

**Assessing economic and welfare values of fish in the Lower Mekong Basin**  
*Project funded by ACIAR*

**Communication Component**

# **STAKEHOLDERS, INFORMATION FLOWS AND IMPACT PATHWAYS FOR FISHERIES-RELATED INFORMATION IN CAMBODIA**

**CHANNELS ALLOWING EFFICIENT CONVERSION OF  
FISHERY-RELATED PROJECT FINDINGS INTO POLICY CHANGES**

**UN Borin, Eric BARAN**

July 2012



## Executive summary

The present study finds that the main institutional producers of Fisheries-Related Information (FRI) in Cambodia are the Fisheries Administration and the Fisheries Program at the Mekong River Commission. The World Wide Fund for Nature (WWF), Wildlife Conservation Society (WCS), Wetlands Alliance, WorldFish Center, and Conservation International (CI) also produce fisheries-related information with a focus on biodiversity conservation and management. The Cambodian Development Resources Institute (CDRI), Fisheries Action Coalition Team (FACT), and the Learning Institute (LI) also produce socially-oriented information on fisheries to improve community livelihoods. Statistics about fisheries production or fish prices originate from the Fisheries Administration, the Food and Agriculture Organization (FAO) and the National Institute of Statistics at the Ministry of Planning.

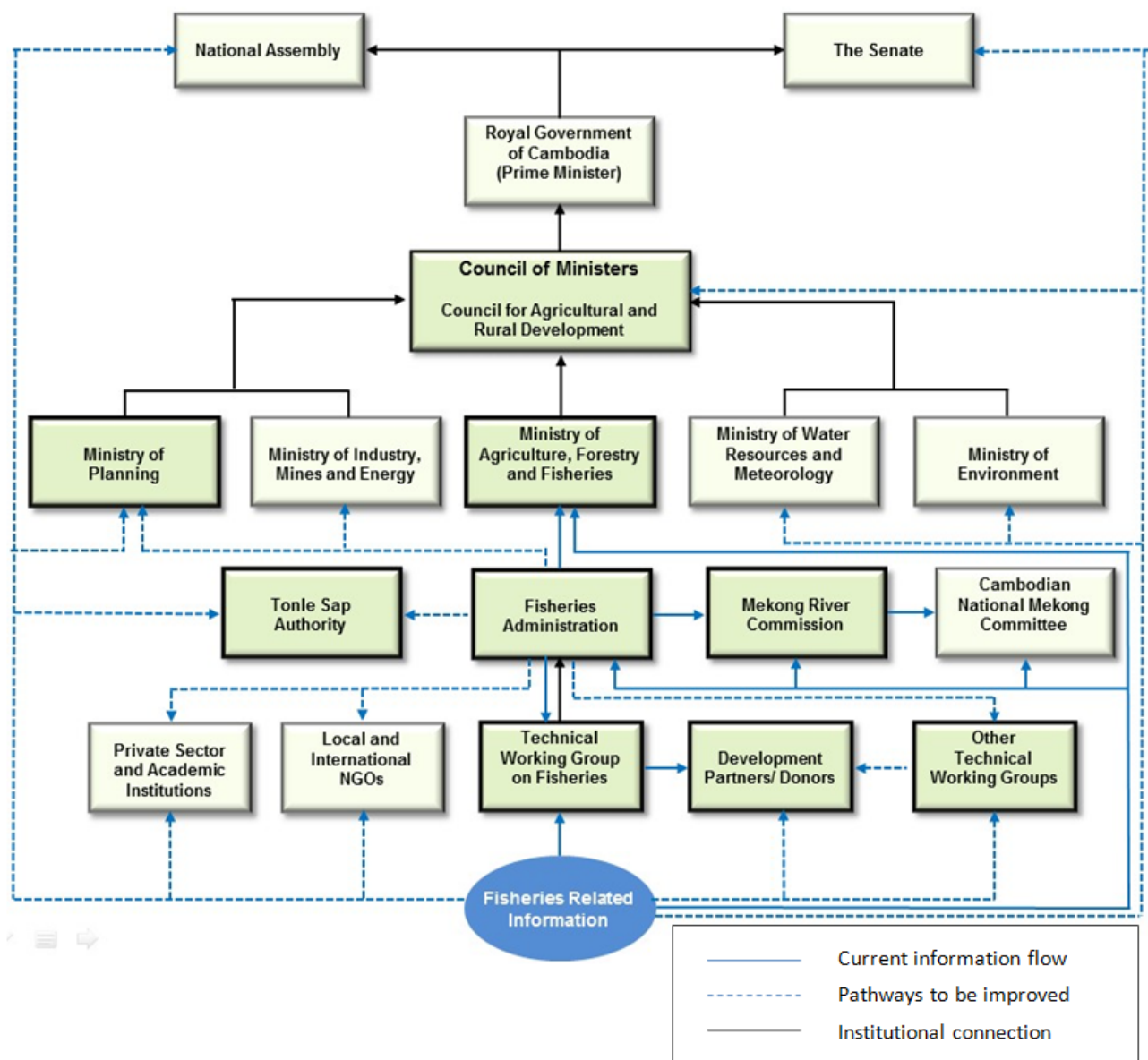
The major users of FRI are the Ministry of Agriculture, Forestry and Fisheries (MAFF), the Technical Working Group on Fisheries (TWGF), the Tonle Sap Authority (TSA), and the Cambodian National Mekong Committee (CNMC). The Ministry of Water Resources and Meteorology (MOWRAM), the Ministry of Environment (MOE), the Ministry of Industry, Mines and Energy (MIME), the Council for Agricultural and Rural Development (CARD), the National Assembly and the Senate also have a mandate linking their activities or policies to fish resources and fisheries, and these institutions can and should receive fisheries-related information.

In terms of donors, USAID, the EU, the Danish International Development Assistance (Danida), the UNDP, JICA, the World Bank, the ADB and the Australia Agency for International Development (AusAID) are players interested in fisheries and have used FRI. Among them, USAID, the EU and Danida stand as the most important users of FRI.

Among development partners, the main users of FRI are the Helping Address Rural Vulnerabilities and Ecosystem Stabilities (USAID-HARVEST) program, the WWF, Wetlands Alliance, CI, WCS, CDRI, FACT, LI, Global Fish Alliance (G-Fish), Culture and Environment Protection Association (CEPA), and Development Partnership in Action. Among them, the USAID-HARVEST program is the most important user of FRI, due to its \$58 million budget.

The present study concludes that fisheries-related information can and should better be conveyed to some potential users; among them we identified the National Institute of Statistics, the Ministry of Water Resources and Meteorology (MOWRAM), the Ministry of Environment (MOE), the Ministry of Industry, Mines and Energy (MIME), the Tonle Sap Authority (TSA), the Council for Agricultural and Rural Development (CARD), the National Assembly and the Senate.

The Technical Working Group on fisheries and other TWGs on water, agriculture, the environment, food security and nutrition are among the best hubs for conveying FRI in Cambodia. These TWGs could facilitate the flow of FRI towards development partners, NGOs and government counterparts interested in fisheries; as well as towards other partners dealing with water and natural resources.



## Table of contents

1	INTRODUCTION .....	6
2	METHODOLOGY .....	7
2.1	Approach.....	7
2.1.1	Stakeholder Analysis.....	7
2.1.2	Impact Pathway Analysis (IPA) .....	8
2.2	Methods Used .....	8
2.2.1	Data Collection Protocol.....	8
2.2.2	Key Informant Selection .....	9
2.2.3	Questionnaires .....	11
3	RESULTS .....	13
3.1	Producers and Users of Fisheries-Related Information .....	13
3.1.1	At the National Level .....	13
3.1.2	At the Provincial Level.....	16
3.2	Stakeholders and Their Fisheries-Related Policies .....	18
3.2.1	At the National level .....	18
3.2.2	At the Provincial Level.....	27
3.3	Flow of Fisheries-Related Information Between Stakeholders.....	31
3.3.1	At the National Level .....	31
3.3.2	At the Provincial Level.....	33
3.4	FRI Impact Pathways .....	34
3.4.1	At the National Level .....	34
3.4.2	At the Provincial Level.....	35
4	CONCLUSIONS .....	38
5	BIBLIOGRAPHY .....	40
6	Appendix 1: Questionnaire for the Semi-structured Interview.....	41
7	Appendix 2: List of Informants Interviewed.....	42
8	Appendix 3: List of Stakeholders.....	45

## Keywords:

Stakeholder analysis, policy analysis, impact pathway, communication

## Acknowledgements

The Asia Pacific Scholarship Consortium (APSC) is warmly thanked for having funded the first author's internship during which this study was undertaken and completed. Special thanks to fisheries-related local NGOs in Pursat, Stung Treng, and Takeo provinces for sharing information and coordinating his field visits. Without their facilitation and support, his field visits would not have gone as smoothly as it did; it was a pleasure to coordinate with them. Both authors also wish to thank all the informants named in Appendix 2 for their time, information and advice on the topic.

## ACRONYMS

<b>ACIAR:</b>	Australian Center for International Agricultural Research
<b>ADB:</b>	Asian Development Bank
<b>AusAID:</b>	Australian Agency for International Development
<b>CARD:</b>	Council for Agricultural and Rural Development
<b>CDRI:</b>	Cambodian Development Resources Institute
<b>CFRP:</b>	Cooperative Fisheries Research Program
<b>CI:</b>	Conservation International
<b>CNMC:</b>	Cambodian National Mekong Committee
<b>Danida:</b>	Danish International Development Assistance
<b>DC:</b>	Dolphin Committee
<b>DPFIC:</b>	Department of Planning, Finance and International Cooperation
<b>DPS:</b>	Department of Planning and Statistics
<b>EU:</b>	European Union
<b>FACT:</b>	Fisheries Action Coalition Team
<b>FAO:</b>	Food and Agriculture Organization
<b>FFI:</b>	Fauna & Flora International
<b>FIA:</b>	Fisheries Administration
<b>G-Fish:</b>	Global Fish Alliance
<b>IFReDI:</b>	Inland Fisheries Research and Development Institute
<b>IUCN:</b>	International Union for Conservation of Nature
<b>JICA:</b>	Japan International Cooperation Agency
<b>KNSA:</b>	Kampong Cham National School of Agriculture
<b>LI:</b>	The Learning Institute
<b>MAFF:</b>	Ministry of Agriculture, Forestry and Fisheries
<b>MIME:</b>	Ministry of Industry, Mines and Energy
<b>MOE:</b>	Ministry of Environment
<b>MOP:</b>	Ministry of Planning
<b>MOWRAM:</b>	Ministry of Water Resources and Meteorology
<b>MRC:</b>	Mekong River Commission
<b>NEF:</b>	Natural and Environmental Foundation
<b>NIS:</b>	National Institute of Statistics
<b>PNSA:</b>	Preah Leap National School of Agriculture
<b>RGC:</b>	Royal Government of Cambodia
<b>RUA:</b>	Royal University of Agriculture
<b>RUPP:</b>	Royal University of Phnom Penh
<b>TSA:</b>	Tonle Sap Authority
<b>TWG-AW:</b>	Technical Working Group on Agriculture and Water
<b>TWG-F:</b>	Technical Working Group on Fisheries
<b>UNDP:</b>	The United Nations Development Program
<b>USAID:</b>	U.S. Agency for International Development
<b>WA:</b>	Wetlands Alliance
<b>WB:</b>	World Bank
<b>WCS:</b>	Wildlife Conservation Society
<b>WWF:</b>	World Wide Fund for Nature

# 1 INTRODUCTION

In December 2011, the Australian Centre for International Agricultural Research (ACIAR) of the Australian Government funded a four-year study project called “Accessing Economic and Welfare Values of Fish in the Lower Mekong Basin.” Throughout the present report, the word “project” refers to this study project. The WorldFish Center implemented the project, in collaboration with the Inland Fisheries Research and Development Institute (IFReDI) and the Cambodian Agricultural Research and Development Institute (CARDI).

The project was designed not only to assess the direct use values of fish resources, but also to quantify the role and welfare values of fish resources contributing to the livelihoods of local people in Cambodia. Since past estimates of values of capture fisheries are either largely outdated, incomplete, or not well disseminated, the information produced by the project is expected to be new and useful Fisheries-Related Information (FRI) to feed and underpin long-term development policies and projects for the fisheries sector in Cambodia and in the region.

One of the overall aims of the project is to interpret findings, analyze implications, and convey results to national decision-makers, concerned government line ministries, international partners (donors and development agencies) and local actors. To accomplish this aim, one objective of the project is to push the results of the project a step forward by identifying actors who need to know and use FRI of the project now and in the future. This requires a proper identification of stakeholders, information flows, and impact pathways for FRI. This will be an important element to bring FRI of the project to the right players, so that they can make changes in policies and programs in the fisheries sector for the improvement and development of rural livelihoods.

The aim of this report is to identify specific stakeholders, information flows and impact pathways that can make use of FRI produced by the project. The report identifies two levels of stakeholders and impact pathways: national and provincial levels.

This report has three main parts. The first part presents the approach and methodology based on both theory and practice. The second part presents the results, and this part has four main sections. The first section presents the results of the Stakeholder Analysis. In the second section, we present the policies and roles of each actor identified in the Stakeholder Analysis. In the third section, we present the flow of FRI between identified actors. In the last section, maps of impact pathways for FRI at national and provincial levels are presented. The third part offers conclusions based on the results provided in the second part.

## 2 METHODOLOGY

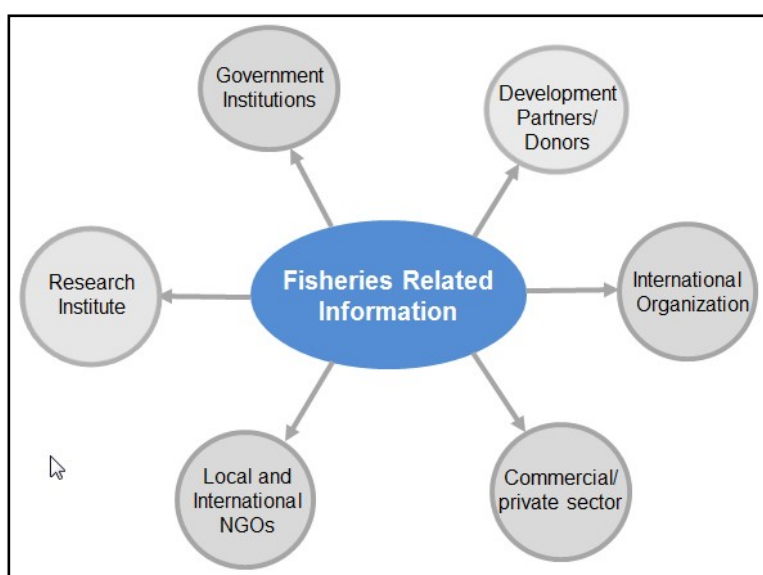
### 2.1 APPROACH

This report is based on two complementary analyses: a Stakeholder Analysis and an Impact Pathway Analysis.

#### 2.1.1 Stakeholder Analysis

Stakeholders are defined by Golder and Gawler (2005) as any individual, group, institution, or organization that has a vested interest in, is involved with, and/or is affected by a project or a project's activities. A Stakeholder Analysis is a tool used to identify players such as organizations and institutions that are concerned with or have an interest in a project or an issue (Schmeer, 1999 and Pasteur, 2001). A Stakeholder Analysis is important at the planning stage of a project or study (Matsaert, 2002).

The Stakeholder Analysis in this report is used to identify players such as government institutions, development partners, organizations, and the private sector, which are involved in producing, using, or disseminating FRI. By identifying these significant parties, the project team can take a proactive approach to informing fisheries-related policies and development programs in Cambodia.



*Figure 1: Mapping producers and users of fisheries-related information*

After identifying major stakeholders in the fisheries sector, the present study looks at each player's policies and roles and presents the flows of FRI between each of these actors. The resulting map of actors with their policies, roles, and information flows can be used to pinpoint the most significant and relevant players for FRI.

## **2.1.2 Impact Pathway Analysis (IPA)**

An IPA is a tool used for analyzing the results of a specific study and identifying ways the project's result can have a significant impact on stakeholders (Springer-Heinze *et al.*, 2003 and Briones *et al.*, 2004).

In this report, we perform an IPA to identify the most effective impact pathways for the project's FRI. We identify impact pathways by considering the policies and roles of major stakeholders and the way information flows between them. This process identifies the players who have the most important roles in the fisheries sector or who should have priority in receiving FRI.

To establish effective impact pathways, the IPA proceeds using a two-step process. First, the IPA looks at existing flows of information between players in the fisheries sector. Second, the IPA maps out more effective pathways for the flow of information. The resultant impact pathways are the most effective channels for conveying FRI to major stakeholders in order to foster policy changes in Cambodia's fisheries sector.

## **2.2 METHODS USED**

Two methods of data collection were used for this study: the analysis of documents and key informant interviews. The documents reviewed include policies, regulations, administrative structures, planning and strategic frameworks, and programs of fisheries-related government institutions and organizations. These documents were obtained from the Ministry of Agriculture, Forestry, and Fisheries (MAFF), Fisheries Administration (FiA), Technical Working Group on Fisheries (TWGF), Food and Agriculture Organization (FAO), European Union (EU), Danish International Development Assistance (Danida), and from individual organizations' homepages.

The key informant interviews were used to collect more information from people involved in the fisheries sector. The information gathered from these practical informants was useful in developing our analysis of the information obtained from our analysis of documents. The informants participated in semi-structured interviews to discuss how fisheries-related policies or programs are developed and implemented and how they produce, use, and disseminate FRI.

### **2.2.1 Data Collection Protocol**

The following protocol describes how the information related to stakeholders, information flows, and impact pathways was collected.

Two steps were used to identify the major players in the fisheries sector. First, we conducted a review of the Operating Framework of the TWGF in 2004; the Institutional Reviews of the DoF in 2006; the Review of the Roles and Linkages of Sub-National Fisheries Institutions in 2006; and the Strategic Plan of the MAFF. We also sought to establish the roles and policies of each of these players as well as the direction of information flows between them. Second, we visited these players and interviewed them to map out as many



users of FRI as possible. The informants were asked to name other players in the fisheries sector, and each new player was added to our list until no new players could be found. During these interviews, informants were asked to clarify the roles and policies of their organizations as well as the flow of information between their organizations and others in the sector. This two-step identification process allowed us to piece together a comprehensive list of FRI users as well as their policies, roles, and relationships.

Two steps were also used to identify the most effective pathways for conveying FRI to stakeholders. The first step involved identifying the most significant actors among the players in the sector. These important actors were singled out by all of our informants. The policies and roles of each of these actors as well as the direction of information flows between them were reviewed, analyzed, and compared. The second step focused on ascertaining the most effective FRI flows and impact pathways between players. Given the prior work on identifying the most important players in the sector and the existing flows of information, we were able to discover new impact pathways that would be likely to work. We mapped out the new impact pathways that we wished to establish in order to have greater influence on the development of policy within the fisheries sector.

### **2.2.2 Key Informant Selection**

Stakeholders identified in the Stakeholder Analysis were chosen to be informants for our interviews. All informants selected from institutions or organizations had to be people with knowledge of the fisheries sector or with an important role related to FRI.

The informants were classified as national or provincial level. At the national level, the informants were selected from government institutions, main development partners and NGOs based in Phnom Penh. For the provincial level, the informants were selected from provincial government departments and NGOs in Pursat, Takeo, and Stung Treng because these three provinces are the target for the ACIAR project “Accessing Economic and Welfare Values of Fish in the Lower Mekong Basin.” Both at the national and provincial levels, at least one key informant from every institution or organization identified in the Stakeholder Analysis was met and interviewed. The key informants are presented in the following tables.

*Table 1: The key informants sought in the government institutions*

<b>Name of Institution</b>	<b>Key Informants</b>
Ministry of Agriculture, Forestry, and Fisheries (MAFF)	Director of the Department of Planning and Statistics
Fisheries Administration (FiA)	Director and Deputy Director of the IFRaDI
	Coordinator of the TWGF
	Director of the Department of Planning, Finance, and International Cooperation (DPFIC)
Tonle Sap Authority (TSA)	Director or Deputy Director of the Department of Exploitation Control and Conservation
Cambodian National Mekong Committee (CNMC)	Director of or Senior Officer in the Fisheries Program
The Council for Agricultural and Rural Development (CARD)	Director of the Nutrition and Food Security Unit or the Chief of the Information Management Unit
National Institute of Statistics (NIS)	The Director of the Department of National Accounts or the Officer in Charge of the Consumer Price Index
Ministry of Water Resources and Meteorology (MOWRAM)	Director of the Department of Hydrology
<b>Total</b>	<b>9</b>

*Table 2: Key informants sought from development agencies, international and local NGOs*

<b>Name of Institution</b>	<b>Informant</b>
Food and Agriculture Organization (FAO)	The FAO Representative in Cambodia
The European Union (EU)	The Delegate of the EU or a senior officer in charge of the Fisheries Program
The United States Agency for International Development (USAID)	The USAID Representative in Cambodia or a senior officer in charge of Environment and Food Security
Danish International Assistance (Danida)	The Danida Representative in Cambodia or a senior officer in charge of the Fisheries Program
The Mekong River Commission (MRC)	Director of or a senior officer of the Fisheries Program
The Wetlands Alliance	Representative, research officer or senior program officer
The Cambodian Development Resource Institute (CDRI)	Director of or a research associate, research officer, or senior program officer in the Environment and Natural Resource Project
The Fisheries Action Coalition Team (FACT)	Executive Director, program manager, or senior program officer
The Learning Institute (LI)	Executive Director/Officer in Charge of the Information and Communication Section
<b>Total</b>	<b>9</b>

Table 3: Key informants sought at the provincial level

Provinces	Informants	Subtotal
<b>Stung Treng</b>	A provincial program manager or senior program officer in the Culture and Environment Preservation Association (CEPA)	<b>6</b>
	A program manager or senior program officer in the My Village Organization (MVi)	
	A program manager or senior program officer in Promvihearthor (PVT)	
	A program manager in the Community Rural Development Team (CRDT)	
	A senior program officer in Development and Partnership in Action (DPA)	
	Director of the FiA Cantonment	
<b>Pursat</b>	Executive Director of Poor Family Development (PFD)	<b>5</b>
	A provincial fisheries program manager at HARVEST	
	Executive Director of the Buddhism Development Association and Supporting Environment (BDASE)	
	Director of the Cambodian Coalition of Fishers (CCF)	
	Director of the FiA Cantonment	
<b>Takeo</b>	Program Advisor or Provincial Program Advisor at Oxfam Australia	<b>2</b>
	Director of the FiA Cantonment	
	<b>Total</b>	<b>13</b>

### 2.2.3 Questionnaires

A questionnaire was prepared for the semi-structured interviews with key informants (see Appendix 1). The questionnaire was divided into five components, each designed to collect different information for the study.

The first component was designed to elicit the names of more institutions or organizations relevant to FRI. The questions set in this section were:

*Besides your organization, who else has produced, used or been exposed to FRI?*

*Besides your organization and those players, who else should have received FRI?*

The second component was designed to collect the information about the actors' fisheries-related policies and roles. The questions in this component were:

*What are the policies of your organization that are reflected in the fisheries sector or relevant to FRI?*

*What fisheries-related activities, projects or programs has your organization implemented or been involved with so far?*

*What are your organization's achievement(s) so far?*

*Could you please describe the policies and roles of other institutions or organizations that produce, use, or disseminate FRI?*

The third component was designed to clarify how FRI is exchanged between actors in the sector. The questions in this component were:

*How is FRI used by your organization?*

*How does your organization get FRI?*

*How has FRI been exchanged between your organization and other organizations?*  
*Who do you think FRI has not reached?*  
*How do you think dissemination of FRI should be improved?*

The fourth component was designed to identify the most significant actors among those identified. The questions in this component were:

*Among all identified actors, which ones do you think have played their roles best?*  
*Among them, who do you think can make best use of FRI?*

The fifth component was designed to determine the best format(s) and type(s) of FRI from the point of view of the identified actors. The questions in this component were:

*What types of FRI does your organization produce, need to know or use?*  
*What types of FRI may other relevant organizations produce, need to know or use?*  
*What format(s) is/are most suitable to your organization?*  
*What format(s) may be most suitable to other relevant organizations?*

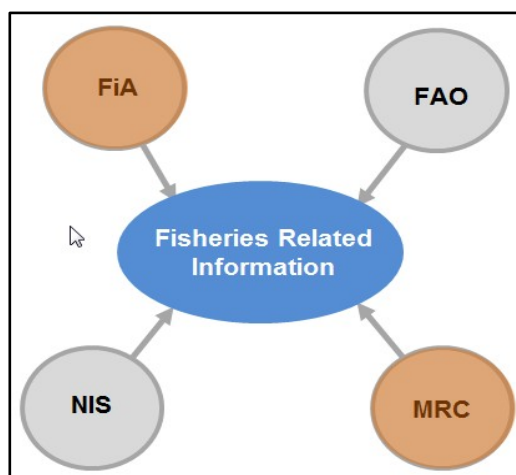
### 3 RESULTS

#### 3.1 PRODUCERS AND USERS OF FISHERIES-RELATED INFORMATION

##### 3.1.1 At the National Level

At the national level, the stakeholders involved with FRI fall into two main groups: **producers and users of FRI**. The producers of FRI generate or compile information on catches, economic value, species, trade, and market prices of fish. The producers of FRI are divided into two sub-groups: institutional producers and other producers of FRI.

The present study found that there are four institutional producers of FRI in **Cambodia**. Based on the literature and comments from key informants, the Institutional producers of FRI are: 1) the Fisheries Administration (FiA); 2) Mekong River Commission (MRC); 3) National Institute of Statistics (NIS); and 4) Food and Agriculture Organization (FAO). Among these three institutions, the FiA and MRC are the main producers of FRI in Cambodia.



*Figure 3: Institutional producers of fisheries-related information*

The study also found that eight other players produce information on fisheries in **Cambodia**. Based on the review of documents and interviews with key informants, these other producers of FRI are: 1) the World Wide Fund for Nature (WWF); 2) Wetlands Alliance; 3) Wildlife Conservation Society (WCS); 4) Conservation International (CI); 5) WorldFish Center, 6) Cambodian Development Resource Institute (CDRI); 7) Fisheries Action Coalition Team (FACT); and 8) Learning Institute (LI).

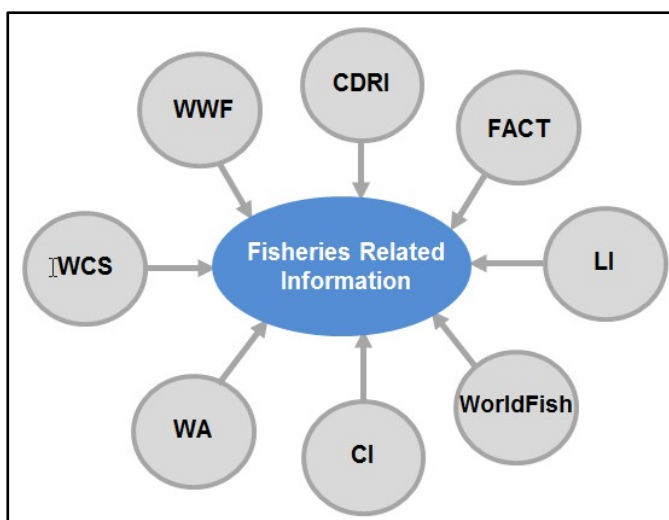


Figure 4: Other producers of fisheries-related information

**The study identified users of FRI.** These players use FRI to form policies and programs related to conservation of biodiversity, production of food, fish conservation, and livelihoods development. The users of FRI are divided into three sub-groups: government institutions, development partners, and international and local NGOs.

**The government institutions that are actual or potential users of FRI are:** 1) the Technical Working Group on Fisheries (TWGF); 2) Ministry of Agriculture, Forestry, and Fisheries (MAFF); 3) Tonle Sap Authority (TSA); 4) Cambodian National Mekong Committee (CNMC); 5) Council for Agricultural and Rural Development (CARD); 6) Ministry of Water Resources and Meteorology (MOWRAM); 7) Ministry of Environment (MOE); 8) Ministry of Industry, Mines and Energy (MIME); 9) National Assembly; and 10) Senate. Among these government institutions, the TWGF, TSA, CNMC and MAFF are the players that make most use of FRI.

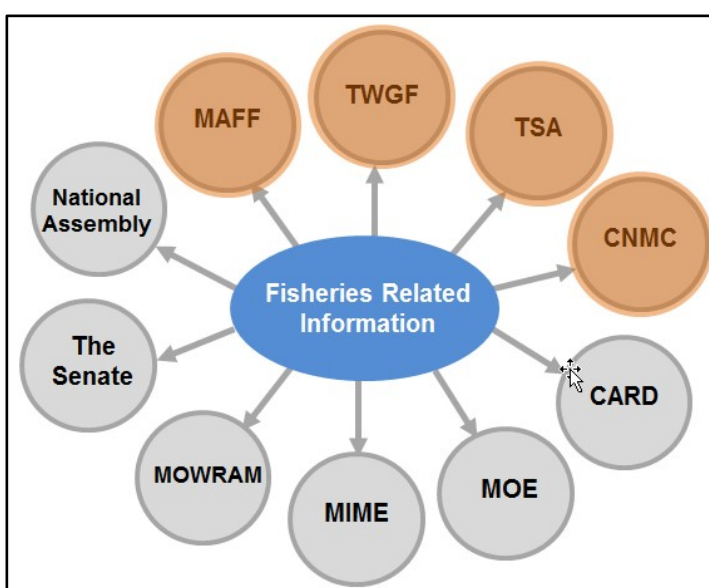
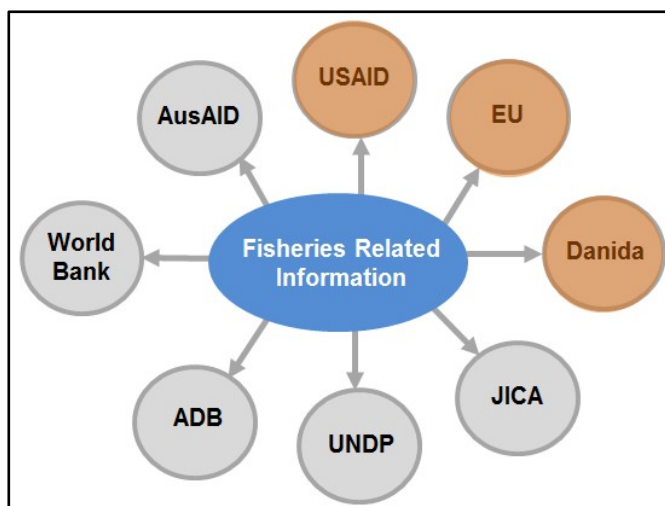


Figure 5: Users of fisheries-related information among government institutions

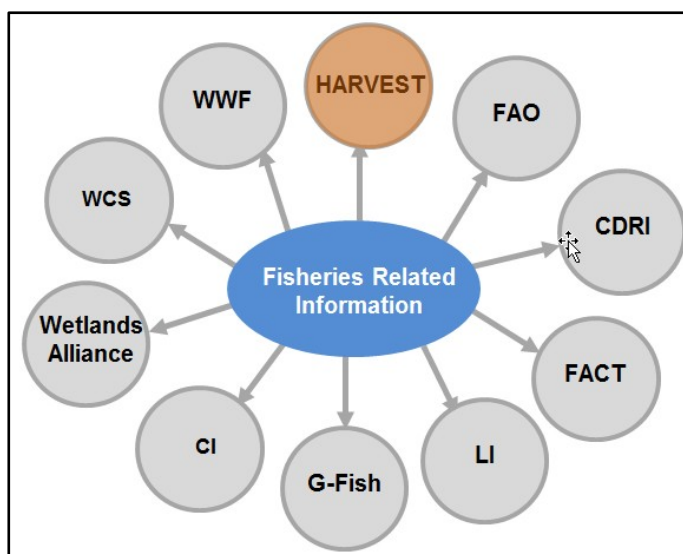
**The development partners/donors that are actual or potential users of FRI are:** 1) the U.S. Agency for International Development (USAID); 2) European Union (EU); 3) Danish International Development Assistance (Danida); 4) Japan International Cooperation Agency (JICA); 5) United Nations Development Programs (UNDP); 6) Asian Development Bank (ADB); 7) World Bank (WB); and 8) Australian Agency for International Development (AusAID). Among the development partners, USAID, EU, and Danida are the most important users of FRI.



*Figure 6: Users of FRI among development partners/donors*

**The actual users of FRI among international and local NGOs are:**

- 1) The Helping Address Rural Vulnerabilities and Ecosystem Stabilities (HARVEST) program and the FAO for their interventions focused on natural resources management;
- 2) The World Wide Fund for Nature, Wildlife Conservation Society and Conservation International for their conservation-driven projects;
- 3) The Wetlands Alliance, CDRI, Learning Initiative, FACT and Global Fish Alliance (G-Fish) for their livelihood- and policy-focused projects;
- 4) Among the international and local NGOs, HARVEST is the most important user of FRI considering the size of its budget.



*Figure 7: Users of fisheries-related information among international and local NGOs*

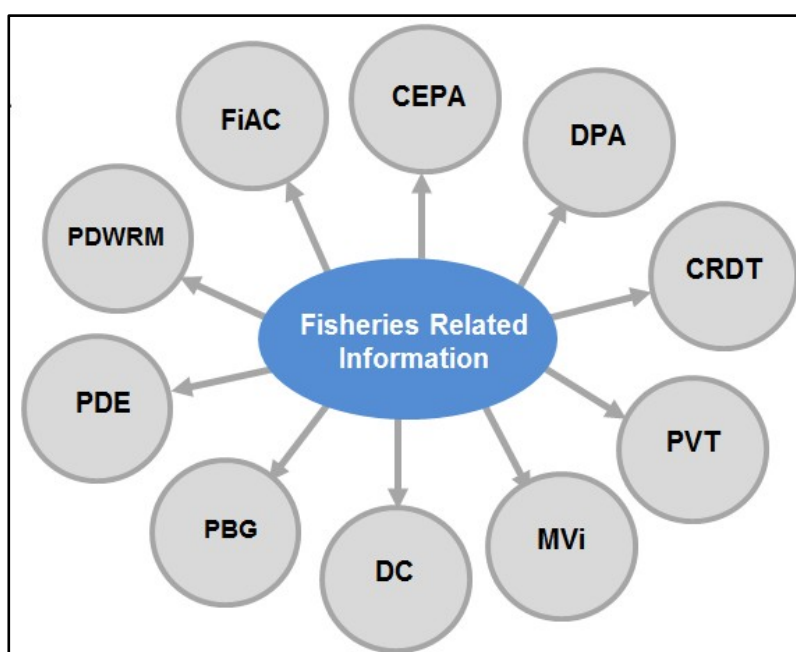
### 3.1.2 At the Provincial Level

**Producers and users of FRI are also found at the provincial level.** We examined fisheries stakeholders from three provinces: Stung Treng, Pursat and Takeo. In each province, the stakeholders involved with the fisheries sector fall into two groups. The first group consists of provincial government institutions, while the second consists of local NGOs.

#### 3.1.2.1 Stung Treng Province

**In Stung Treng, there are ten players that use or could use FRI.** Most of these players are local NGOs that are based in the provincial capital but that run projects in almost all of the province's five districts. The other players in the sector are provincial government departments. All of Stung Treng's FRI stakeholders are listed as follows:

- Culture and Environment Preservation Association (CEPA)
- Cambodian Rural Development Team (CRDT)
- Development Partnership in Action (DPA)
- Promvihearthor (PVT)
- My Village (MVi)
- Dolphin Committee (DC)
- The Fisheries Administration Cantonment (FiAC)
- Provincial Department of Water Resources and Meteorology (PDWRM)
- Provincial Department of Environment (PDE)
- Board of Provincial Governors (BPG)



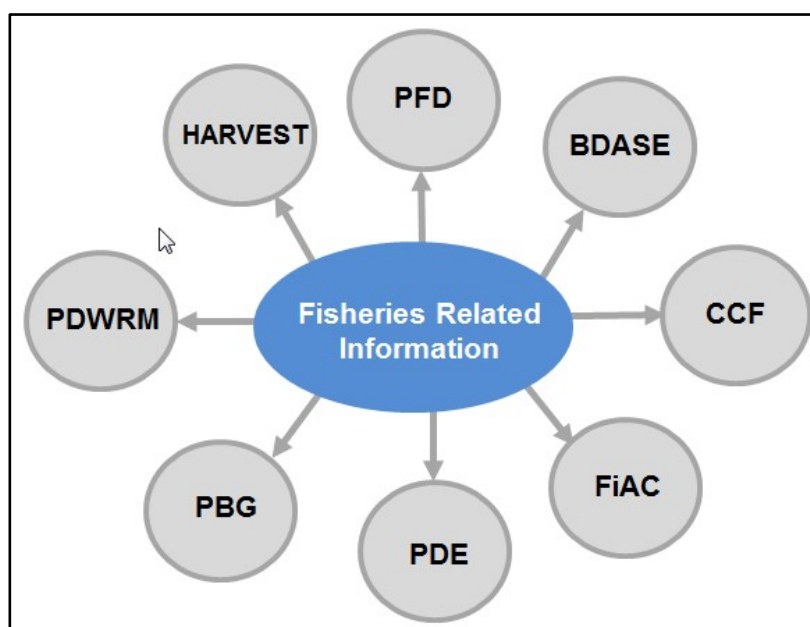
*Figure 8: Users of fisheries-related information in Stung Treng province*



### 3.1.2.2 Pursat Province

**In Pursat province, we identified eight players that use or produce FRI. There are** provincial government departments as well as local NGOs based in both the provincial capital and local districts. The projects run by these NGOs center on communities connected to the Tonle Sap area. All stakeholders in Pursat province that are concerned with FRI are listed as follows:

- Poor Family Development (PFD)
- Buddhism Development Association and Supporting Environment (BDASE)
- HARVEST, Pursat
- Cambodian Coalition of Fishers (CCF)
- The Fisheries Administration Cantonment (FiAC)
- Provincial Department of Environment (PDE)
- Provincial Department of Water Resources and Meteorology (PDWRM)
- Board of Provincial Governors (BPG)



*Figure 9: Users of fisheries-related information in Pursat province*

### 3.1.2.3 Takeo Province

**In Takeo province, there are five players that use or produce FRI. Aside from the provincial government departments, there are** local NGOs based in the provincial capital that run projects targeting communities in the lowland floodplains. All stakeholders concerned with FRI in Takeo are listed below:

- Oxfam Australia
- The Fisheries Administration Cantonment (FiAC)
- Provincial Department of Water Resources and Meteorology (PDWRM)
- Provincial Department of Environment (PDE)
- Board of Provincial Governors (BPG)

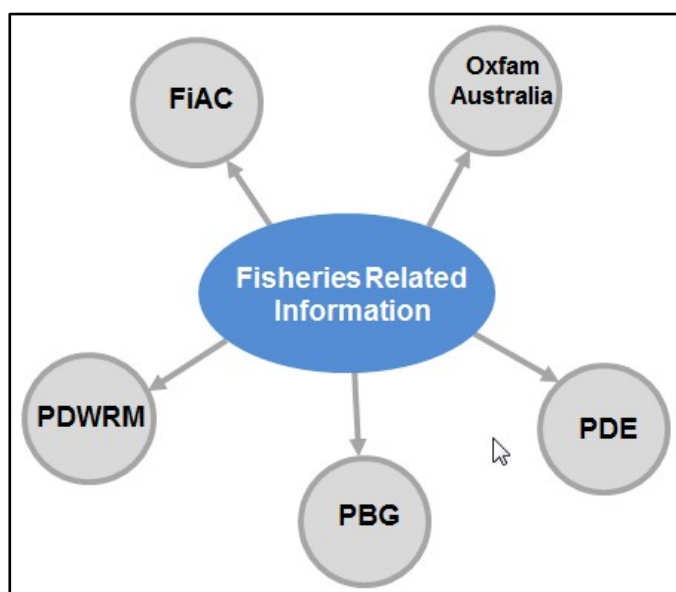


Figure 10: Users of fisheries-related information in Takeo province

## 3.2 STAKEHOLDERS AND THEIR FISHERIES-RELATED POLICIES

### 3.2.1 At the National Level

#### 3.2.1.1 Government Institutions

##### A. National Assembly and Senate

The Royal Government of Cambodia (RGC) has recognized the role of fisheries in the lives of millions of Cambodian people, and RGC has included Fisheries in its political program. In the Rectangular Strategy of the RGC, one element of the development component is devoted to fisheries reforms, aiming at law enforcement, making action plans, and strengthening all relevant institutions to achieve the national goals of environmental fisheries protection, conservation of biodiversity and socioeconomic development (RGC, 2004, 2010). These goals are also clearly included in the RGC's National Strategic Development Plan, Socioeconomic Development Plan, and Strategy of Poverty Alleviation.

The National Assembly and Senate are involved with reviewing and enacting fisheries-related policies and regulations. They are responsible for checking and reviewing drafted laws, regulations, and policies related to the fisheries sector at the request of the MAFF or the government. The mandate of the National Assembly and Senate is to modify, support or reject the drafts of fisheries-related policies or regulations. The decisions made by the National Assembly or Senate can impact the whole fisheries sector. In this regard, the National Assembly and Senate need FRI in their decision-making on fisheries-related matters. The 3rd Commission of the National Assembly and Senate—the Commission on Economy, Planning, Investment, Agriculture, Rural Development, Environment, and Water Resources—is the main player that requires FRI.

## **B. Ministry of Agriculture, Forestry, and Fisheries (MAFF)**

**The MAFF is an important user of FRI because of its role in formulating policies and programs for the development of fisheries in Cambodia.** Within the MAFF, the Department of Planning and Statistics (DPS) uses FRI for forming policies and regulations that could attract more interest in developing the fisheries sector. In practice, the DPS needs to use FRI to form and justify their fisheries-related policies and regulations, medium and long-term development programs, and reports on a regular basis. The MAFF also uses FRI to facilitate and attract more development assistance from development partners ([www.maff.gov.kh](http://www.maff.gov.kh)).

**Within the MAFF, the Fisheries Administration (FiA) is the most important producer and user of FRI in Cambodia.** The FiA produces information related to catches, economic values, and market values of fish. The FiA also uses FRI to evaluate the enforcement of fisheries management, protection, conservation, utilization and development ([www.fia.maff.gov.kh](http://www.fia.maff.gov.kh)). The FiA also uses FRI to inform its Strategic Planning Framework (SPF) on fisheries, action plans and strategies for fisheries development and management.

**Within the FiA, IFReDI is the main government body tasked with producing scientific information on Cambodia's inland fisheries.** IFReDI produces official information on freshwater fisheries through research studies and monitoring surveys ([www.fia.maff.gov.kh](http://www.fia.maff.gov.kh), [www.ifredi.org](http://www.ifredi.org)). The FRI produced by IFReDI is technical and scientific information. IFReDI uses the information it gathers and analyzes to update a fisheries database. IFReDI also uses FRI to monitor the status of freshwater fisheries and natural fish stocks.

**Within the FIA, the Department of Planning, Finance, and International Cooperation (DPFIC) is also a producer and user FRI.** The DPFIC collects primary information on catches, production, and market prices of fish from each provincial Fisheries Administration cantonment every month ([www.fia.maff.gov.kh](http://www.fia.maff.gov.kh)). This information is based on the catch from commercial fishing lots, the *Dai* fishery, and local communities. It can be noted that the abrogation of commercial fishing lots in 2012 will make gathering of fish catch information more challenging for the FiA. The DPFIC integrates primary information on fisheries from each province to generate national fisheries statistics. The DPFIC also uses FRI to formulate policies, regulations, and development programs in the FiA or the fisheries sector.

**The Technical Working Group on Fisheries (TWGF) is the main player in conveying FRI to development partners.** The TWGF is known as a forum for discussing technical and policy issues among development partners and government agencies (*FiA, 2011a*). In this regard, the TWGF plays an important role in facilitating the exchange of information as well as fisheries-related activities among its members and development partners. In practice, the TWGF shares FRI with development partners and its members. The TWGF also uses FRI to develop the Strategic Planning Framework on Fisheries and to support medium- and long-term fisheries sector planning and activity prioritization.

### **C. Tonle Sap Authority (TSA)**

**The Tonle Sap Authority uses FRI and requires more FRI to support its recent involvement with managing Cambodia's fisheries resources.** The TSA has become an increasingly important player in implementing government policies and intervening in fisheries management, particularly around the Tonle Sap Lake (TSL). For example, the TSA is actively involved in combating illegal fishing and implementing the government's policies involving the Tonle Sap Lake ([www.tonlesap.gov.kh](http://www.tonlesap.gov.kh)). In this role, the TSA uses FRI to support its strategies and actions in the sector. In order to manage, protect and conserve fisheries resources better, the TSA needs more FRI from all producers. The TSA also produces FRI through collaboration with local universities, in particular the Royal University of Agriculture, but so far this information has not been made available to the public or other institutions or stakeholders.

### **D. National Institute of Statistics (NIS) at the Ministry of Planning**

**The National Institute of Statistics also produces FRI.** First, the NIS produces the National Accounts, which states the value added of an economic activity in terms of the Gross Domestic Product (GDP) ([www.nis.gov.kh](http://www.nis.gov.kh)). The NIS includes fisheries in its National Accounts, quantifying the value added of fisheries. Second, the NIS produces and updates the Consumer Price Index (CPI), which reports the changing market price of fish every month ([www.nis.gov.kh](http://www.nis.gov.kh)). In order to produce this report, the NIS monitors the price of common commercial fish (*trey ros*, *hdoh*, *ondenh* and tilapia) and processed fish (smoked fish and *prahoc*) in the market.

### **E. Cambodian National Mekong Committee (CNMC)**

**The CNMC uses FRI in the Basin Development Plan (BDP) and Integrated Water Management Project (IWMP).** The CNMC is a bridging government agency that facilitates cross-sector and inter-agency cooperation on water resources, natural resource and environment issues at national and international levels ([www.cnmc.gov.kh](http://www.cnmc.gov.kh)). In this role, the CNMC uses FRI in all fisheries-related matters in the BDP and IWMP. Within the CNMC, the Fisheries and Hydropower Programs are technical working groups that use FRI to discuss policies, management strategies, preservation, and development of fisheries, water and other resources in the BDP and IWMP.

### **F. Council for Agriculture and Rural Development (CARD)**

**CARD has developed the Strategic Framework for Food Security and Nutrition (SFFSN), which draws heavily on FRI.** CARD is a technical and coordinating agency that advises the RGC in the fields of agriculture, food security, nutrition, and rural development. In its SFFSN (2008-2012), CARD recognized fishery resources as an important source for food security and nutrition for Cambodians (CARD, 2008). This indicates that FRI is important to

CARD's SFFSN and its other food security and nutrition programs. Within CARD, the Technical Working Group on Food Security and Nutrition (TWG-FSN) and the Information Management Section are the players with an interest in FRI.

#### **G. Ministry of Water Resources and Meteorology (MOWRAM)**

**MOWRAM is potentially very concerned with FRI because it is in charge of developing water resources management and infrastructure that could have a substantial impact on fisheries resources in Cambodia.** MOWRAM ensures the management of water resources in an effective and sustainable way in order to obtain socio-economic development and the welfare of the people for the whole country (Taylor and Kimsreang, 2008). The water resources management policy and the built infrastructure implemented by MOWRAM can impact the fisheries resources in Cambodia (Baran *et al.*, 2007). In this connection, MOWRAM needs FRI to monitor and compare the impacts of water management and built infrastructure policies on fisheries resources in Cambodia.

#### **H. Ministry of Environment (MOE)**

**The MOE is a user of FRI because its natural resource management and conservation work is relevant to the management and conservation of fisheries resources.** The MOE is responsible for the conservation, development, management and utilization of biodiversity and natural resources ([www.moe.gov.kh](http://www.moe.gov.kh)). In this role, the MOE regards fisheries as a natural resource to be managed and conserved. In particular, the Environmental Impact Assessment Unit at the MOE is important since it is responsible for reviewing the quality of EIAs related to all development and hydropower projects proposed and for evaluating their mitigation measures (Nguyen Khoa and Chet, 2006). In this capacity, the MOE needs FRI to monitor the enforcement and implementation of its natural resource management policies and programs. The Department of Wetlands and Coastal Areas and the Department of International Convention and Biodiversity at the MOE are the departments that make most use of FRI.

#### **I. Ministry of Industry, Mines and Energy (MIME)**

**Because Cambodia's energy development strategy is based on hydropower and dam construction, MIME needs to be informed proactively about the potential impacts of these projects on fisheries.** MIME is responsible for developing, implementing and managing government policy and strategy with regard to energy ([www.mime.gov.kh](http://www.mime.gov.kh)). MIME has in particular plans for extensive hydropower development, but with 37% of sish in this ecosystem being long-distance migrants representing 700,000 tonnes of fish per year, dams have a direct impact on food security and biodiversity (Baran *et al.*, 2007; Ziv *et al.*, 2012). In this sense, MIME is a player that needs to use FRI to monitor and assess the impacts of its energy policy and strategies on fisheries resources. Within MIME, the Department of Hydro-Electricity is the player that most needs to use FRI.

### **3.2.1.2      *Main Development Partners***

#### **A. European Union (EU)**

**The European Union uses FRI to provide technical advice and development assistance for the fisheries sector and fisheries-related livelihood programs in Cambodia.** Recently, the EU has become more interested in the fisheries sector; for example, the EU became the Co-Chair of the Technical Working Group on Fisheries (TWGF) in 2012 (FiA, 2011b). In this role, the EU has played a large role in providing advice and technical assistance to the fisheries sector. The EU uses FRI to support their technical advisory and collaborative work in the TWGF and their decision-making related to development assistance.

#### **B. U.S. Agency for International Development (USAID)**

**USAID is an important player increasingly interested in fisheries-related development programs in Cambodia.** USAID considers inland capture fisheries as a major source of food security and nutrition for the rural poor. For this reason, USAID provided USD 58 million to start a five-year project called the Helping Address Rural Vulnerabilities and Ecosystem Stabilities (HARVEST) program. The HARVEST program aims to benefit individuals and improve income-generating activities for poor households that depend on natural resources (USAID, 2011). A component of the HARVEST program focuses on fisheries, aiming at promoting high-value fisheries, ensuring sustainable inland capture fisheries, improving post-harvest fisheries activities, and promoting fish processors. USAID uses FRI and needs to use more FRI for its current project components and to initiate more development projects in the fisheries sector in Cambodia.

#### **C. Danish International Development Assistance (Danida)**

**Danida remains the main development partner interested in the fisheries sector in Cambodia.** In the last mandate, Danida took over from DFID as the main donor to the fisheries sector and was Co-Chair of TWGF until 2011. In this role, Danida substantially funded the MRC and FiA. In terms of technical support, Danida uses FRI to inform and develop fisheries policy reforms and development programs such as the 10-year Strategic Planning Framework on Fisheries 2010-2019; FiA, 2011b). Danida has also implemented and funded some projects aimed at improving the livelihoods of the rural poor through strengthening natural resource management, including fisheries management.

#### **D. Food and Agriculture Organization (FAO)**

**The FAO produces fisheries information at the global national level.** The FAO uses FRI from the FiA and other sources to compile data on fish production in Cambodia. The data compiled by the FAO is then included in global statistics on fisheries. For instance,

the FAO uses FRI from Cambodia to update its report “The State of World Fisheries and Aquaculture” every two years (FAO, 2010).

**The FAO is also involved in fisheries-related development programs in Cambodia.** The FAO is involved with fisheries reforms, regulation and policy development, and capacity building by partnering with the TWGF (FiA, 2011b). The FAO’s involvement in community-based natural resource management (CBNRM) includes the introduction of the concept and means for the sustainable development and use of fishery resources in Siem Reap and other provinces surrounding the Tonle Sap Lake. Many of the FAO’s projects involve fisheries and food security improvement. Thus, the FAO uses FRI to inform its on-going fisheries-related projects.

#### **E. United Nations Development Program (UNDP)**

**The UNDP uses FRI to promote recognition that the sustainability of natural resources including fishery resources is a critical challenge for Cambodia.** The UNDP has worked with the RGC to strengthen fisheries-related policies and legislative and regulatory mechanisms for the sustainability of fisheries resources ([www.un.org.kh/undp](http://www.un.org.kh/undp)). The UNDP is a member of the TWGF and is a development partner that has funded the fisheries sector through the TWGF. The UNDP also collaborates with and supports government counterparts and local NGOs in implementing environmental development projects to ensure the sustainability of natural resources including inland fisheries. In this regard, the UNDP needs FRI for its current fisheries-related project and to justify more support for the fisheries sector in Cambodia.

#### **F. Japan International Development Agency (JICA)**

**JICA uses FRI for its financial and technical assistance to aquatic resources development in Cambodia.** Japan is the top donor country to Cambodia, accounting for 25% of all assistance to Cambodia ([www.kh.emb-japan.go.jp](http://www.kh.emb-japan.go.jp)). However, Japan’s development assistance through JICA is not focused on the inland fisheries. JICA has mainly supported the development and improvement of marine aquaculture and marine resources, rather than inland fisheries (FiA, 2011b). JICA is a member of the TWGF, but it has mainly provided financial and technical assistance to infrastructure and policy formulation in the marine aquaculture sector.

#### **G. WorldBank (WB)**

**The country development programs of World Bank have minimal involvement with the development of fisheries in Cambodia.** The World Bank has prioritized and financed five types of activities in Cambodia: (1) supporting good governance; (2) building physical infrastructure; (3) rebuilding human capital; (4) facilitating private sector development; and (5) disarmament, demobilization and reintegration ([www.worldbank.org](http://www.worldbank.org)).

## **H. Asian Development Bank (ADB)**

**The ADB is a prime recipient of FRI because has provided a large amount of financing and support to the fisheries sector in Cambodia.** During the 2000s, the ADB supported and financed several large-scale environmental and fisheries related projects in Cambodia (ADB, 2002). For example, from 1998-2007, the projects financed by the ADB included: 1) the Tonle Sap Initiatives, Tonle Sap Environmental Management (Phase I and Phase II), Tonle Sap Sustainable Livelihoods, Tonle Sap Rural Water Supply and Sanitation, and Tonle Sap Environmental Database. However, since late 2008, the ADB's program strategy for Cambodia has been less relevant to the fisheries sector and the environment. Instead, the ADB has focused more on infrastructure than on the fisheries and the environment (ADB, 2011).

## **I. Australian Agency for International Development (AusAID)**

**Australia's aid program has recently shown interest in fisheries and agriculture studies and development programs in Cambodia.** AusAID in Cambodia focuses on agriculture, health, law and justice, and infrastructure ([www.ausaid.gov.au](http://www.ausaid.gov.au)). AusAID recognizes that the main challenge for most Cambodian farmers is securing their household food production to avoid annual hungry periods. In this regard, AusAid is interested in fisheries and agricultural research and development. Through the Agricultural Center for International Agricultural Research, AusAID substantially supports CARDI, IFReDI, and the WorldFish Center to conduct agricultural and fisheries-related studies. For instance, in 2011, ACIAR funded WorldFish in partnership with CARDI and IFReDI to implement a four-year research project called "Assessing Economic and Welfare Values of Fish in the Lower Mekong Basin."

### **3.2.1.3 International Organizations, International and Local NGOs**

#### **A. Mekong River Commission (MRC)**

**The MRC was a main producer of FRI until 2009, and to date the MRC remains a major user of FRI and funds the production of FRI by IFReDI.** A report valuing fisheries resources in Cambodia was released by the MRC in 1998 (Ahmed *et al.*, 1998). Since then, the MRC has played an important role in collecting and managing fisheries-related data from its Member Countries and other regional stakeholders. The MRC Data and Information Service provides annual updates on fisheries in the Lower Mekong Basin. In this portal, there are nine databases related to fish catch assessment and five databases related to fish migration and spawning ([portal.mrcmekong.org](http://portal.mrcmekong.org)). For the last 15 years, the MRC through Danida and other donors has funded IFReDI's work to produce information on fish production, catches, and economic values. The MRC needs FRI to for its work on policies and action plans in the fisheries sector. The MRC also uses FRI for the MRC Basin Development Plan, Integrated Water Management Project, and Climate Change Initiative.



## **B. Wetlands Alliance (WA)**

**The WA produces FRI for biodiversity conservation and uses FRI to improve natural resources management and conservation.** The WA is funded by Swedish International Development Cooperation Agency (SIDA). The Alliance consists of regional partners—the Asian Institute of Technology (AIT), CORIN-ASIA, the WorldFish Center, and the WWF—and almost 50 other partners in Cambodia, Thailand, Laos, and Vietnam ([www.wetlandalliance.org](http://www.wetlandalliance.org)). The Alliance believes that poverty alleviation works best when wetlands and aquatic resources are treated as a natural entry point for poverty alleviation initiatives in Southeast Asia. In Cambodia, the WA produces information on fish and natural resources through a social research initiative. An initiative called Salaphoum was established in 2005 to allow local communities to research and monitor changes in natural resources in their community. From this initiative, local villagers in Stung Treng identified 130 fish species through the villager-led research. The Salaphoum project also produced a film, an example of community-produced media, aimed at improving natural resources management and local governance.

## **C. WWF**

**The WWF has been involved with identifying endangered fish species in Cambodia and using that FRI for river environment conservation.** In Cambodia, the WWF identified the Irrawaddy dolphin, Mekong giant catfish, and Mekong freshwater stingray as flagship species for conservation in the Mekong River ([www.panda.org/wwf\\_in\\_cambodia](http://www.panda.org/wwf_in_cambodia)). In order to address the urgent need to conserve the Mekong dolphin, a Cambodian Mekong Dolphin Conservation Project was established in collaboration with the CRDT and FiA. The WWF has also implemented a number of projects that benefit local livelihoods through sustainable use of fisheries resources in Cambodia. Those projects involve Ecotourism and Community Fisheries.

## **D. Wildlife Conservation Society (WCS)**

**The WCS produces and uses FRI for the conservation and management of biodiversity including fishery resources in Cambodia.** The WCS identifies management and allocation issues around the Tonle Sap Lake. The WCS also develops ways to allow local people to generate income while promoting natural resource conservation. The WCS and FiA completed a study identifying where commercial fishing concessions and conservation areas in the Tonle Sap Great Lake should be allocated ([www.wcscambodia.org](http://www.wcscambodia.org)). Through this study, the WCS discovered that the Prek Toal Core Area is home to breeding colonies of some of the world's most endangered water bird species. This helped to improve understanding of the management systems of both the fishing lots and conservation areas.

## **E. Conservation International (CI)**

**CI produces FRI on the immediate threats to particular fish species, and uses FRI to guide effective conservation action.** CI conducted a biodiversity survey which included a survey of freshwater fisheries in Virachey National Park in 2007 ([www.conservation.org](http://www.conservation.org)). This survey aimed at filling an important biological information gap for Virachey National Park, a unique environment and biodiversity protected area in Cambodia. As a result, at least 37 fish species were recorded, of which at least 10 appear to be new records for Cambodia (CI, 2007). Through the results of the biodiversity survey, CI identified key biodiversity areas. CI has used this data to promote conservation of biodiversity, including fisheries.

#### **F. Cambodian Development Resource Institute (CDRI)**

**CDRI produces and uses FRI for its Natural Resources and Environment (NRE) research program.** Until 2003, CDRI produced such reports pertaining to fisheries as “Domestic Fish Trade”, “Fish Marketing from Tonle Sap to Phnom Penh”, and “Fish Export from Tonle Sap to Thailand” (Yim Chea and McKenny, 2003). Since then, CDRI has produced similar information on fish, natural resources and the environment. At CDRI, the NRE research program is the department responsible for natural resources, environmental and fisheries-related studies. This research program is aimed at improving understanding about key issues related to natural resources and environment ([www.cdri.org.kh](http://www.cdri.org.kh)). The CDRI’s NRE research program uses FRI for its current research project called “Fisheries Governance and Policies Options for Fisheries Management Around the TSL.”

#### **G. Fisheries Action Coalition Team (FACT)**

**FACT produces and uses FRI to advocate improved livelihoods for local fishers. FACT produces social- and livelihood-oriented information related to local community fisheries.** The FRI produced by FACT such as information about challenges of fishery management in local communities and the status of livelihood improvement in community fisheries is published quarterly in the *Tonle Sap Watch* and *Fisher Voices* ([www.fact.org.kh](http://www.fact.org.kh)). FACT uses FRI to propose improved policies related to fisheries and natural resources. For example, FACT has already used FRI to convince the MAFF, FiA, Prime Minister’s Cabinet, and the 3<sup>rd</sup> Commission at the National Assembly and Senate to support community fisheries in protecting and managing the fishery resources in the Tonle Sap and Mekong areas.

#### **H. The Learning Institute (LI)**

**The LI has included fisheries in some studies and has provided concerned stakeholders with FRI pertaining to natural resource and environmental management.** The studies on fisheries and other natural resources come from the LI’s program called “Livelihoods, Equity and Food Security.” This program is aimed at collecting and producing information from communities that depend on natural resources in order to address the roles of such resources in developing livelihoods for poor and vulnerable groups ([www.learninginstitute.org](http://www.learninginstitute.org)). The LI uses FRI as baseline information to assess the progress

of its fisheries and environmental projects. The LI also uses FRI to provide technical advice to policy-makers or decision-makers in the fisheries sector through its role in the TWGF.

## **I. Global Fish Alliance (G-FISH)**

**G-FISH uses FRI in its current project “Improving Livelihoods in TSL Communities by Increasing Collaboration in Fisheries Resource Management and Governance.”** The projects undertaken by G-FISH in Cambodia are relatively young. During its first year, G-FISH has been a forum for sharing information on the importance of fisheries to food security in Cambodia ([www.globalfishalliance.org](http://www.globalfishalliance.org)). G-FISH needs to use FRI to initiate more fisheries-related projects and to share information through the G-FISH network, which is made up of 50 task forces in all provinces around the Tonle Sap Lake.

### **3.2.2 At the Provincial Level**

#### **3.2.2.1 NGOs in Stung Treng Province**

##### **A. Culture and Environment Preservation Association (CEPA)**

**CEPA produces and uses FRI in several programs associated with community-based fishery resources management, watershed management, and advocacy for sustainable livelihoods and natural resources.** CEPA is a local partner of the Wetlands Alliance and is responsible for implementing the Salaphoum Initiative ([www.wetlandalliance.org](http://www.wetlandalliance.org)). In this role, CEPA has helped produce information on fisheries and other natural resources. CEPA has implemented such projects in the fields of community fishery management, eco-tourism promotion, sustainable river-based management, and environmental activist training ([www.cepa-cambodia.org.kh](http://www.cepa-cambodia.org.kh)). In this role, CEPA requires FRI for its current fisheries related projects and to initiate more fisheries and natural resources related projects.

##### **B. Development Partnership in Action (DPA)**

**FRI is important for DPA, as it has been involved with projects related to community management and development since 2006.** The main fisheries project implemented by DPA aims to support and encourage local communities to conserve three important protected areas (deep pools) ([www.dpacam.org](http://www.dpacam.org)). DPA has concentrated on improving the capacity and livelihoods of the local communities in these three areas. DPA needs FRI for its proposals, which seek funds from donors to continue and expand community fisheries management and development activities.

##### **C. Cambodian Rural Development Team (CRDT)**

**The CRDT works for the improvement of communities whose livelihoods depend on natural resources including fisheries.** At the CRDT, the Environmental Education Project (EEP) links sustainable use and conservation of fisheries resources ([www.cdrt.org.kh](http://www.cdrt.org.kh)). In practice, the EEP has enabled fisheries-dependent communities to understand the importance of preserving fisheries and exploiting fishery resources responsibly. The CRDT also supports the conservation of dolphins, soft-shell turtles and giant stingrays by reducing the amount of time people spend fishing and by educating against the use of indiscriminate fishing methods. The CRDT needs FRI for its on-going projects and for proposals related to the fisheries management and conservation activities.

#### **D. Promvihearthor (PVT)**

**PVT can use FRI to attract funds to support community-based fisheries management and development.** PVT worked in fisheries related projects such as establishing, supporting, and improving the livelihoods of community fisheries in Stung Treng until the end of 2010. The funds for the project provided by Oxfam America ran out in 2010. Since then, PVT has been involved with facilitating fisheries conservation and community fisheries management. PVT needs FRI for proposals to obtain funds for fisheries management and conservation projects.

#### **E. My Village (MVi)**

**MVi is involved with improving the livelihoods of indigenous communities through community organizing and through strengthening natural resource management and alternative livelihoods.** At the moment, MVi is focused on strengthening forestry resource management and conservation and improving livelihoods among indigenous communities ([www.mvicambodia.org](http://www.mvicambodia.org)). However, MVi needs FRI to advocate for the rights of indigenous communities residing nearby or along the Mekong, Sesan, Sre Pok, and Sekong Rivers, as these communities are threatened by current and future hydropower dams.

#### **F. Oxfam Australia**

**Oxfam Australia has supported community fisheries management and integrated community development projects in Stung Treng for over 15 years; however, all projects were withdrawn in June 2012.** From 1997 to June 2012, Oxfam Australia supported 17 community fisheries in 17 villages, 8 communes and 2 districts of Stung Treng province. Oxfam Australia's office in Cambodia was to close in June 2012 because of the consolidation of all Oxfam's offices in Cambodia into a single Oxfam office. All 17 community fisheries projects were transferred to CEPA at that time.

### **3.2.2.2 NGOs in Pursat Province**

## **A. HARVEST**

**USAID-HARVEST (2010-2015) is implementing a five-year food security initiative in Pursat and has focused on improving incomes and nutrition of fisheries-dependent households.** With regard to the fisheries-related component, fish processors from floating villages on the Tonle Sap Lake were assessed, and then significant opportunities were found to help them improve their incomes and expand their business. During this five-year project, fish processor associations are to be formed in order to increase bargaining power. Second, savings groups have been initiated in order to allow local fishers to pool financial resources to buy needed equipment, such as nets and storage facilities. Third, fisheries-dependent households are to be trained in order to improve the quality of fish processing and marketing techniques ([www.cambodiaharvest.org](http://www.cambodiaharvest.org)). In this connection, USAID-HARVEST needs to use FRI to inform its current projects and to strengthen its fisheries and livelihoods initiatives.

## **B. Cambodian Coalition of Fishers (CCF)**

CCF is a social network unifying fisher activists not only around the Tonle Sap Lake, but also around Mekong and coastal areas. The main role of CCF is to bring all fisher activists around Tonle Sap, Mekong and coastal areas to meet, exchange information, and voice their opinions to the government to protect fishery resources and long-standing ways of life ([www.fact.org.kh](http://www.fact.org.kh)). CCF is a project of FACT and has been empowered by FACT and other partners to work independently. CCF needs FRI to attract more attention to its fisheries-related advocacy work from the government and concerned organizations.

## **C. Buddhism Development Association and Supporting Environment (BDASE)**

**The community-based fisheries management and development project is one of the ongoing projects implemented by BDASE.** Currently, BDASE is implementing a project called “CFs Management in Kandieng District.” The project is aimed at supporting and coordinating local communities in order to help them manage, conserve, and use the fishery resources in their communities sustainably. BDASE is also a member of the fisheries-related NGO network, which is a project initiated by FACT. BDASE uses FRI for its current project and requires FRI to attract funds for community fisheries management and development projects in Pursat.

## **D. Poor Family Development (PFD)**

**PFD has been involved with community-based fisheries management in Pursat province since the early 2000s.** However, the fund to support the community-based fisheries management and development provided by Oxfam America was exhausted in late 2010. Since then, PFD has remained involved with fisheries as it is an activist NGO registered in the fisheries-related NGO network.

### **3.2.2.3      *NGOs in Takeo Province***

In Takeo province, there are few NGOs involved with fisheries-related projects. Therefore, it seems very few NGOs in Takeo are concerned with FRI at the moment. Local NGOs in Takeo are mainly focused on drinking water, sanitation, hygiene, and education. Only Oxfam Australia has been involved in the fisheries sector in Takeo province.

#### **A. Oxfam Australia**

Oxfam Australia worked in Takeo province to support community fisheries management and fish conservation for almost 20 years. However, all its projects were withdrawn in June 2012. From 1993 to June 2012, Oxfam Australia supported 3 community fisheries in 2 villages in 2 communes in 2 districts of Takeo province. After Oxfam Australia closed its office in Cambodia in June 2012, all three community fisheries were transferred to community committees to continue the fishery management and fish conservation activities.

### **3.2.2.4      *Provincial Governments Institutions in Each Province***

#### **A. Board of Provincial Governors (BPG)**

In each province, the Board of Provincial Governors plays an important role supporting and advising the Provincial Council on the management of natural resources. The board consists of the governor and a certain number of deputy provincial governors. The board represents ministries and institutions of the RGC in supervising, coordinating and directing all line departments and units that operate within the jurisdiction of the provincial council (RGC, 2008). The board requires FRI for their work with fisheries and natural resources in each province.

#### **B. Fisheries Administration Cantonment (FiAC)**

**In each province, the FiAC is responsible for enforcing fisheries-related policies and regulations and for performing fisheries management duties within each province** ([www.fia.maff.gov.kh](http://www.fia.maff.gov.kh)). The FiAC in each province needs FRI to hold provincial government officers accountable for fisheries in their jurisdiction. The provision of FRI can increase responsibility at the level of provincial and local fisheries officials so that policies in each province can be enforced effectively and resources managed sustainably.

#### **C. Provincial Department of Environment (PDE)**

**The PDE is a player that could use more FRI for monitoring natural resource management and conservation policies and programs in each province.** The PDE in each province is responsible for the conservation and management of biodiversity and natural resources. The PDE needs FRI to perform these functions effectively in each province.

## **D. Provincial Department of Water Resources and Meteorology (PDWRM)**

**At the provincial level, the role of the PDWRM is to implement water management policy effectively.** The PDWRM in each province works actively to promote socio-economic development and the welfare of the people for the whole country. In practical terms, there is a relationship between water management policy, built infrastructure, and fisheries. In this regard, the PDWRM needs baseline FRI so that the implementation of water management policies and the use of built infrastructure have minimal impacts on fisheries resources.

### **3.3 FLOW OF FISHERIES-RELATED INFORMATION BETWEEN STAKEHOLDERS**

#### **3.3.1 At the National Level**

##### **3.3.1.1 *The active flow of Fisheries Related Information***

**The FiA facilitates the exchange of relevant FRI among its departments.** As any information on fisheries is produced or updated by the FiA, it is reported directly to the FiA leadership. Then, the FiA leaders order the Department of Administrative Affairs or the department that produced the FRI to share it with all concerned departments or institutions in the FiA. At the same time, any department within the FiA can request FRI either directly from the department that produced the FRI or from the administration of the FiA.

**The FiA exchanges FRI with government line agencies in the fisheries sector such as the MAFF and CNMC.** Based on its administrative system, the FiA is required to report FRI directly to the Department of Planning and Statistics (DPS) at the MAFF. Other government institutions such as the Cambodian National Mekong Committee can request FRI from the FiA or from the specific department that produced the FRI. Normally, the FiA is more than willing to share its FRI with interested government institution. However, responding to requests for FRI takes would time because the FiA needs to consider each one case by case.

**The FiA is the recipient of a large flow of FRI from other producers.** Most FRI producers have collaborated or partnered with the FiA in producing their information. In this case, the results of the studies are generally shared with the FiA. Other FRI producers generally share information with the FiA because it is considered the main target for FRI sharing among government institutions.

The FiA and other FRI producers have made their information available to development partners and international organizations. As part of its mandate, the FiA sends fisheries information to the FAO on a regular basis.

Second, the FiA forwards this information to development partners through the TWGF. The TWGF has played a key role in sharing FRI with development partners and international organizations. Other producers of FRI also exchange FRI with major development partners and international organizations. In Cambodia, the TWGF commonly shares information with

development partners and international NGOs such as the EU, USAID, Danida, JICA, UNDP, ADB, World Bank, WWF, WCS, and CI.

**The FiA, particularly IFReDI, regularly sends FRI to the MRC and other partners.** In Cambodia, the MRC is the most important partner supporting and funding IFReDI to collect and update FRI. One of IFReDI's responsibilities is to share FRI with the MRC on a regular basis. IFReDI has shared FRI with donors and partners such as AusAID, the Nature and Environment Foundation (NEF), WWF, and International Union for Conservation of Nature (IUCN).

**The MAFF also shares FRI with development partners interested in fisheries.** The MAFF has in particular used FRI from the FiA to facilitate project development with donors or development partners such as USAID, the EU, FAO, UNDP, and JICA.

**The FAO has improved the availability of FRI by making national statistics available around the world.** The FAO has incorporated FRI reported by the FiA into worldwide fisheries figures. That information is published in the biannual report called "The State of World Fisheries and Aquaculture."

**The MRC forwards FRI to riparian government ministries and major stakeholders.** First, MRC has used its annual symposium and technical workshop on fisheries to share FRI with its counterparts and other stakeholders. Second, fisheries data from the MRC's Member Countries and other regional stakeholders has been collected in the MRC Data and Information Service Portal. All stakeholders can access this portal and browse the information. Finally, the Fisheries Program uses FRI for the Basin Development Plan (BDP) and the Integrated Water Management Project (IWMP), and to inform the CNMC and other ministries about relevant policies and programs.

**The CNMC communicates about FRI with government agencies and other MRC member countries.** At the CNMC, FRI is used to shape policies, mainly through the Basin Development Plan (BDP) and Integrated Water Management Project (IWMP). Depending on the circumstances, the CNMC Chairman may request other relevant ministries such as the MAFF, MOE, MOWRAM, or MIME to comment on fisheries-related matters in the BDP and IWMP. When the BDP and IWMP policies are finalized, the MRC forwards Cambodia's position to the MRC Council, which is made up of ministers from the four Mekong country members.

**Research institutions and non-governmental organizations also transfer FRI to some government institutions and development partners.** Research institutions like CDRI, LI, and others review and cite FRI in their research. The targeted recipients are mostly institutions such as the MAFF, FiA, FAO, TSA, MOE, and MOWRAM.

### **3.3.1.2      *The limited flow of Fisheries Related Information***

**FRI does not always reach some important players, in particular the National Institute of Statistics and the Tonle Sap Authority.** Collaboration between the FiA and the TSA appears limited. Meanwhile, most producers of FRI have not engaged in exchanging



FRI with the National Institute of Statistics, although the latter is very influential in providing economic and consumption information to the government and to donors, which in turn influences the development priorities and agendas. Overall, the NIS and TSA have not received enough FRI from producers.

**Not enough FRI reaches government institutions such as MOE, WOWRAM, MIME, CARD, the National Assembly and Senate, although these institutions are essential to the policy-making process.** Most of these government institutions receive FRI only upon request because they have not been included as recipients of FRI by most of producers. There is room for substantial improvement at this level.

**The dissemination of FRI towards the public sector is also very limited.** Although the FiA has made efforts in rural extension and dissemination of FRI to farmers and private small-scale aquaculturists (review in Baran *et al.*, 2008), there is overall a limited flow of FRI towards the private sector, farmers and investors.

**FRI is not actively transferred to academic institutions in Cambodia.** If the Royal University of Agriculture (RUA), placed under the administration of the MAFF, is relatively well connected to the FiA (with FiA staff teaching and hosting students), the Royal University of Phnom Penh (RUPP), the Preak Leap National School of Agriculture (PNSA), and the Kampong Cham National School of Agriculture (KNSA) are much less connected, and would benefit from an improved flow of information from FRI producers

### **3.3.2 At the Provincial Level**

FRI does not flow well NGOs at the provincial level, and the exchange of FRI between local NGOs is limited. In practice, NGOs at the provincial level need FRI for their proposals, reports, and projects. These proposals, reports, and projects could be conveyed to donors interested in fisheries. Local NGOs could share FRI with concerned partners and target communities. However, so far most local NGOs involved with fisheries have not received enough FRI from producers, partners or donors.

**At the provincial level, NGOs and networks of organizations do not receive much FRI from producers.** In Pursat, PFD, BDASE and CCF have an agreement with other fisheries NGOs around the Tonle Sap Lake to share information and experience with one another. This NGO network has been supported by FACT. The USAID-HARVEST program in Pursat has partnered with two local NGOs, Promvihearthor (PVT) and the Environmental Protection Development Organization (EPDO) to implement fisheries projects in local communities around the lake. The Wetlands Alliance is a group of local and international NGOs and government institutions such as CEPA and the FiAC in Stung Treng and the WWF and the WorldFish Center in Phnom Penh. However, so far most NGOs and NGO networks at the provincial level have not received FRI from the main producers. This is a missed opportunity since these NGOs could share the information at the grassroots level.

### 3.4 FRI IMPACT PATHWAYS

#### 3.4.1 At the National Level

**In order to improve the dissemination and impact of FRI, the TWGF at the FiA should be prioritized as a recipient of new FRI.** The TWGF represents an important hub where line agencies, researchers, donors and NGOs regularly meet. This group and its meetings are an important opportunity to convey FRI.

**Other Technical Working Groups on Environment, Agriculture, Water, Forestry, Food Security and Nutrition are complementary channels to improve the dissemination of FRI.** Though these pathways, FRI could reach additional players that have an influence on the fisheries sector (e.g. MOWRAM, MIME) or donors not currently focused on fisheries (e.g. the World Bank or JICA) .

**The National Institute of Statistics is an important player with whom the producers of FRI including the FiA should get more involved.** The NIS is potentially a new vector to forward FRI to government institutions and donors. Furthermore, the current protocols for data gathering at the NIS may not fully cover or reflect the extent of fisheries (e.g. the under-representation of fisheries in the national census highlighted by several authors; Keskinen 2003, Baran 2005), and a collaboration between NIS statisticians and fisheries-focused socioeconomic researchers could improve the NIS's approach and lead to a better representation of fisheries in national statistics.

**The Council for Agricultural and Rural Development (CARD) is the government agency most concerned with food security and nutrition and would benefit from greater exposure to FRI.** Conveying FRI to CARD could increase recognition of the value of fisheries among government institutions and major development partners and push the value of fisheries in terms of food security and nutrition.

**The Tonle Sap Authority is playing an ever larger role in terms of fisheries management in Cambodia and should be a primary target for FRI.** The TSA reports, advises on and proposes fisheries-related policy and programs directly to the Prime Minister. The TSA has recently implemented substantial reforms in terms of fisheries management and providing input into these policy changes should be a priority for FRI producers.

**The MOE, MOWRAM, MIME, National Assembly, and Senate should also be recipients of FRI.** These players influence the fisheries sector and need to know this sector better so that FRI is reflected in their policies and development programs. Doing a better job of conveying FRI to these government institutions would help improve understanding of fisheries among these important development actors. .

**The MRC and CNMC are the best institutional vehicles to reach the ministries of all four MRC member countries.** In Cambodia, the CNMC is the focal point for interaction between the Mekong River Commission (MRC) and the RGC. Conveying FRI better to the CNMC and the MRC would ensure Cambodia's fisheries issues and priorities are better

reflected in the BDP and IWMP. These issues would in turn be brought to the attention of riparian ministries involved in the management of transboundary fisheries resources.

**Among NGOs, FRI should be conveyed to active players such as the WWF, Wetlands Alliance, WCS, CI, CDRI, LI, and FACT.**

**The private sector would benefit from greater exposure to FRI.** In particular, FRI could be conveyed to the SOMA and CP Group. The private sector is the main driver of the country's social and economic development. At the moment, many players in the private sector have shown interest in fisheries, but the SOMA and CP Group stand out because they have invested in the fisheries-related food industry in Cambodia.

**Last, FRI producers should share their information with the Royal University of Phnom Penh, Royal University of Agriculture (RUA), Preah Leap National School of Agriculture (PNSA) and the Kampong Cham National School of Agriculture (KNSA).** These academic institutions are training tomorrow's elites, and directing information towards these universities is one of the best ways to work at fisheries sustainability in the long term.

### **3.4.2 At the Provincial Level**

**FRI should be shared with some local NGOs in each province to influence fisheries management and conservation and to help improve the livelihoods of local fisheries-dependent households.** As the number of local NGOs working in the fisheries sector is small, FRI could be sent to everyone. If the number of copies of a report is limited, FRI producers should prioritize sharing information with CEPA and DPA in Stung Treng as these local NGOs are more active in supporting CFs, fisheries management and conservation. For Pursat, HARVEST should be the first local NGO to receive FRI as it is the most active in terms of implementing fisheries-related projects in the province.

**The impact pathways within the provincial government departments could be improved by conveying FRI directly to the Board of Provincial Governors, FiCA, DPE, and PDWRM in each province.** If the number of copies is limited, the FiAC in each province should receive priority. The Board of Provincial Governors is the next most important target for the dissemination of FRI

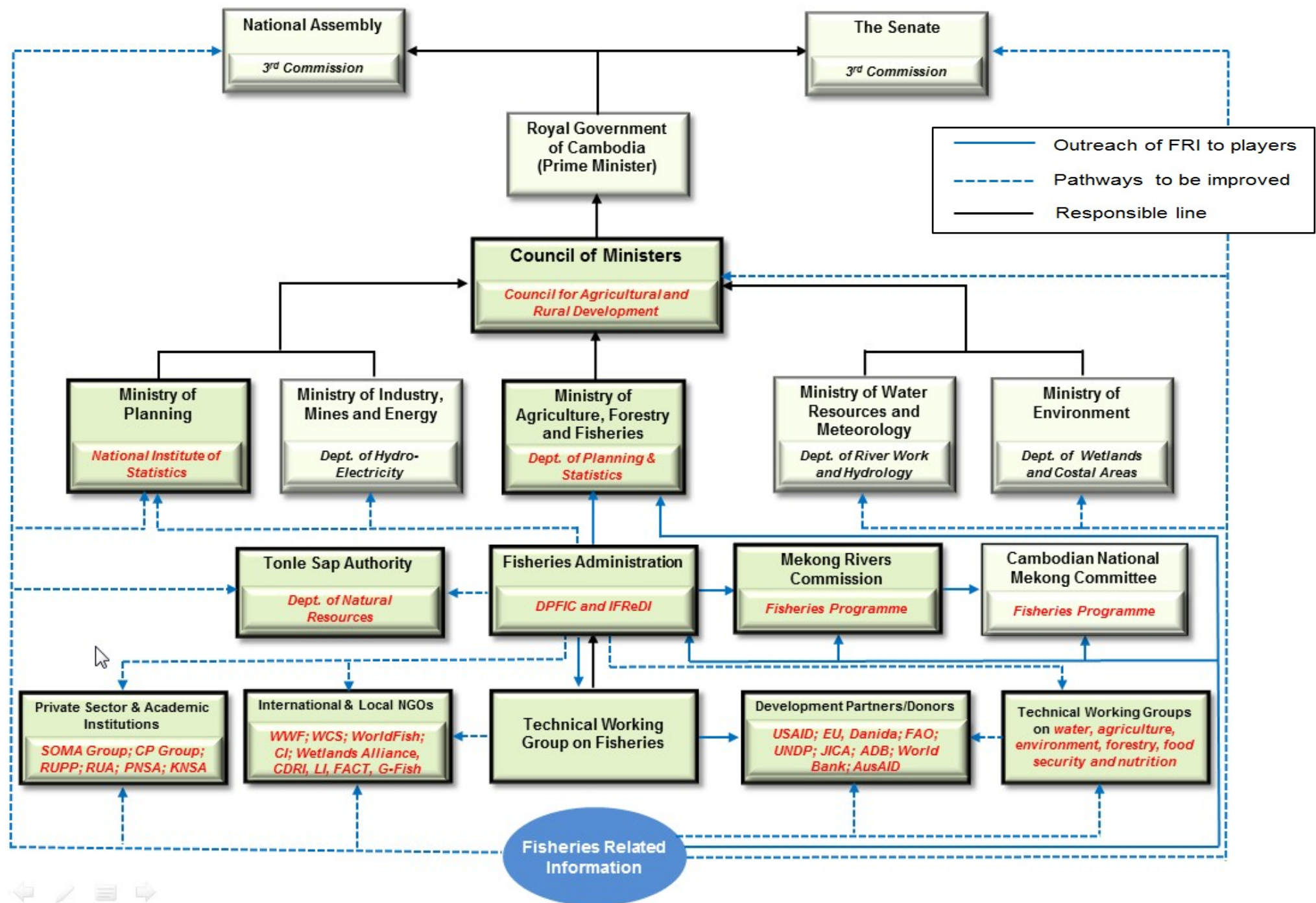


Figure 11: FRI pathway at the national level

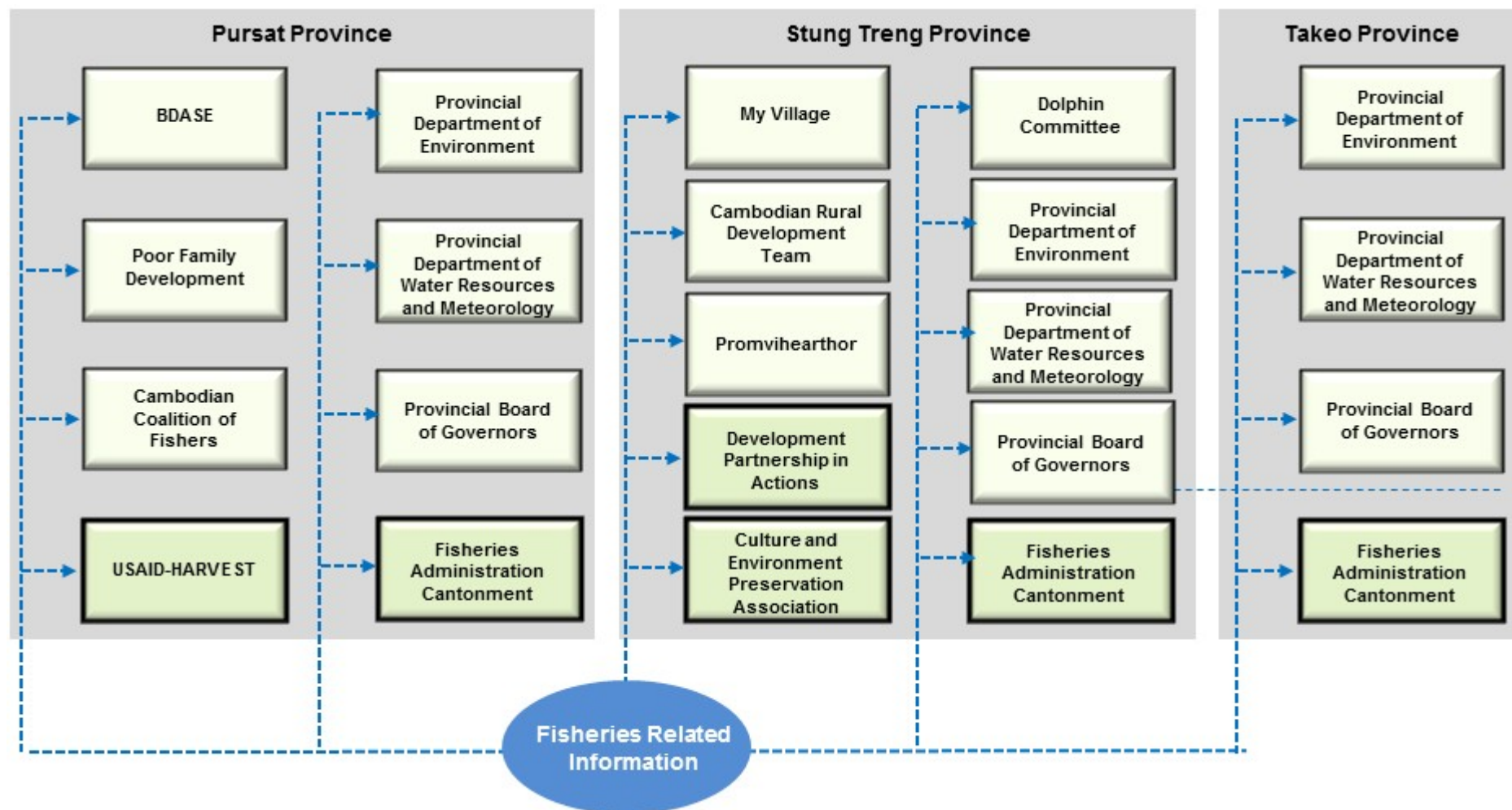


Figure 12: Overview of FRI pathway at the provincial level

## 4 CONCLUSIONS

The FiA and the fisheries program at MRC have been identified as the main institutional producers of fisheries-related information (FRI) in Cambodia. The FAO has been identified as another producer of FRI because it incorporates data from Cambodia into its report called “The State of World Fisheries and Aquaculture.” The last institutional producer of FRI is the National Institute of Statistics (NIS) at the Ministry of Planning. The NIS includes fisheries in its National Accounts and tracks monthly changes in the market price of some common commercial fish for the Consumer Price Index.

The WWF, Wildlife Conservation Society (WCS), Wetlands Alliance, Conservation International (CI), WorldFish Center, Cambodian Development Resources Institute (CDRI), Fisheries Action Coalition Team (FACT), and Learning Institute (LI) are other producers of FRI. The WWF, WCS, Wetlands Alliance, and CI produce information on fish biology for conservation of biodiversity. The WFC produces FRI related to food production for the purpose of poverty and hunger reduction. The CDRI, FACT and LI produce socially-oriented information on fish to improve local community livelihoods.

The study has found that among government institutions the Ministry of Agriculture, Forestry, and Fisheries (MAFF), Technical Working Group on Fisheries (TWGF), Tonle Sap Authority (TSA), and Cambodian National Mekong Committee (CNMC) use FRI more than others. The Ministry of Water Resources and Meteorology (MOWRAM), Ministry of Environment (MOE), Ministry of Industry, Mines and Energy (MIME), National Assembly, Senate, and Council for Agricultural and Rural Development (CARD) are other players that require FRI.

The development partners with the greatest interest in FRI are USAID, the EU, Danish International Development Assistance (Danida), UNDP, Japan International Cooperation Agency (JICA), World Bank, ADB, and Australian Agency for International Development (AusAID). Among these main development partners, USAID, the EU and Danida are the most important users of FRI.

The study has also identified local and international organizations that make use of FRI. These users are the Helping Address Rural Vulnerabilities and Ecosystem Stabilities program (USAID-HARVEST), WWF, Wetlands Alliance, CI, WCS, CDRI, FACT, LI, Global Fish Alliance (G-Fish), Culture and Environment Protection Association (CEPA), and Development Partnership in Action. Among these organizations, USAID-HARVEST has been identified as the most important user of FRI. The USAID-HARVEST program is the biggest project in Cambodia aimed at improving the livelihoods of fishers and households dependent on natural resources.

The study has also found that the reach of FRI is limited as it is not conveyed to all potential users at present. In practice, FRI producers have done a good job of making their information available to the FiA, MRC, FAO, and CNMC. However, the NIS, MOE, MIME, CARD, MOWRAM, TSA, National Assembly, Senate, academic institutions, and private sector are players that do not receive their fair share of FRI. The producers of FRI including the FiA should make more information available to these players.

To improve pathways for conveying FRI in Cambodia, the study identifies some significant players in Cambodia's fisheries sector. The FiA remains the most important player in terms of conveying FRI. The NIS, CARD, TSA, MRC, and CNMC are identified as significant players for FRI among the government institutions. USAID, EU and Danida are the top development partners in the fisheries sector in Cambodia.

The preferred pathway for conveying FRI in Cambodia is the TWGF and other TWGs on water, agriculture, environment, food security and nutrition. These TWGs are emerging as an efficient pathway for conveying FRI because they have effectively forwarded FRI towards development partners, NGOs, and government counterparts interested in fisheries and towards other sectors dealing with water and natural resources. Another viable pathway for conveying FRI to important stakeholders in Cambodia is the NIS at the Ministry of Planning.

## 5 BIBLIOGRAPHY

ADB (Asian Development Bank) 2002. Country Strategy and Program Update 2003-2005 (Cambodia). Reported in August 2002. ADB, Phnom Penh, Cambodia. 85 pp.

ADB (Asian Development Bank) 2011. Country Partnership Strategy 2011-2013 (Cambodia). Reported in June 2011. ADB, Phnom Penh, Cambodia. 13 pp.

Ahmed M., Hap Navy, Ly Vuthy, Tiongco M. 1998. Socioeconomic assessment of freshwater capture fisheries in Cambodia: report on a household survey. Mekong River Commission, Phnom Penh, Cambodia. 186 pp.

Baran E. 2005. **Cambodian inland fisheries: facts, figures and context**. WorldFish Center and Inland Fisheries Research and Development Institute, Phnom Penh, Cambodia. 49 pp.

Baran E., So N., Leng S. V. 2008. Integrating fish resources to Agro-Ecosystem Analyses. Report for the Challenge Program project n°71 "Adaptive participatory integrated assessment and agro- ecosystem analysis to support decision-making on water allocation for fisheries and agriculture in the Tonle Sap wetland system". IWMI and WorldFish Center, Phnom Penh, Cambodia. 65 pp.

Baran E., Starr P., Kura Y. 2007. Influence of built Structures on Tonle Sap fisheries. Cambodia National Mekong Committee and the WorldFish Center, Phnom Penh, Cambodia. 44 pp.

Briones R., Dey M.M., Ahmed M., Stobutzki I., Prein M., Acosta B.O. 2004. Impact Pathway for Research Planning: The case of Aquatic resources research in the WorldFish Center. NAGA, WorldFish Center Quarterly. 27 (3,4); 51-55.

CARD (Council for Agricultural and Rural Development) 2008. Strategic Framework for Food Security and Nutrition in Cambodia 2008-2012 (SFFSN). Technical Working Group on Food Security and Nutrition (TWG-FSN). CARD, Phnom Penh, Cambodia. 63 pp.

CI (Conservation International) 2007. Preliminary Report on Virachey National Park. Rapid Assessment Program, CI-Cambodia. 31 pp.

FAO (Food and Agriculture Organization) 2010. The State of World Fisheries and Aquaculture 2010. Fisheries and Aquaculture Department, Food and Agriculture of the United Nations, Rome, Italy. 197 pp.

FiA (Fisheries Administration) 2011a. Brief Summary of Mandate and Key Achievements of the Fisheries Administration. Prepared by the Secretariat of the Technical Working Group on Fisheries. FiA, Phnom Penh, Cambodia. 9 pp.

FiA (Fisheries Administration) 2011b. Fisheries Annual Action Plan (2011). Cambodia.

Golder B., Gawler M. 2005. Cross-Cutting Tool Stakeholder Analysis. The Resources for Implementing the WWF Standards, WWF-US and ARTEMIS Services.

Keskinen M. 2003 The great diversity of livelihood? Socio-economic survey of the Tonle Sap Lake. WUP-FIN Socio-economic studies on Tonle Sap 8 - MRC/WUP-FIN - Modelling the flow regime and water quality of the Tonle Sap - March 2003, Phnom Penh, Cambodia. 126 pp.



Nguyen Khoa S., Chet P. 2006. Review of built structure Environmental Impact Assessments (EIA) with regard to the fisheries of the Tonle Sap. Report of the project "Influence of built structures on the fisheries of the Tonle Sap". WorldFish, Cambodia National Mekong Committee and Asian Development Bank. World Fish Center, Phnom Penh, Cambodia. 38 pp.

RGC (Royal Government of Cambodia) 2004. The Rectangular Strategy for Growth, Employment, Equity, and Efficiency in Cambodia. 3rd Legislature of the National Assembly of the Kingdom of Cambodia.

RGC (Royal Government of Cambodia) 2008. Royal Kram No. NS/RKM/0508/017: Law on Administrative Management of the Capital, Provinces, Municipalities, Districts and Khans. 54 pp.

RGC (Royal Government of Cambodia) 2010. The National Program for Sub-National Democratic Development (NP-SNDD) 2010-2019.

Springer-Heinze, Hartwich F., Simon Henderson J., Horton D., Minde I. 2003. Impact Pathway Analysis: an approach to strengthening the impact orientation of agricultural research. *Agricultural Systems*. 78(2); 267-285.

Taylor P., Bouy Kim Sreang 2008. Support for Operationalizing the Tonle Sap Basin Authority (July 2008). Technical Assistance Consultant's Report. Asian Development Bank, Phnom Penh, Cambodia. 87 pp.

USAID (U.S. Agency for International Development) 2011. USAID-HARVEST Project: Helping Address Rural Vulnerabilities and Ecosystem Sustainability. USAID, Phnom Penh, Cambodia. 10; 2 pp.

Yim Chea, McKenny P. 2003. Domestic Fish Trade: A Case Study of Fish Marketing the Great Lake to Phnom Penh. Working Paper 29, November 2003, Cambodia Development Research Institute, Phnom Penh, Cambodia. 24 pp.

Ziv G., Baran E., So Nam, Rodríguez-Iturbe I., Levin S.A. 2012. Trading-off fish biodiversity, food security, and hydropower in the Mekong River Basin. *Proceedings of the National Academy of Science*. 109 (15); 5609-5614.

## 6 APPENDIX 1: QUESTIONNAIRE FOR THE SEMI-STRUCTURED INTERVIEW

A: Identifying Institutions or Organizations Relevant to FRI

*Besides your organization, who else has produced, used or been exposed to FRI?*

*Besides your organization and those players, who else should have received FRI?*

B: Identifying Policies and Roles of Stakeholders Relevant to FRI

*What are the policies of your organization that are reflected in the fisheries sector or relevant to FRI?*

*What fisheries-related activities, projects or programs has your organization implemented or been involved with so far?*

*What are your organization's achievement(s) so far?*

*Could you please describe the policies and roles of other institutions or organizations that produce, use, or disseminate FRI?*

C: Identifying the Flows and Exchanges of FRI Between Stakeholders

*How is FRI used by your organization?*

*How does your organization get FRI?*

*How has FRI been exchanged between your organization and other organizations?*

*Who do you think FRI has not reached?*

*How do you think dissemination of FRI should be improved?*

D: Identifying the Significant Players

*Among all identified actors, which ones do you think have played their roles best?*

*Among them, who do you think can make best use of FRI?*

E: Identifying Preferred Formats and Types of FRI

*What types of FRI does your organization produce, need to know or use?*

*What types of FRI may other relevant organizations produce, need to know or use?*

*What format(s) is/are most suitable to your organization?*

*What format(s) may be most suitable to other relevant organizations?*

## 7 APPENDIX 2: LIST OF INFORMANTS INTERVIEWED

<b>N</b>	<b>Name</b>	<b>Organization and Department</b>	<b>Position</b>
1	Dr. So Nam	IFReDI	Director
2	Ms. Hap Navy	IFReDI	Deputy Director
3	Mr. Thor Senserywath	FiA, DPFIC	Acting Director
4	Mr. Chan Danith	FiA, TWG-F	Coordinator
5	Mr. Phem Sear	TSA, DECC	Deputy Director
6	Mr. Sokhom	CNMC, Fisheries Program	Project Coordinator
7	Mr. Sok Sovathra	CARD, Information Management Office (IMO)	Chief of IMO
8	Mr. Sok Sueng	FAO	Program Assistant
9	Ms. Mao Moniratana	Danida	Program Officer
10	Ms. Ronit Kirshner Gerard	USAID	Agriculture & Environment Officer
11	Mr. Sak Sambath	USAID	Senior Economist
12	Mr. Buoy Ratana	MRC, Fisheries Program	Program Assistant
13	Mr. Mam Kosal	The WorldFish Center	Research Analyst
14	Mr. Alan Brooks	The WorldFish Center	Director
15	Mr. Seng Vang	Cambodian Agricultural Research and Development Institute (CARDI)	Deputy Director
16	Mr. Yorth Bunny	The Global Fish Alliance	Communications & Networking Coordinator
17	Mr. Sim Bunthoeun	The Learning Institute	Capacity Building Manager
18	Mr. Kim Sour	CDRI, Natural Resource and Environment Program	Research Associate
19	Mr. Mao Hak	Ministry of Water Resources and Meteorology (MOWRAM)	DDG of Technical Affairs & Director of the Department of Hydrology and River Works
20	Mrs. Lov Samnan	Poor Family Development (PFD), Pursat	Executive Director
21	Mr. Phum Phavat	Buddhism Development Association and Supporting Environment (BDASE), Pursat	Executive Director
22	Mr. Bun Chantrea	HARVEST, Pursat	Fisheries Zone Program Manager
23	Mr. Ngen Seng Lay	Cambodian Rural Development Team (CRDT), Stung Treng	Project Manager
24	Mr. My Baing	My Village (MVi), Stung Treng	Provincial Program Coordinator
25	Mr. Chiv Vibol	Development Partnership in Action (DPA)	Community Development Facilitator
26	Mr. Yen Run	Culture and Environment Preservation Association (CEPA), Stung Treng	Provincial Coordinator
27	Mr. Khem Ra	Promvihearthor (PVT), Stung Treng	Provincial Coordinator

28	Mr. Pen Chhundy	FiA Cantonment, Stung Treng	Director
29	Mr. Eam Dyna	The WorldFish Center	Research Officer
30	Mr. Nop Samnang	FiA Cantonment, Takeo	Fisheries Officer in Charge of Community Development
31	Mrs. Tan Sokhom	Oxfam Australia, Takeo and Stung Treng	Program Advisor

## 8 APPENDIX 3: LIST OF STAKEHOLDERS

### At the National Level

Institutions	Relevant Section/Dept.
MAFF	The Department of Planning and Statistics (DPS) Technical Working Group on Agriculture and Water (TWG-AW) Technical Working Group on Forestry and Environment (TWG-FE)
FiA	Inland Fisheries Research Development Institute (IFReDI)
	Technical Working Group on Fisheries (TWGF)
	The Department of Planning, Finance, and International Cooperation (DPFIC)
National Institute of Statistics	The Department of National Accounts
TSA	Department of National Resources
	Department of Exploitation Control and Conservation
CNMC	Projects Department: The fisheries and hydropower programs
MOE	Department of Wetlands and Coastal Areas
	Department of International Convention and Biodiversity
MIME	General Department of Energy
	Department of Hydro-Electricity
MOWRAM	Department of Planning and International Cooperation (DPIC)
CARD	Technical Working Group on Food Security and Nutrition (TWG-FSN)
The National Assembly and Senate	The 3 <sup>rd</sup> commission: The commission on Economy, Planning, Investment, Agriculture, Rural Development, Environment, and Water Resources.
European Union	The Delegation of European Union
Danida	The Head of Representation, Danida, Phnom Penh
Food and Agriculture Organization	Country Representative
USAID	The Office of Food Security & Environment
AusAID	Country Representative
JICA	Country Representative
UNDP	Environment and Energy Program
World Bank	Country Representative
Asian Development Bank	Country Representative
MRC	Fisheries Program
International Organizations	WWF
	International Union for Conservation Nature (IUCN)
	Nature and Environment Foundation (NEF)
	Wildlife Conservation Society (WCS)
	Wetlands Alliance
	Conservation International (CI)

<b>Institutions</b>	<b>Relevant Section/Dept.</b>
Local NGOs	Cambodian Development Resource Institution (CDRI)
	The Learning Institute (LI)
	Fisheries Action Coalition Team (FACT)
	Global Fish Alliance (G-Fish)
Academic Institutions	Department of Environmental Studies & Department of Biology, Royal University of Phnom Penh (RUPP) Faculty of Fisheries Science, Royal University of Agriculture (RUA) Academic Affairs, Preah Leap National School of Agriculture (PNSA) Academic Affairs, Kampong Cham National School of Agriculture
Private Sector	SOMA Group and CP Group
Media	TV: TVK, CNC & Bayon TV Newspaper: The Cambodia Daily, Cambodge Soir, Reaksmeay Kampuchea

### **At the Provincial Level**

<b>Institutions</b>	<b>Relevant Section/Dept.</b>
Local NGOs in Stung Treng	Culture and Environment Preservation Association (CEPA) Development Partnership in Actions (DPA) Promvihearthor (PVT) Cambodian Rural Development Team (CDRT) My Village (MVi) Dolphin Committee (DC)
Local NGOs in Pursat	Helping Address Rural Vulnerabilities and Ecosystem Stabilities (USAID-HARVEST) Buddhism Development Association and Supporting Environment (BDASE) Cambodian Coalition of Fishers (CCF) Poor Family Development (PFD)
Government Institutes in each Province	Fisheries Administration Cantonment (FIAC) The Board of Provincial Governors (BPG) Provincial Department of Water Resources and Meteorology (PDWRM) Provincial Department of Environment (PDE)