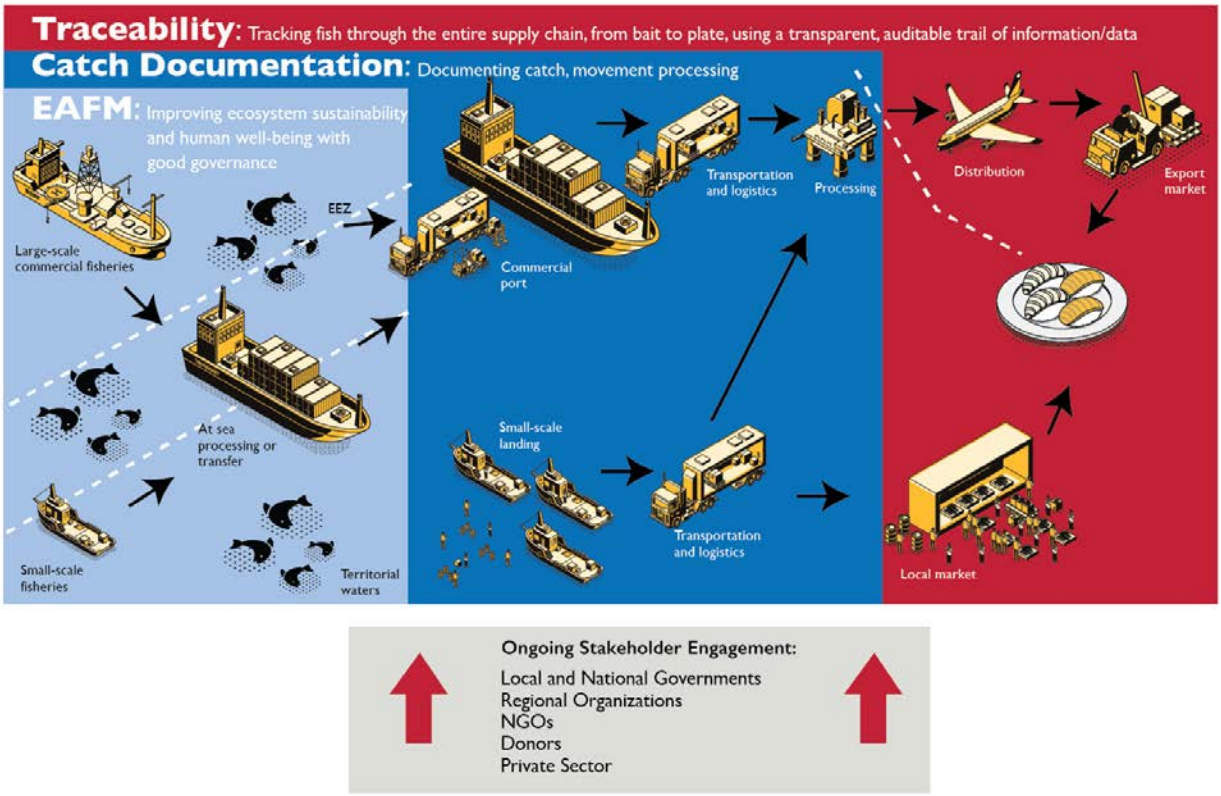
CDT is a fisheries management intervention that can be used to address issues of IUU and increase the sustainability of marine resources. Going a step beyond traditional paper-based CDT systems, **electronic CDT (eCDT) systems** encourage the collection, sharing, and analysis of verifiable ecological, economic, and social data related to seafood products as they move through the supply chain, such that they are traceable from point-of-harvest to import. eCDT systems can help ensure that fishery resources are legally caught and properly labelled and, when designed with fisheries management needs in mind, can support data-driven fisheries management decision-making. To be effective, an eCDT system must be coupled with an EAFM plan that provides direction for achieving multiple short- and long-term fisheries management objectives. Hence, relevant elements of the eCDT system need to be effectively integrated in the EAFM plan.

Contents:

Part I – Introduction

eCDT systems are valuable tools not only for tracking marine resources, but also for their potential to support enhanced fisheries management, human welfare monitoring, and other decision-making aspects of fisheries. eCDT systems, however, are not inherently successful in promoting fisheries' sustainability or conserving marine biodiversity unless there is a framework for eCDT data to be accessible, actively analyzed, and used for management purposes. By acknowledging CDT and eCDT protocols in the EAFM planning processing, EAFM plans can incorporate eCDT systems as a decision-making tool for monitoring fisheries, labor practices, and gender equity (Figure 9).

Figure 9. Linkages of eCDT Data and EAFM Planning



A CDT Gap Analysis can be used to not only inform the design, development, and implementation of an eCDT system that supports enhanced fisheries management (Figure 10), but also to provide additional information for the EAFM planning process. A CDT Gap Analysis recognizes the space between "where something is" and "where it is desired to be," and can bridge this space by identifying what has to be done in order to reach this desired state, and how it can be done (Gomm and Brocks 2009). CDT Gap Analyses follow a similar process to the RAFMS methodology presented in Chapter Two, which was originally designed as a topical rapid rural appraisal methodology for discovering the existing fisheries management systems in coastal community with an exploratory and participatory nature (Pido *et al.* 1996; 1997). This chapter provides guidance on how to undertake a CDT Gap Analysis that incorporates fisheries management priorities, as well as human welfare considerations, for a robust analysis that acknowledges the complete ecosystem that the system is or will function within.

Figure 10. Framework for CDT Gap Analysis

Part II – CDT Gap Analysis Research Framework and Tools

Like the RAFMS methodology presented in Chapter Two, the CDT Gap Analysis process consists of four steps, wherein data is also quadrangulated (Figure 11). Unique to the CDT Gap Analysis process is a Structure-Conduct-Performance (S-C-P) Assessment and Value Chain Analysis (VCA) for fisheries or seafood commodities. Using the data from this research, the final output of the CDT Gap Analysis includes an evaluation of a fisheries' situation and CDT status, map(s) of relevant supply chain(s), and identified CDT gaps, issues, barriers, and opportunities.

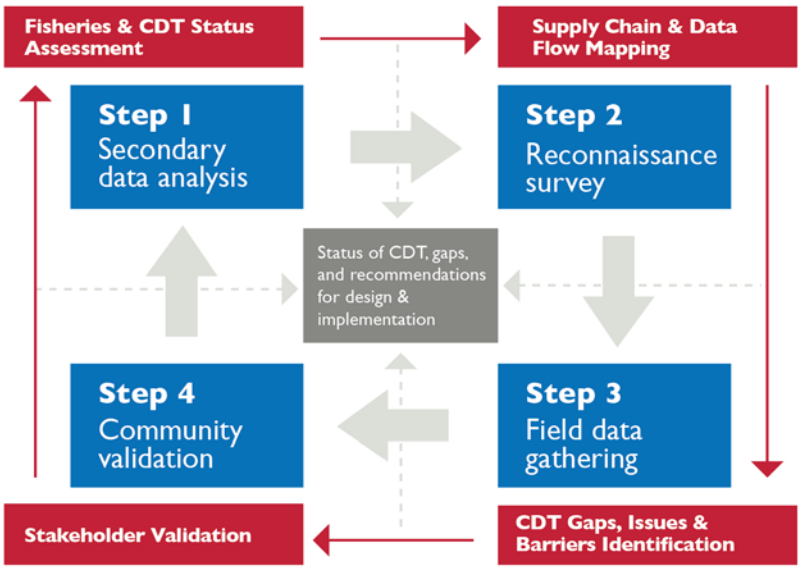


Figure 11. Conceptual RAFMS Framework Adopted for CDT Gap Analysis

Step 1 – Preparatory Activities

Similar to Step One in the RAFMS process, the first step of the CDT Gap Analysis process entails preparatory activities to profile and assess the industry and market, including a review of existing information to inform and guide the analysis. Step One will help to determine the country's strategic objectives for establishing its CDT system and the existing policies/regulations that will support it. Relevant literature and secondary data about CDT should be gathered and reviewed including journal articles, technical reports, local and international laws, policies and ordinances, regional and municipal/city profiles, municipal/city and national plans, and news articles. A systematic literature review using the internet is recommended to facilitate collection of secondary information on existing CDT characteristics and identify gaps.

The key questions that need to be addressed in the literature review include:

1) What catch data are currently being documented?
2) What catch data collection forms are being used? *If any, note if these are paper-based or electronic.*
3) How are catch data collected, kept, and stored (paper, electronically)? *After determining the forms being used, each one should be collected and retained for analysis later in the process.*

Step 2 – Reconnaissance Survey

Prior to conducting the full field survey, it is recommended that a reconnaissance survey (RAFMS Step Two) be conducted at the proposed study sites to develop an initial characterization of the supply chain. During the reconnaissance survey, the team should carry out on-site observations of the fish landing activities (typically early in the day, pre-dawn; including for small-scale fisheries) and port operations. This in-field observation of the supply chain, from fish landing to processing plant will also serve to identify Critical Tracking Events within the fishery value chain, key points of integration, and potential gaps of the catch documentation process. As a result, the study team may create supply

chain maps specific to fisheries sub sectors, such as one for commercial/industrial and another one for municipal/small-scale.

During this step, the team will also develop relevant data gathering instruments, including but not limited to interview guides and checklists (Annex III and IV), and identify a complete list of key informants to be interviewed in Step Three using the supply chain information and maps that were gathered. Examples of key informants to be involved in this research phase may include, but are not limited to boat captains, buyers of fishery products at the landing site, fishing crews, middlemen, exporters, and representatives of regulatory agencies/bodies.

Step 3 – Field Data Collection/Gathering

During this step, the research team will collect data through field surveys, key informant interviews (KIIs), and focus group discussions (FGDs) with the individuals identified in Step Two. KIIs are done on a one-on-one basis with stakeholders, while FGDs convene multiple informants together for a group discussion. FGDs can help to build/strengthen relationships and trust as well as provide a venue to validate and strengthen desk research findings.

Aside from being knowledgeable about the national and local CDT context, interviewers must also be properly trained on interview protocols and best practices, including being able to clearly communicate the questions to the respondents, being familiar with the local language and customs, and being able to accurately and reliably capture and document responses. Specific interview guides should be used for specific stakeholder groups. Examples of questions to be used with key informants can be found in Annex III. Annex IV provides a diagnostic tool that can be used during field data collection to begin to evaluate the CDT-readiness of a site, country, fishery, industry, or industry members. Key outputs of Step Three are primary and field data that include interview transcripts of FGDs and KIIs, annotated checklists, notes on personal observations, and raw photos.

In this step, researchers should also undertake the **S-C-P (Structure-Conduct-Performance) assessment and value chain analysis (VCA)**, which are unique to the CDT Gap Analysis methodology and utilize qualitative and quantitative tools, including KIIs, FGDs, and fishing industry and market system mapping. The assessments seek to further analyze the FMA's fishing industry and market system. In addition to KIIs and FGDs, researchers may also undertake participant observation and scoping to assess the existing market for key fishery species.

A value chain (Figure 12) is the full range of activities required to bring a product or service through the different phases of production, delivery to final consumers, and final disposal after use (Kaplinsky and Morris 2001; Hellin and Meijer 2006). In the case of capture fisheries, mapping the market considers the movement of the fishery product, from the point-of-capture at sea to the point-of-consumption—from "bait to plate"—including the entire range of value additions (e.g., processing) and services (e.g., logistics) provided in between.

Figure 12. Generic Value chain for a Fishery Commodity

Direct observation in relevant fish landing site(s) and unstructured interviews with the representatives from relevant national fisheries agencies and national stock assessment programs. Research methodologies used should collect data on: the key players and their activities in the fishery value chain both in the municipal and commercial fisheries sector (taking note of gender dimensions); key customers, markets, and their respective product requirements; product flows, information, and

payments; distribution of benefits/value addition of each key player along the chain; and the opportunities and constraints along the chain to determine entry points for intervention for EAFM and improvement for human welfare.

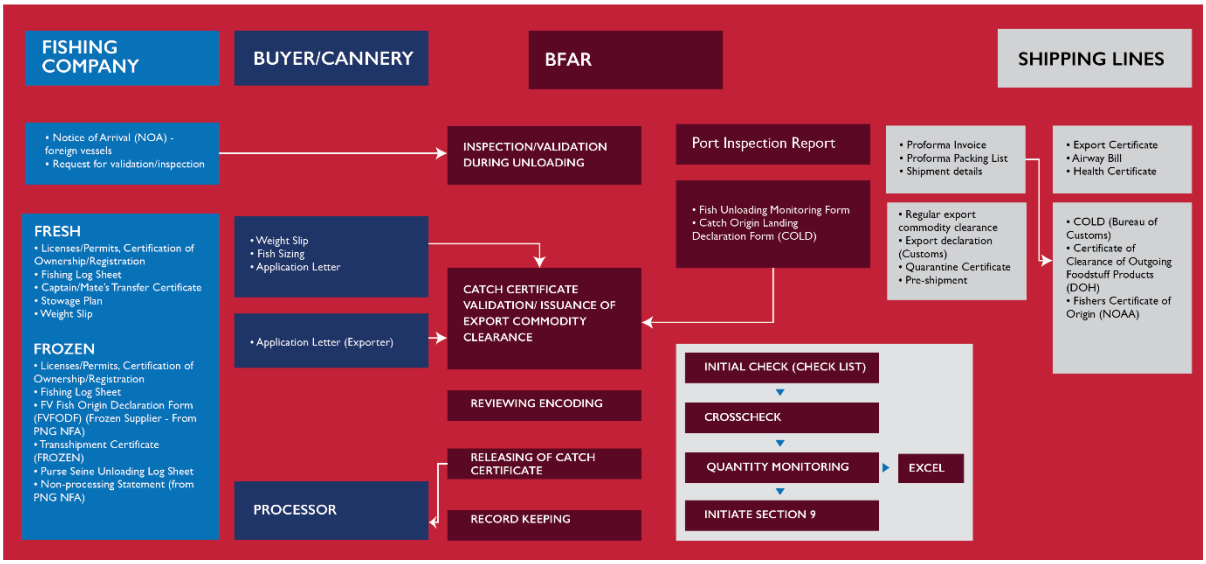
As part of their field research, researchers are also recommended to gather data for a **Rapid Partnership Appraisal,** used to assess high-value partnerships that can support fisheries development activities. The appraisal makes use of similar research tools to the RAFMS, including desk research and stakeholder mapping, field research to interview priority companies and organizations, and a validation workshop to present and refine research findings, as well as secure initial partnership commitments. Partnership Appraisals focus on identifying key stakeholders to be engaged in eCDT system design and testing, including:

- Governmental agencies involved in the seafood supply chain, including fisheries, rural development, trade and industry, customs, and coast guard agencies to facilitate interoperability between current and existing systems and validation processes;
- Industry stakeholders with interests in exporting to the EU and US markets, including fishermen, vessel owners, processing companies, buyers, exporters, and industry associations;
- Information and communication technology companies, such as mobile and satellite telecommunication service providers, smart devices suppliers, and data analytics services, to provide the technical foundation for digital data collection and validation; and
- Conservation and non-for-profit organizations, including NGOs and international aid agencies that are already involved in fisheries management and transparency programs, to build on their connection and valuable experience in engaging diverse stakeholders around traceability.

Steps 4 and 5 – Preliminary Analysis of Data and Organization of Results

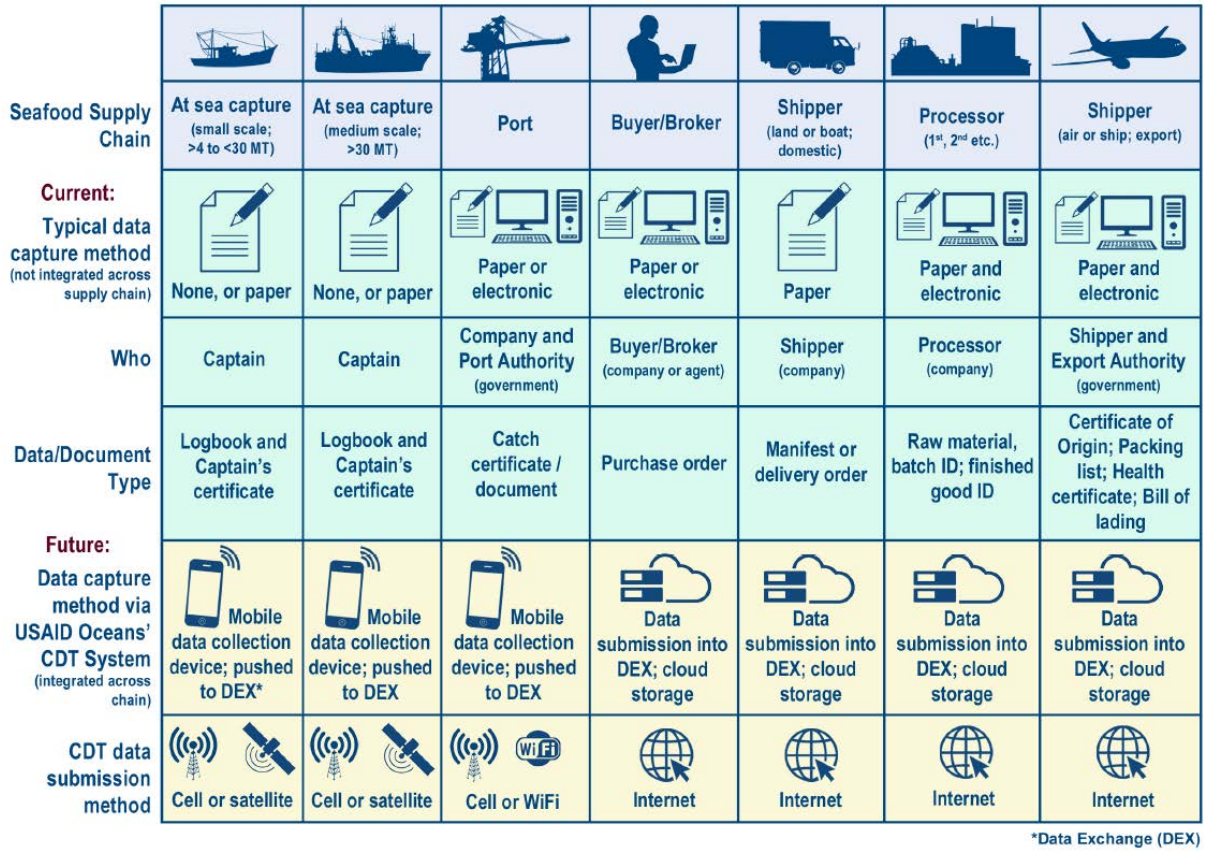
Here, researchers conduct a partial or preliminary analysis of the primary data collected in Step Three to identify any relevant patterns or trends and to establish the status of CDT in the FMA of interest. To do so, researchers will need to enter the data, analyze the data, interpret the results, and begin drafting an initial summary of the results. Data sets may be organized in synoptic, visual formats such as resource-use maps, flow patterns of marketing channels, and matrices of actors in the value chain (see Figures 13 and 14).

Figure 13. Example of a Catch Documentation Flow Chart from the Commercial Fishing Sector in General Santos City, Philippines



Source: WorldFish 2017; Esguerra et al. in prep.

Figure 14. Example of a Visual Summary and Roadmap for Current and Future CDT Data Capture Capabilities



Source: USAID Oceans

Step 6 – Community Validation

Before the CDT Gap Analysis is finalized, an integrated community/stakeholder validation workshop (Step 6) must be conducted to present the preliminary report; invite feedback and discussion on the results; document and (as possible) address any issues or concerns raised by the stakeholders (e.g., illegal fishing operations, presence of prohibitive gears); solicit suggestions from the community/stakeholders on possible solutions, recommended actions, and/or new policy directions; and conduct a Force Field Analysis with participants as the final research step.

The **Force Field Analysis** is a common analysis tool used to determine and study the factors (forces) influencing a situation. The method was originally developed by Kurt Lewin,[3] used commonly in business settings for strategic management (Thomas 1985) and change analysis (Swanson and Creed 2014) to determine forces that are either driving movement toward a goal (helping forces) or blocking movement toward a goal (hindering forces). The method can facilitate group problem solving (Ajimal 1985); hence, it is recommended to be conducted during the validation workshop to facilitate stakeholder consultations and issue prioritization. The Force Field Analysis can be done through a facilitated discussion using metacards, where each participant identifies and weighs the forces for and against change; for example, the implementation of an eCDTS in capture fisheries. Using this example, next, the group would work together to identify possible solutions that leverage forces in support of eCDTS implementation, as well as solutions to mitigate forces against the application of eCDTS.

During or immediately following the workshop, a meeting with relevant local and national fisheries agencies should be held to discuss the validated results, share the recommended policy/actions, and

[3] https://www.mindtools.com/pages/article/newTED_06.htm

solicit suggestions for private sector partnerships that can support the planned CDT system and strategy.

Step Six marks the completion of the fourth and final quadrangulation process.

Step 7 – Final Report Writing

In this step, the final CDT Gap Analysis report is written, which should be inclusive all research findings, relevant community/stakeholder inputs, and recommended next steps. These may include policy/regulation changes, indicative action plans and roadmap(s), and preliminary plans for CDT design and development (life cycle process and software solution ideas). A sample outline of report contents is provided in Part III.

Part III – Outputs of the CDT Gap Analysis

The outputs from the CDT Gap Analysis process are expected to not only provide additional information for the FMA's EAFM assessment and recommendations, but also to analyze current capabilities and infrastructures that can inform the design or strengthening of a robust eCDT system that can support fisheries management. In line with the principles of EAFM, recommendations should go beyond the management of a specific species or stock and should include aspects related to other living and non-living components of the ecosystem. The final report will present and analyze the data across the three main EAFM pillars to establish how eCDT is already being done and what still needs to be done to achieve effective and integrated traceability and marine ecosystem management. Readers may reference USAID Oceans' CDT Gap Analysis Reports developed for Malaysia, Thailand, and Vietnam on the USAID Oceans website for examples of complete CDT Gap Analysis reports. A sample of the structure of the final RAFMS report is presented below, with four major sections.

Sample CDT Gap Analysis Report Outline:

Preliminaries - Table of Contents, List of Tables/Figures/Appendices/Acronyms, Executive Summary, Acknowledgements

Section 1. Introduction - *covers the rationale and objectives as well as framework/tools/methods and data sources.*

- **1.1 Rationale and Objectives**
- **1.2 Methodology**
- **1.3 Limitations**
- **1.4 Organization of the Report**

Section 2. Profile of Current CDT System - *provides a profile of the current enabling environment for CDT protocols and systems.*

- **2.1 Socio-Economic Drivers for CDT**
- **2.2 Policies Informing CDT**
- **2.3 Existing Technologies Enabling CDT**

Section 3. Industry Engagement in CDT: Rapid Partnership Appraisal - *provides an overview of private sector engagement, support, and interest in CDT and assesses potential industry partners to support next steps.*

- **3.1 Familiarity with CDT**
- **3.2 Third Party Agents**
- **3.3 Support for Government-Led CDT Programs**
- **3.4 Small-Scale Fisheries**
- **3.5 Labor and Welfare**

3.6 Notable Trade Dynamics

Section 4. Key Findings – *provides an overview of key findings, particularly those relevant to the recommendations made in Section Five. Sub-section titles and contents may vary based on research results.*

4.1 Status of Fisheries and Species being Caught

4.2 Current Situation and Threats *(e.g., IUU)*

4.3 Supply Chain Map and CDT Flow Status

4.4 CDT Gap Analysis and Issues/Barriers

Section 5. Recommendations - *suggests how to improve the current system and provides other relevant recommendations based on the Gap Analysis results as they relate to the decision-making, policy-making, research, and development agenda. These may be addressed through the recommended sub-sections, below, or addressed in terms of short-, medium-, and long-term recommendations.*

5.1 Indicative Action Plans and Roadmap

5.2 Recommended Actions *(e.g., policy/regulation changes, research agenda)*

5.3 Preliminary CDT design and development plans

References

Appendices

Part IV – CDT Indicators

This section provides examples of CDT-related attributes and indicators, relevant to the three pillars of EAFM (ecological well-being, human well-being, and good governance). These attributes and indicators may be evaluated during the literature review, reconnaissance, and field data gathering steps of the RAFMS. Once attributes and indicators are established, they should also be integrated in to the final EAFM Plan's Monitoring and Evaluation.

Ecological well-being indicators cover the fisheries value chain's targeted focal species, level of fishing effort, and type of fishing gear/technology.

Table 3. CDT Indicators Relating to Ecological Well-being

Attribute	Indicator	Measure
Focal species	Target catch (species harvested) within the fisheries value chain	Total # and type of fishery species (ASFIS species code; with associated fishery product code) within the fisheries value chain
Extractive effort	Level of fishing effort within the fisheries value chain	Total landings (metric tons) of the fishery products, per year
Extractive effort	Type of fishing gear/technology used within the fisheries value chain	Total # and type of fishing gears/technologies used, per year; with multiple choice (gear type) and relative proportions/contributions of total gears

Human well-being indicators look to evaluate income, livelihoods, and human welfare conditions by tracking the value of traceable catch, employment and occupational structure, labor practices, and compliance with international standards.

Table 4. CDT Indicators Relating to Human Well-being

Attribute	Indicator	Measure
Income	Value of traceable catch	Total value (in US$)/year of traceable catch being landed; by species/fishery product within the CDT system.
Livelihood	Employment; occupational structure	Total # of full-time and part-time jobs (gender disaggregated) supported throughout the fishery value chain under the CDT system; relative proportion of jobs, by type (multiple choice).
Human welfare (including gender equity)	Presence and accessibility of accurate, verifiable, and completed records for all laborers associated with the production or transformation of a traceable fisheries product	Checklist (Y/N); If "yes", multiple choice (n=5): legal name; nationality; DOB; job/position title; and legally-recognized unique identification number. Including fishing crewmembers, processors, and other laborers.

Attribute	Indicator	Measure
Human welfare (including gender equity)	Presence of a fair and secure grievance and reporting process used within the fisheries value chain	Checklist (Y/N); If "yes," (1) multiple choice (n=3) of grievance reporting process typology: (a) available process for reporting working grievance or concern; (b) ability to voice/exercise labor rights; and (c) access to social protective services; (2) level of comfort/freedom to use the grievance and reporting process without fear of reprisal.
	Compliance with international standards of fair labor practices; e.g., ILO 188 (for ratifying countries), UN Global Compact on Labor Principles	Checklist (Y/N); if "yes", multiple choice of which fair labor standards are being complied with.
	Degree of workplace grievances or concerns, as reported within the fishery value chain	Checklist (Y/N); If "yes", total # of reports/year (gender-disaggregated, by complainant); with grievance typology (multiple choice): (1) working conditions; (2) gender-specific workplace violence/coercion; (3) physical abuse/violence (non-gender based); (4) sexual harassment; (5) safety issue concern(s); (6) gender-specific working/labor condition concern(s); (7) non-gender specific working/labor condition concern(s). Relative proportion/contribution annually of each grievance reported, gender-disaggregated.

Note: Data generated are to be sex disaggregated (for both men and women).

Good governance has three key attributes, reflected in the following suggested attributes and indicators. For 'law and policy,' sample indicators include the local/national enabling policy environment as well as compliance with internationally-accepted legal instruments. In the case of 'management,' relevant indicators cover degrees of licensing/registration of fishing fleet, level of CDT adoption within the fishing industry, and volume of traceable fish catch.

Table 5. CDT indicators Relating to Good Governance

Attribute	Indicator	Measure
Law and Policy	Enabling policy environment	(1) Total # of policies/regulations promoting or requiring uptake of CDT practices and standards; by scale: national, provincial, local (ordinance). (2) Total # of policies/regulations requiring revision or updating to support uptake of CDT practices and standards; by scale: national, provincial, local (ordinance).

Attribute	Indicator	Measure
	Compliance with internationally-accepted standards for fishery production, handling, and processing implemented throughout the fisheries value chain under CDT	(1) Number and type of traceability standards implemented within the fisheries value chain; (2) Number and type of non-traceability standards implemented within the fisheries value chain.
Management	Degree of licensing/registration of fishing fleet within the fishery value chain under CDT	Proportion (% of total number) of fishing vessels observed/operating that are legally licensed and registered (IMO #) within the fishery value chain within the CDT system.
	Level of CDT adoption within the industry (CDT 'uptake')	Total # of fisheries operators participating within the fishery value chain; by species/fishery product within the CDT system; coded by multiple choice: (1) fishing vessels/producers; (2) processors; (3) traders; (4) exporters; gender disaggregated, as possible.
	Volume of traceable catch (CDT capacity)	Checklist (Y/N); If "yes," total kg/year of traceable catch being landed; by species/fishery product within the CDT system.
	Level of traceability of the fishery product throughout the value chain within a CDT system	% of all recommended KDEs being reliably and accurately captured along the fishery value chain within the CDT system.
	Level/degree of existing data interoperability within the fisheries value chain	Degree of the ability of existing database systems to 'talk' with one another, as measured by the total number of 'connections' (between two distinct data systems); by species/fishery product within the CDT system.
Enforcement and Compliance	Level of known production non-compliance within a fisheries value chain operating under CDT	(1) Total # of suspected illegal fishing vessels identified per year; (2) Total # of suspected illegal fishing vessels boarded or inspected per year.
	Level of enforcement actions taken within a fisheries value chain operating under CDT	(1) Total # of enforcement actions taken against alleged illegal fishing operations per year; multiple choice: typology of violations/citations; (2) Total # of suspected illegal fishing vessels apprehended and/or impounded per year; (3) Total # of prosecuted cases made against alleged illegal fishing operations per year; ratio of successful versus unsuccessful convictions; multiple choice (typology of action/punishment).

This chapter may be cited as:
Garces, L., E. Cinco, J. Parks, M. Farid, G. Green, S. Esguerra and M. Pido. 2019. Chapter 3: Conducting Catch Documentation and Traceability Assessments, p. 26-36. In USAID Oceans. 2019. Assessing Fisheries in a New Era: Extended Guidance for Rapid Appraisal of Fisheries Management Systems. USAID Oceans and Fisheries Partnership (USAID Oceans), Bangkok, Thailand. 47. p. + Technical Annexes 54 p.

CHAPTER 4. GENDER IN RAPID APPRAISAL OF FISHERIES MANAGEMENT SYSTEMS

By A. Satapornvanit, A. Prieto-Carolino, R.A. Tumbol and M.B. Sumagaysay

Overview

The1996-released RAFMS Handbook lacked explicit gender integration in most parts, since gender disaggregated data could not be generated from its methodological tools. Women are largely 'invisible' in its sets of tools and techniques, and women were included only as "stakeholders," not for their contribution in fisheries management. Although a number of fisheries studies have applied a gender approach, most of them were descriptive of women's participation, such as those practiced in small-scale fisheries, and lacked quantitative data. More quantitative data on gender in fisheries is needed and can be achieved if gender research methods are applied within fisheries research (Kleiber et al. 2015). For example, the Consultative Group on International Agricultural Research suggested that social and gender inequality factors be taken into consideration and included in the design and implementation of initiatives (Kantor et al. 2015). Furthermore, they found that in understanding the influence of gender relations in technology adoption, interventions integrating social and technical aspects are needed for sustainable adoption of the technology introduced.

As such, the following guidance for conducting Gender Analyses has been developed to highlight the specific contributions and concerns of both women, men, girls, and boys (the youth) in order to better understand gender relations in fisheries management. Improved understanding of the gendered division of labor in fisheries management will also reveal the unique contributions of men and women and thereby identify more specific actions or interventions to address gender inequities in the fisheries management system.

In analyzing fisheries value chains, recognition of sectoral gender components can promote more effective fisheries management and development (Krushelnytska 2015). Contrary to perceptions that fishing is male-dominated, women play a critical role in fisheries, thus including women in the statistics/registry and in various discourses can aid policy makers to make informed decisions for strengthened fisheries value chains that engage and empower women (Williams 2016).

Contents:

Part I – Introduction to Gender in Fisheries

Gender equality is a basic human right, including the equal empowerment of women and men, particularly in sustainable development (USAID 2012). In fact, the United Nations (UN) has placed the human person as the central subject and beneficiary of its human development agenda, and it recognizes that gender inequality remains as one of the core challenges (UN 2015). In the development community's collective efforts to

achieve better environmental conditions and sustainably manage our fisheries for food security and safety, we also must incorporate the efforts and needs of the women and men who are both the drivers and beneficiaries of the efforts for sustainable fisheries (Kleiber et al. 2015). In most cases, however, the human dimension—especially gender—is either neglected or overlooked.

Women's roles and contributions in fisheries, for example, are often undervalued and less recognized than those of men and therefore often have more limited access to capacity building, opportunities and information to upgrade fisheries infrastructure, and related sectoral and development interventions. Gender equality is also now recognized as an important aspect of sustainable development and has been included as the Fifth of the 17 Sustainable Development Goals (SDGs). While SDG Five is linked with the majority of the 17 SDGs (CWFS 2015, UN 2015 and 2017), few efforts have been made to specify the linkages between SDG Number 14 (conserve and sustainably use the oceans, seas and marine resources for sustainable development) and SDG Number Five.

The capture fisheries sector is predominantly male-dominated but women are found in different phases of fisheries production, from pre-production (net preparation, boat maintenance, bait and fuel purchase) to post-production (post-harvest processing and trading). In Southeast Asia, processing and small-scale trading are predominantly done by women, but in other parts of the world there is a growing number of women engaged in capture fisheries. For example, in Vietnam, workers in small-scale capture fisheries and fish farming are predominantly female, while in Bangladesh, it is women who catch fish in estuaries. More Thai and Cambodian women are recently working in aquaculture due to developments in brackish and freshwater aquaculture (Siason et al. 2002; Satapornvanit et al. 2016). Gleaning is a form of fishing, particularly important for food security, engaged in by many women (and men) in coastal and riverine communities, but which is not recorded in official statistics (Kleiber et al. 2014; Kleiber 2015).

For most of the fisheries sector, gender-differentiated roles and responsibilities are pronounced. For example, nearly all activities that involve working on boats and bringing in the catch are almost exclusively a male domain. After landing the fish, men often are the major actors making decisions on grading the fish and have better access to higher-paid occupations in processing and distribution. Women tend to dominate processing of catch, a lower-paid occupation in fisheries. They are also often the buyers and sellers of catch in and for local markets, as well as for their own households, which has implications for food and nutrition security.

In many developing countries, although fishing has been traditionally a male activity, more and more women are actively participating in fisheries-related work, with growing recognition of their significant roles and contributions to their fishing households and the larger community. In the Solomon Islands, for example, Hilly et al. (2012) reported that women are often undervalued despite having an important role in families and communities that depend on fisheries for their livelihoods. As more men share in the domestic responsibilities of maintaining the home and taking care of children, women are also given wider opportunities to go out of their homes and use their skills to help provide for the family's needs. But much is left to be desired, especially among poor fishing households where women are constrained by a lack of access to education and other capability-building activities, limited economic opportunities, and restricted mobility due to cultural expectations and beliefs that the home takes primacy over other family responsibilities. Thus, it is imperative to consciously work for the recognition and acknowledgement of women's contribution within and outside the home.

Around twenty years ago, heightened discourse on gender in fisheries entered fisheries literature and dialogues, such as those which transpired in various international fisheries symposia such as the Gender in Aquaculture and Fisheries Section of the Asian Fisheries Society (Gopal et al. 2016) and the International Institute of Fisheries Economics and Trade. The perception of fisheries as being a male-dominated sector gradually started losing ground in the 1990s when studies revealed that, although men lead in capture fisheries, women play critical roles in pre- and post-fish production and in nearshore fishing activities, including aquaculture (Israel 1993, Legaspi 1995, Rodriguez 1996, Satapornvanit et al. 2016, Siason 2013, Sotto et al. 2001).

Example: USAID Oceans conducted gender analyses in its program learning sites, General Santos City, Philippines and Bitung, Indonesia, to determine gender differentials in the fisheries value chains that would inform program planning and interventions. The gender analyses were structured using the RAFMS research framework, overlaid by the six domains of the USAID Gender Dimensions Framework (Andraos 2015), and the Gender-Responsive Value Chain Analysis (GRVCA).

The fisheries industries in Indonesia and the Philippines are among the largest in the world. In Indonesia, the economic potential of marine fishery resources, being the world's largest archipelagic nation, is estimated at USD 82 billion per year; of which about USD 15.1 billion per year is from capture fisheries (MMAF Fisheries 2014). With such large resources, the fisheries sector is recognized for its economic potential. Bitung City is one of the major fishing centers in eastern Indonesia, particularly for tuna which is the main export commodity of the country's fisheries sector (BCAS 2016).

In the Philippines, the fisheries sector provides livelihood to more than 1.6 million Filipinos and contributes to the macro-economy. Its contribution to total Gross Domestic Product in 2014 was 1.6% and 1.8% at current and constant 2000 prices, respectively (BFAR 2014). In the same year, the Philippines enjoyed a net surplus of USD 954 million in foreign fish trade. Fish exports totaled 316,863 million tons with a value of USD 1,274,000. Philippine fishery exports identified tuna as having the highest value at 19.6 billion pesos which amounted to 117,909 MT. This reveals the significance of the tuna fisheries sector to the lives of households and the macro-economy of the country. General Santos City is the major producing site of tuna in the Philippines, earning the title of the Tuna Capitol of the Philippines, and where six out of the seven major tuna canneries are situated (Yamashita and Belleza 2008). General Santos City's tuna production posted an increasing trend from < 50,000 metric tons in 2010 to > 70,000 metric tons in 2015 (WinFish 2017). The daily landings at the General Santos City Fish Port Complex are the second highest in the nation (after Navotas in Metro Manila). A preliminary study indicated that women occupied only a few marginal positions in the market (Pavo and Digal 2017).

Part II – Tools and Techniques for Integrating Gender in Rapid Appraisals for Fisheries Management

By integrating gender aspects into the RAFMS methodology, fisheries management planning can be more inclusive, with more highly targeted results that ensure gender equity and women's empowerment are achieved within fisheries management systems, as mandated in several international fisheries instruments or treaties that include the FAO Voluntary Guidelines for Sustainable Small-Scale Fisheries (FAO 2017), Convention on the Elimination of All Forms of Discrimination against Women (1979), UN Sustainable Development Goals (UN 2015), USAID Gender Equality and Female Empowerment (USAID 2012), and Committee on World Food Security (CWFS 2015).

This chapter provides guidance on how to complete a Gender Analysis that can be used to guide research implementation and ultimately effectively integrate gender dimensions into fisheries management.

Step 1 – Preparatory Activities

An extensive review of existing literature (both published and gray literature) is necessary to establish a baseline about the subject matter. During Step One, a research team must also be formed, comprised of a gender specialist (preferably with fisheries knowledge), social scientist, statistician, information technology specialist, fisheries expert, and a communications expert. Local data gatherers or enumerators are preferable, so that they may speak the local language and have the context/perspective of the local setting.

Step 2 – Reconnaissance Survey

In Step Two, researchers will meet with relevant stakeholders in the research area. As is always recommended for research undertakings, research participants should be gender balanced to represent an equal number of men and women in research results. Relevant partners include:

- Academe - may provide the local survey enumerators, documenters, or field guides to support field research;
- Government agencies (i.e., environment, agriculture, and fisheries departments) - may provide secondary data as well as updated lists of value chain (VC) players for development of survey samples and Focus Group Discussion/Key Informant Interview rosters;
- Local government units - can provide the endorsements, permits, and assist in research implementation; and
- Civil society organizations (may include people's organizations, women's groups, non-government organizations, and other local associations) - can provide technical assistance, as well as the perspective of many value chain players, particularly in small-scale fisheries.

The system boundary chosen will determine who the respondents will be as primary data sources. They can include individual women and men from various scales of fisheries and nodes of the value chain for face-to-face and key informant interviews, including with value chain enablers at

Example: USAID Oceans' Gender Analysis, conducted in the Philippines (WinFish 2017), included producers/fishers, processors, and traders. As much as the circumstances allowed, an equal number of women and men were surveyed for each group of actors.

The respondents from municipal fisheries and handline crew consisted of a sample of male fishers and an independently-drawn sample of fishers' wives. Since no women were engaged in fishing, the study selected fishers' wives to provide perspectives of women on the lives of fishing households, from which gender differentials may be detected.

For the processing node, more females were surveyed than male respondents, owing to the nature of the small-scale food processing sector which is dominated by women. For the marketing/trading node, respondents were randomly selected from the neighborhood wet markets, and those who peddled tuna-like fish from house-to-house.

both micro (e.g. associations and fishers' groups) and macro (e.g. government units and agencies) levels, as well as other players who may not able to participate in survey or focus groups due to the nature of their work and schedules.

A two- to three-day **inception workshop** may be held to introduce the research team, project, and gender concepts to direct partners and establish a requisite level of knowledge. Particularly important is the presence of survey enumerators who will need one more day of training on research and data gathering methods, including new techniques and tools such as employing a paperless survey (Open Data Kit or ODK) using tablets. A mock survey followed by a trainer critique is also recommended to evaluate the readiness of the survey enumerators to conduct actual field work.

The duration of the inception workshop will largely depend on the level of gender awareness and appreciation of the participants, as well as on the level of knowledge regarding Gender-Responsive Value Chain Analysis (GRVCA). Templates that can be used to gather initial information from participants can be found in Annex V.

Before Step Three is initiated, the research team should ensure that the literature review has been completed, an inception workshop conducted, research questions and survey instruments have been developed and required training completed, research timelines have been established, research teams and roles have been finalized, and an initial list of research project risks and appropriate management measures have been identified.

The USAID Gender Dimensions Framework – Survey instruments may be designed following the domains of the USAID gender dimensions framework, namely: access to assets; knowledge, beliefs and perceptions; practices and participation; time and space; legal rights and status; and power and decision making (Andraos 2015; WWF 2016). These six domains are used to formulate questions in each of the value chain nodes, including ancillaries and intermediaries, and for each type of fisheries sector or scale.
Careful consideration should be made to include elements of gender analysis in the survey instruments. Expected responses must be able to surface gender differentials, including: (1) roles and relationships between women and men, (2) access to and control of resources, in the opportunities and constraints faced, in needs/issues/concerns, and (3) impact of interventions/programs/projects for gender equality and women empowerment.
All instruments must be translated into the respondent's native language, back-translated to ensure nothing in lost in translation, as well as pre-tested and reviewed before being used for field work.

To be able to generate sex-disaggregated data, the research planning and design stages should ensure responses from both women and men. Sex should be included as a variable in all data collection instruments for human subjects. As names in some cultures could be used for both sexes, it is therefore necessary to explicitly identify whether the respondent is a female or a male. Further information obtained from the respondent will be linked to the identified sex, which could provide datasets disaggregated by sex and other important characteristics for gender analysis. The analysis and reports generated will then result in a clearer profile of the people, their gendered perceptions, and the fisheries being analyzed. This means that the sampling frame should provide the opportunity to select representatives from both sexes and from different groups determined to be relevant to the assessment, e.g., by occupation, ethnicity, age, etc.

Step 3 – Field Data Collection/Gathering

In Step Three, researchers will engage participants through Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs), as appropriate. FGDs may be directed at homogeneous groups of actors (e.g. municipal fishers; wives of fishers/crew members; processors) and may be grouped in separate and mixed groups of sexes so that all respondents feel comfortable sharing their perspectives. For example, an all-male FGD can be held for fishers and fishing crew members; an all-female grouping for

fishers' wives and vendors. For the other value chain nodes, mixed male-female FGDs may be conducted to reflect the real gender composition of the said nodes. Annex VI provides a sample questionnaire with questions based on the six domains of the Gender Dimensions Framework.

To generate sex-disaggregated outputs, participatory tools and techniques should be designed and conducted for specific female and male respondents belonging to specific groups. In addition, gender-appropriate interview methods must be used. Some tools include:

1. **Activity Analysis or Profile**: Obtain responses of women and men to show the productive, reproductive, community work and leisure/rest that they do, when they do these activities, and how much time they use on each activity. Generating a gender-specific Activity Profile can provide information on who contributes most to these types of work in terms of time. Research in agriculture showed that comparisons in time use, e.g. across sites or over time, are difficult to make if different time-use collection methods are used (Seymour et al. 2017). Further queries and analysis can be done on the same topic according to the domains in the gender dimensions framework (see Annexes V and VI).

> "*In addition to just sex, there is also a need to differentiate who these women and men are, and their characteristics. This will allow for any intersectionality to be used to give nuance to resource usage and access, i.e. not just "the women" and "the men" but which particular women and men – the Mayor's wife and daughter will do or perceive different things to the widow and the single mother or spouse of a fish worker."*
> *– Dr. Meryl J. Williams, Gender in Fisheries Champion & Advocate*

2. **Mapping Exercises**: Generate gender-sensitive maps for sex-specific separate groups, such as: only men, only women, and mixed women and men. Differences in perceptions are influenced by exposure and experience, therefore, a male fisher who goes from his house to the shore and returns everyday would only map what he sees and experiences along the way. A woman fisher who goes from her house to the shore to receive the fish catch to process it, then goes to the school to accompany her kids, then on to the market to buy food, then back to her house, might include all these places in the map.

3. **Participatory Gender Resource Mapping (PGRM):** A resource map is a Participatory Rapid Appraisal tool that helps us to learn about a community and its resource base. The primary concern is not to develop an accurate geographical map but to get useful information about local perceptions of the community regarding its resources and its importance to the people. A gender resource map is intended to determine the location of women's and men's spaces in a particular FMA to further enhance and deepen the understanding of relations between men and women in the FMA. Depending on availability, a base map of the area could be obtained from the responsible government agency or the village itself. Further observations could be noted down while conducting several ocular visits to and interviewing key informants in the area. The spaces dominated by men and women could then be indicated by international female and male symbols and the results analyzed. As a Participatory Rapid Appraisal tool, it places emphasis on empowering local people to assume an active role in analyzing their own living conditions, problems, and potentials to initiate change. The exercise allows women and men to share, discuss, enhance and analyze their local knowledge of life and conditions, to plan and act and to monitor and evaluate. Thus, the map will give details about the kind of resources that women and men in a community have access to, and which enable them to perform their daily activities. It will be a sketch of the physical layout of the village/community with common property and resources marked (river, lakes, land) from the perspective of men and women. In effect, participatory gender resource mapping tools are not primarily designed to gather data on women alone, but to gather local data for a particular purpose, disaggregated by sex. It ensures that the female and male perspectives are collected separately or at least freely and independently, not influenced by each other's views.

   Participatory gender resource mapping can be further enhanced by overlaying it with the value chain framework. PGRM in the fisheries value chain can also be conducted following the matrix found in Annex V. The information can be obtained using gender-sensitive questions with focus groups, held

separately with men and women for initial discussions, and held together with both sexes for verification.

Examples of Gender-Blind Questions:

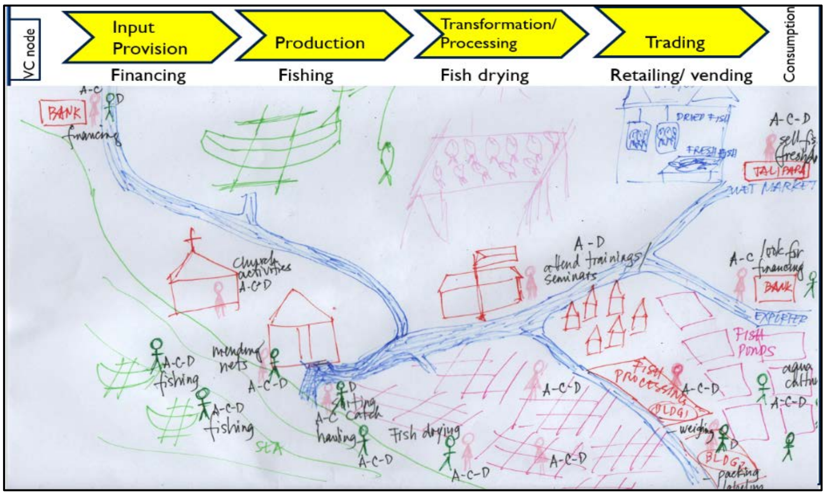
1. What resources are available? Which are abundant? Which are scarce?
2. What resources are important?
3. Does everyone have equal access to the resources?
4. Where do people go to collect water, gather firewood, graze livestock, and do livelihood activities?
5. Which resource do people have the most problem with? Why?
6. What are the opportunities for the households?

Examples of Gender-Sensitive Questions:

1. What resources do women/men/both use?
2. What resources are important to men? To women?
3. What resources do women have access to? Men? Both?
4. What resources do women own? Men?
5. Who controls and makes decisions about how resources are used, men? Women?
6. How are resources used by men and women? Are they used for reproductive, productive, or community uses?
7. Which resource do men/women have the most problem with?
8. What are the opportunities for men? Women?

This exercise can be further supplemented with a graphical presentation, shown in Figure 15, using the same sets of questions.

Figure 15. Example of Participatory Gender Resource Map



Source: Output of Participatory Gender Resource Mapping workshop. A=Access; C=Control; D=Decision (Sumagaysay, 2011)

4. **Gender Responsive Value Chain Analysis (GRVCA)**: Useful for extracting sex-disaggregated data from the men and women actors along the different nodes of the value chain. This can enhance the standard value chain analysis framework as the economic information obtained will provide more details. For example, instead of referring just to producers and traders and their revenues, researchers can pinpoint more specifically how much women and men producers and traders obtain from their activities. In this way, the differentials and disparity in wages and earnings can be examined.

   As part of the exercise, researchers may "value" or monetize the work of women, men, girls and boys, in each step of the chain of flow of goods—from source to consumption. In doing so, researchers may have a better view and understanding of the opportunities and weaknesses in the allocation of resources among the gender-disaggregated players throughout the value chain (supply, production, marketing). This can be done rapidly provided that all the actors are present. The objectives of a GRVCA are to:

- Determine the roles of women and men;
- Enhance value chain productivity through allocation of economic resources to disadvantaged or marginalized groups;
- Improve women's economic empowerment through wider opportunities to make economic decisions;
- Recognize and address women's and men's needs, thus, contributing to their work efficiency;
- Recognize the value of women's and men's work and their economic contribution;
- Expand work spaces for women and ensure their needs are considered during value chain changes (e.g., building or redesigning fish markets);
- Creation of more leadership and decision-making opportunities for women workers and entrepreneurs;
- Easier knowledge transfer and implementation of interventions;
- Promotion of gender equity in the work place; and
- Count women and men's voices for them to be heard.

A GRVCA mapping workshop may be conducted prior to detailed field surveys. The following steps are suggested (See Annex V for suggested matrix templates to be used):

1. Define value chain activities in small-scale and large-scale fisheries.
2. Undertake an inventory of female and male players and enablers in all value chain functions.
3. Identify the value chain players' roles, by sex, and the enablers with their corresponding roles.
4. Determine the relationships between and among the value chain players.
5. Identify opportunities and constraints to gender empowerment in the fisheries value chain.

Sample GRVCA Questions:

1. Where are the men in the tuna industry in their efforts to manage tuna resources? Where are the women?
2. Who are the women and men at each node of the value chain?
3. Who does what? When, where, and how?
4. Who gets what? Who has access to resources?
5. Who decides/controls what? Why?
6. Who gains? Who benefits? How much?
7. What are the opportunities/constraints for women and men (of a certain node, group or background)?

Participants in the GRVCA workshop should include a variety of stakeholder groups from the fisheries value chain. Representation is required from both women and men in each node of the value chain, including ancillaries and intermediaries, and even some from less formal occupations.

To integrate gender aspects for sex-disaggregated data from fishers and community stakeholders, revisions can be made to common appraisal questions (Pido et al. 1996, Table 14, p. 43) as shown below. In addition to these, it is also important to include other gender related characteristics that have major impacts on roles, such as age, ethnicity, religion, income level, position in society, and education level.

Demographics:

1. Who is the oldest resident of the village? When did he/she arrive here?
2. Are the locals original inhabitants of the place or not?
3. If migrants, where did they come from? When did they arrive?
4. Are majority of these migrants males or females?
5. Do the children and youth go to school?
6. What are the proportions of boys and girls?
7. What is the prevailing religion? What are the other sects?
8. What is the average family size?

Tenurial status:

1. Do people own real properties? How about their home lots?
2. Do women and men have equal rights to own real properties?
3. Are there property rights in fishing areas?
4. Do local fishers establish boundaries in their fishing areas?

To analyze institutional arrangements (local, external), researchers should obtain female and male responses, perceptions, and conduct institutional mapping; identify associations based on whether they are exclusively for women, for men, or mixed, and for which women and men if distinct differences exist, e.g., by ethnicity, income/status group; and finally assess if the opportunities to participate as members and officers in the associations equal for women and men.

For local institutional arrangements, questions providing sex-disaggregated responses should be asked, such as: Do the institutions have an explicit or implied gender policy? What are their strategies to promote (or resist) gender equality?

Steps 4 and 5 – Preliminary Analysis of Data and Organization of Results

Incorporating a gender analysis framework into data analysis is an important part of a transformative approach and is useful for considering how existing gender relations and inequities may interact with programming interventions as well as identifying ways to advance gender transformation (USAID 2012). Gender analysis frameworks are essential instruments for understanding gender inequalities (March et al. 1999) and can be a key tool for visualizing where gender inequalities exist. Analysis can guide researchers in exploring how women and men have differential status and access to resources within their domains and how elements in these domains shape gender roles and responsibilities. Gender-responsive analysis also enables researchers to identify gender-based constraints and systematically assess gender considerations, from which they can design interventions that take gender-based constraints into consideration.

As data is analyzed and organized in Steps Four and Five, researchers should take care to develop tables, figures, charts, matrices, and other graphics. Data should be organized with separate data columns and points for women and men and should acknowledge other categories that may have gender differences.

Steps 6 and 7 – Community Validation and Report Writing

Researchers should invite representatives from various sectors and both sexes to further triangulate the results through a stakeholder validation workshop to present, confirm, and amend research findings with a range of stakeholder perspectives. Following the workshop, the research team can begin to develop the final Gender Analysis report, with relevant inputs integrated from the validation workshop.

To remain true to gender integration, the report should use gender inclusive language. Provided that the research guidelines have been followed, the report will have sex-disaggregated data and information. General statements should be avoided in reporting, whereas in advocacy contexts gender neutral terminology is commonly used to avoid bias and discrimination.

Gender-sensitive reporting can be easily done if sex and gender

Sample Gender-Responsive Writing

Non-Gender-Responsive: "The Community Fisheries Management Council in Community A is composed of ten elected members who are active in fishing activities. The Council is headed by a President, supported by a Deputy, Secretary, Treasurer and Custodian."

Gender Responsive: "The Community Fisheries Management Council in Community A is composed of three women and seven men who are active in fishing activities. The President and Custodian are men, whereas the Deputy, Secretary and Treasurer are women."

disaggregated data are available and have been analyzed. The format of reporting for the Gender Analysis is similar to the original RAFMS framework, but with specific reference as to whose perceptions, information, data, and voices they belong to. As such, readers can get a clearer picture of differentials within the fisheries management systems.

Part III – Analyzing the Results

The gender analysis process should extend beyond the report writing stage to follow-up on critical identified issues. Beyond the RAFMS and building on the gendered results of the study, gender issues should be further pursued to enrich the appraisal results and analysis. Using the initial results as a baseline or reference, a more detailed investigation can be performed over a longer timeframe to generate deeper gender information, particularly on the issues identified and their potential solutions.

The data from a detailed gender analysis enables researchers to see (Arenas and Lentisco 2011):

- the different needs, priorities, capacities, experiences, interests, and views of women and men;
- who has access to and/or control of resources, opportunities and power;
- who does what, why, and when;
- who is likely to benefit and/or lose from new initiatives;
- gender differences in social relations;
- the different patterns and levels of involvement that women and men have in economic, political, social, and legal structures;
- that women's and men's lives are not all the same and often vary depending on factors other than their sex, such as age, ethnicity, race and economic status; and
- assumptions based on our own realities, sex, and gender roles.

The analysis of this information allows researchers to gauge the extent to which the needs and priorities of women and men are reflected in development-oriented action; organize information to pinpoint gaps relating to gender inequalities and to access gender disaggregated information; identify what additional changes and initiatives are required to enable women to participate in, and benefit from a project; determine the opportunities that exist to prevent or combat the gender imbalances arising from development-oriented action; and anticipate the potential impact of the action on the women and men involved. To be better equipped for this analysis, it is helpful to understand the methodologies and analytical frameworks that have informed the gender appraisal process, as follows.

USAID Gender Dimensions Framework: The Six Domains (Andraos 2015; WWF 2016)

The Six Domains of the USAID Gender Dimensions Framework can be used to guide the analysis of gender-specific indicators. These domains are: (1) access to assets, (2) knowledge, beliefs and perceptions, (3) practices and participation, (4) space and time, (5) legal rights and status, and (6) power. As a tool, analysis provides researchers the opportunity to explore how women and men have differential status and access to resources within these domains and how elements in these domains shape gender roles and responsibilities. In addition, it enables the researchers to identify gender-based constraints and systematically assess gender considerations in each of these areas. The data on gender-specific indicators are analyzed based on the six domains.

Triple Roles Framework (Moser 1993)

The Triple Roles Framework is a tool that involves mapping the gender division of labor by asking 'who does what?' The Framework questions assumptions that planning is a purely technical task that is distinct from traditional planning methods in several critical ways. Gender planning is both political and technical in nature, assumes conflict in the planning process, involves transformational processes, and characterizes planning as "debate." There are three concepts of the framework: Women's triple role; Practical and strategic gender needs; and Categories of Women in Development/Gender and Development policy approaches (policy matrix).

One of the three concepts of the framework is the triple role of women which consists of the following: (1) reproductive, (2) productive, and (3) community-managing activities. Differently, men primarily carry out productive and community politics activities. Reproductive work which always has been the responsibility of women and girls involves household care and maintenance, including bearing and caring for children, preparing food, collecting water and fuel, shopping, housekeeping, and family health-care. Productive work which involves both women and men includes the production of goods and services for consumption and trade both in employment and self-employment. Although productive work involves both sexes, their roles are different and women's productive work is often less visible and less valued than men's. Community work comprises the collective organization of social services, events, ceremonies and celebrations, participation in groups and organizations, local political activities and other community-related activities. The community work is divided into two different types of work: community-managing activities and community politics. Community-managing activities are usually carried out by women aside from their reproductive role. These unpaid activities are usually carried out during women's free time and they include health care and education. In contrast, men undertake community politics including participating in formal politics at all levels for which they get paid and get benefits of having their status improved.

Although this framework is useful, it could benefit from updates to reflect more accurate and updated gender roles. For example, more women are taking active roles in politics and more men are assisting in reproductive work. The types of work outlined for each of the triple roles of women and the roles of men should not be taken as prescriptive.

Social Relations Framework (Kabeer 1994)

The social relations framework emphasizes human well-being as the final goal of development and aims to analyze existing gender inequalities in the distribution of resources, responsibilities, power, the relationships between people, their relationship to resources and activities, and how they are reworked through institutions. Institutions are defined as distinct frameworks of rules for doing things, and organizations as the specific structural forms that institutions take. Institutions ensure the production, reinforcement and reproduction of social relations, and thereby, social differences and inequality. The unequal social relations including gender relations which result in unequal distribution of resources, claims and responsibilities is perceived as one of the root causes of poverty. Gender analysis therefore requires looking at how institutions (according to location: the state, the market, the community and family/kinship) create and reproduce inequalities.

Kabeer (1994) classified five dimensions of institutional social relationships that are especially relevant for gender analysis:

- *Rules*, or how things get done; do they enable or constrain? Rules may be written or unwritten, formal or informal.
- *Activities*, or who does what, who gets what, and who can claim what. Activities may be productive, regulative, or distributive.
- *Resources*, or what is used and what is produced, including human (labor, education), material (food, assets, capital), or intangible resources (goodwill, information, networks).
- *People*, or who is in, who is out and who does what. Institutions are selective in the way they include or exclude people, assign them resources and responsibilities, and position them in the hierarchy.
- *Power*, or who decides, and whose interests are served.

This chapter may be cited as:

Sataporvanit, A., A. Prieto-Carolino, R.A. Tumbol and M.B. Sumagaysay. 2019. Chapter 4: Gender in Rapid Appraisal of Fisheries Management Systems, p. 37-47. In USAID Oceans. 2019. Assessing Fisheries in a New Era: Extended Guidance for Rapid Appraisal of Fisheries Management Systems. USAID Oceans and Fisheries Partnership (USAID Oceans), Bangkok, Thailand. 47. p. + Technical Annexes 54 p.

REFERENCES AND ANNEXES

References and Annexes, referenced throughout the guide, can be accessed and downloaded at www.seafdec-oceanspartnership/resource/rafms-technicalannexes.

Annex I. Survey of RAFMS Applications
Annex II. RAFMS Indicators and Variables
Annex III. Sample CDT Gap Analysis Survey Instrument
Annex IV. CDT Gap Analysis Diagnostic Tool
Annex V. Templates for Gender Analysis Research
Annex VI. Sample Questionnaire for Gender Analysis Surveys
Annex VII. Recommended Networks and Resources on Gender Equity
References

The USAID Oceans and Fisheries Partnership
www.seafdec-oceanspartnership.org