



Common Framework for Water Ecology Assessment in the 3S Basins

Report on the proceedings of BRIDGE Consultation on the Development of a Common Framework for Water Ecology Assessment in the 3S (Sekong, Sesan and Sre Pok) Basins

December 2015



CONTENTS

1.0	Background and Introduction.....	1
1.1	The BRIDGE project.....	1
1.2	Common Framework for Water Ecology in the 3S Basins	1
1.3	Participants Profile.....	2
1.4	1 st Consultation: February 2015 Workshop Summary.....	2
2.0	2 nd Consultation: Common Framework for Water Ecology Assessments in the 3S Basins (December 4, 2015 Workshop)	3
2.1	Overview	3
2.2	Session 1 - Review of the Indicator Based Water Ecology Assessment Methodology and Discuss Outputs from the February 2015 Workshop.....	4
2.3	Session 2 – Facilitated Discussions on the Framework Objectives.....	5
2.4	Session 3 – Ecological And Social Assets and the Indicator and Scoring Systems	6
2.5	Session 4 – Facilitated Discussions on Operationalisation of the Framework	7
3.0	Framework Next Steps.....	ERROR! BOOKMARK NOT DEFINED.
4.0	Summary Statement.....	10
Appendix 1	Agenda	
Appendix 2	List of Participants	

1.0 BACKGROUND AND INTRODUCTION

1.1 The BRIDGE project

The BRIDGE (Building River Dialogue and Governance) project is facilitated by IUCN (International Union for Conservation of Nature) and financed by the Water Diplomacy Programme of the Swiss Agency for Development and Cooperation (SDC). It is a multi-regional project which has been implemented in more than a dozen river basins in South and Meso-America, Africa and Asia. The project aims to build water governance capacities through learning, demonstration, leadership and consensus-building for sustainable river basin management.

At the basin level, strategic priorities for BRIDGE are guided by currently available mechanisms for trans-boundary cooperation on water issues. Where cooperation strategies or agreements are in place, the objective is to support implementation and help make the associated local, national and trans-boundary institutions operationally effective. Where no specific agreements are in place, the project focuses on building channels for dialogue, action and learning, in order to create spaces for cooperation.

In Asia, the BRIDGE project is working on the 3S Basins (Sekong, Sesan and Sre Pok Rivers) shared by Cambodia, Viet Nam and Lao PDR. The project has been operational since 2011, and is currently in the phase 2 which started in 2013 and is ending in December 2015. During phase 2, the BRIDGE programme provided opportunities for dialogue and training programmes to build capacity for cooperative hydro-diplomacy for the key stakeholders from the 3S Basins. The BRIDGE programme has also facilitated the sharing of information on Integrated Water Resources Management (IWRM), and consolidated data and studies to support technical discussions across the basins.

1.2 Common Framework for Water Ecology Assessment in the 3S Basins

The 3S Basins form a contiguous ecological unit. The 3S Rivers are recognized to be ecologically rich and an important part of the Lower Mekong fish migration system; one of the most productive fishery zones globally. Most migratory fish species move from the Tonle Sap and Mekong mainstream up the 3S Rivers to breed. However, in recent years, the 3S Basins have come under variety of threats, including hydropower development, expansion and corporatization of agriculture and mining development. Over 50 gold mining units are reported to be working in the Sekong Basin alone. The lack of data sharing between the 3S countries and an absence of a standardized system or a framework to collect ecological data is further challenging the holistic planning and management of the basins. As a result of these threats and challenges, both the long-term ecological security and the sustainability of livelihoods in the 3S Basins are being compromised.

In the 3S Basins, the BRIDGE Programme is facilitating the *Development of a Common Framework for Water Ecology Assessments*. In 2015, IUCN organized two consultation workshops on this issue with the key stakeholders from the 3S basins. The 1st consultation in February 2015 was utilized to introduce the stakeholders to an indicator based approach to the framework development and gather their feedback on its utility and the next steps that BRIDGE could support towards its operationalisation.

The indicator based approach to water ecology assessment framework development has been utilized by the Global Environment Facility - Trans-boundary Waters Assessment Programme (GEF-TWAP). A global Programme which aims to provide a baseline assessment to identify and

evaluate changes in these water systems caused by human activities and natural processes, and the consequences such have on dependent human populations. For more information on the GEF-TWAP programme please follow the link - <http://www.geftwap.org/twap-project>.

On December 4, 2015, IUCN organized the 2nd consultation on the theme of *Development of a Common Framework for Water Ecology Assessments in the 3S Basins*. This report highlights the outcomes of the 2nd consultation meeting. The consultation was organised in Bangkok, Thailand and was attended by a mix of stakeholders the government and the academic sectors in Cambodia, Viet Nam and Lao PDR. The purpose of this consultation was to further the discussion and build on the outcomes of 1st consultation meeting held in February 2015, as a part of the BRIDGE Technical Forum. Through the consultations it has become evident a common water ecology framework for the 3S Basins could be developed as a multi-stage mechanism incorporating a combination of approaches such as, facilitating dialogue, consensus building, tool development, and capacity building of stakeholders across local, provincial, national, and regional levels for the development and operationalization of such a framework.

Key issues presented during the workshop included the establishment of a framework objective, identification of environmental and social assets as well indicators and a scoring system. This document summarizes the workshop discussions and provides steps to further explore the need and support for a framework which would enable it to be operationalized.

1.3 PARTICIPANTS PROFILE

The BRIDGE Technical Forum was attended by nine participants from eight different organizations, including government agencies, the Mekong River Commison and the academic sector, working in the 3S Basins. The participants were selected so that they could share firsthand knowledge and information on river ecology and data management applicable to the 3S Basins. Most participants had technical backgrounds, and were involved in the 1st consultation workshop in February 2015.. Please see Appendix 2 for the full participants list.

1.4 1ST CONSULTATION: FEBRUARY 2015 WORKSHOP SUMMARY

IUCN convened the 1st BRIDGE technical consultation on “Data Sharing and Common Framework for Water Ecology Assessments in the 3S (Sekong, Sesan and Sre Pok) Basins”, in Bangkok, Thailand in Febuary 2015. The half-day consultation was organised on 6th February during Session 4 of the BRIDGE Technical Forum. This consultation meeting was attended by 40 participants representing 28 different organisations from the government, NGOs and the academic sector working in the 3S Basins.

The half-day day consultation saw Mr Jim Webb (Deputy Managing Director, Hatfield Consultants Mekong) introducing participants to concepts underlining the development of common water ecology assessment framework. Mr Webb’s presentation also highlighted the importance of consistent data collection methodology, the need for data sharing and addressing water quantity in cascade management, and improved assessment and management of environmental flows (E-flows).

Following the presentation, group discussions were organised with the objective of identifying assets to include in the framework, develop a list of indicators and to discuss scoring of the indicators. The discussions indicated that the steps to develop a common framework could be visualised as a multi-stage process using a combination of approaches such as dialogue, information dissemination, and

capacity building. The discussion highlighted the following fundamental steps to development of any indicator-based framework, including:

1. Determining the vision for trans-boundary water systems.
2. Determining indicators for the framework.
3. Development of a scoring system for the indicators.
4. Identification of interlinkages and cross-cutting issues among water systems.
5. Development of partnerships and institutional arrangements.
6. Establishment of data sharing and information management.

Internal (in-country) data sharing between line agencies / responsible ministries, and data management, were identified as a potential issue. Governance between countries and costs were also identified as cross-cutting issues.

The full report on the proceedings of the BRIDGE Technical Forum (4 - 5 February 2015) is available on the BRIDGE 3S website and could be downloaded freely from the publication section, the link is -

<http://www.3sbasin.org/publication/download-documents.html>

2.0 **2ND CONSULTATION: COMMON FRAMEWORK FOR WATER ECOLOGY ASSESSMENTS IN THE 3S BASINS (DECEMBER 4, 2015 WORKSHOP)**

2.1 **OVERVIEW**

The 2nd consultation meeting was organised with the following two objectives (which are linked to the first two steps identified during the February 2015 consultation):

1. *Re-confirming the framework objectives.* This step is important to ensure that the framework development remains on track, and to ensure that the framework best addresses each country's needs and considers each countries' resources and situation.
2. *Defining a common set of considerations* for inclusion and assessment within the framework. Considerations include assets and indicators. This step is important to continue discussions on common priorities and to ensure that the framework has a common basis.

Topics of discussion, and presentations, during the one day consultation meeting included the following. Please see Appendix 2 for the detailed agenda.

Session 1 - Review of the indicator based water ecology assessment methodology and discuss outputs from the February 2015 workshop.

Session 2 – Discussion of the framework objectives.

Session 3 – Identification of ecological and social assets and indicators.

Session 4 - Operationalization of the framework.

For group discussions, participants were divided into country groups to facilitate the identification of ecological and social assets pertinent for each country and relevant to the 3S Basins. The following sections of this report summarize the presentation material and discussions from each of the sessions.

2.2 SESSION 1 - REVIEW OF THE INDICATOR BASED WATER ECOLOGY ASSESSMENT METHODOLOGY AND DISCUSS OUTPUTS FROM THE FEBRUARY 2015 WORKSHOP

Session 1 was intended to provide all participants with a background to the assessment methodology and to provide a refresher on discussions from the February 2015 workshop.

River health is an inclusive concept and river ecology assessments are an evolving science. It was noted that the management of shared waters should include all components of a basin and involve all stakeholders in the decision making process. While appreciation for maintaining natural river flow regimes and its implication for basin ecology has historically been insufficient, the current understanding that the full natural range of flow conditions is important for the maintenance of the health of river ecosystems has evolved.

For trans-boundary assessments, the method needs to track changes in the status of stresses on trans-boundary water systems. Existing data may be dispersed across multiple sources and may need to be re-aggregated on a trans-boundary river basin scale. The Global Environment Facility - Trans-boundary Waters Assessment Programme (GEF-TWAP) has developed an indicator-based approach for trans-boundary river ecology assessment. As a more holistic approach, it requires in-depth technical knowledge, a multidisciplinary team and is suitable where emphasis may be on the protection of a broader set of values upon which livelihoods are dependent. Based on the GEF-TWAP methodology, indicators are selected based on the following criteria:

- Availability – data availability at the global scale, fit for the purposes of TWAP and which are cost-effective to acquire (either through direct data or modelling).
- Acceptability – perceived likelihood of stakeholder ‘ownership’ of indicators.
- Applicability – relevance to transboundary issues at the global scale in the context of TWAP, including being relevant to other International Water (IW) systems where possible.
- Aggregation – much of the globally available data is either found at the national level, or modelled on a gridded surface of the earth (typically approximately 50 x 50 km). Therefore the potential to aggregate data from the national to the river basin level is an important consideration, and one that is often addressed through modelling

The number of indicators should be kept to a minimum to keep the framework simple and easy to implement. The indicators should be relevant to a particular issue, easy to understand and to communicate, and acceptable to stakeholders.

In the discussion, participants noted that:

- Common databases to enable data sharing will be important in a transboundary river basin.

- Any assets included in the framework should be monitored individually by each country and then combined for the 3S Basins. However, the data availability may differ from country to country and there could be a need to find a common ground in terms for assessment.
- With respect to scoring, it should be the same for all the three countries.

Participants from Cambodia noted that there is an existing 1995 MoU and MoA among 3S countries. The MoU between Viet Nam and Cambodia for instance already exists and could be used for identifying indicators and to enable data sharing. Additionally, participants also mentioned that an existing agreement between Cambodia and Lao PDR to manage water flow during the wet and dry season could be applicable to the 3S Basins. The multiple MOUs need to be reviewed to determine if they include data sharing and if not, then a possible mechanism for data sharing to support a trans-boundary assessment will need to be explored. Participants noted that, the Mekong River Commission (MRC) can play a critical role in managing data sharing.

Participants from Lao PDR commented that they lack engagement and awareness of issues at the regional level, possibly due to lack of co-ordination in the country. Participants from Cambodia noted that the absence of a robust monitoring may be an obstacle in bringing about positive change.

2.3 SESSION 2 – FACILITATED DISCUSSIONS ON THE FRAMEWORK OBJECTIVES

Session 2 was intended to provide an opportunity for participants to discuss framework objectives and to increase their understanding of how it can be applied, how it can help manage environmental and social attributes in a transboundary basin and how to start thinking about whether it is something they felt would be beneficial from their perspective. The objectives of Session 2 were:

- Broad agreement on, and confirmation of, the framework objectives, scope and definitions.
- Development of a draft outline for a framework terms of reference for subsequent circulation.

In the introductory presentation, participants were presented with objectives and values that could be incorporated into the framework. Participants were also provided with a draft Table of Contents for the framework. Participants were then tasked to identify framework objectives and scope, and think about the attributes that are currently monitored in each country. They were then asked to decide which ones should be included in the 3S water ecology assessment framework.

The participants from Cambodia agreed and commented that:

- Objectives need to be categorized by country
- The framework needs to consider seasonal flows from both upstream countries – Viet Nam and Lao PDR.

Other comments that were provided during the session included:

- Changing Flow in the rivers is a driver of change in ecosystems.
- The framework should take into consideration sustainable development and therefore needs to consider the policies for each government and be aligned with national policies and priorities.

- The framework needs to be linked to livelihood enhancement and consider poverty, nutrition, and natural disasters.

Some of the participants also questioned if there is a political will to develop a framework. They noted that support from the government will be critical if each country is to cooperate on development and operationalisation of such a framework. To achieve support, participants noted that there is a need to clearly communicate the value of the framework to the policy makers. .

2.4 SESSION 3 – ECOLOGICAL AND SOCIAL ASSETS AND THE INDICATOR AND SCORING SYSTEMS

Session 3 was intended to follow the work on the framework in Session 2 so that the participants could start to populate the framework with assets that were of value to each country. The objectives of the session included:

- Identification of a list of considerations (e.g., assets / values) to be included in the framework.
- Identification of potential approaches to scoring those indicators, to support the state of those assets / values.

The participants did not provide list of assets as anticipated but rather looked at the list of generic indicators provided to them and based their responses on that list. As a starting point, the following general assets by cluster were presented by each country group :

Cluster(s)	Asset	Listed by Participants		
		Viet Nam	Cambodia	Lao PDR
Water Quantity	<ul style="list-style-type: none"> ▪ Water stress and water quality ▪ Hydrology ▪ Nutrients 	✓	✓	
Governance	<ul style="list-style-type: none"> ▪ Water legislation and water extraction; including registration 	✓		✓
Ecosystems and Trans-boundary Stress	<ul style="list-style-type: none"> ▪ Sediments ▪ Flora and fauna (fish), invertebrates, macro- and micro-, reptiles (herpetofauna), and birds ▪ Riparian forests, riverbanks and sandbars ▪ Terrestrial/upland forests ▪ Deep pools and rapids ▪ Tonle Sap Ramsar Biosphere site 		✓	
Ecosystems and Socio-economic	<ul style="list-style-type: none"> ▪ Community fisheries for livelihoods ▪ Forestry communities ▪ Natural resource communities 		✓	
Socio-economic	<ul style="list-style-type: none"> ▪ Agriculture and specifically rice ▪ Navigation (trade link to communities) 		✓	
Socio-economic and Transboundary Stress	<ul style="list-style-type: none"> ▪ Floods 		✓	

While not listing any socio-economic assets that could be included in the framework, the participants from Viet Nam stated that there are no socio-economic assets in the 3S Basins that are currently of any concern to their country. This observation should be further explored with other country representatives.

The participants from Cambodia specifically identified the Ramsar Biosphere site as a hotspot due to its interconnection with the 3S basins.

While the participants from Lao PDR did not provide a list of assets, they did re-arrange the order of the list of indicators along with a few potential assets to indicate their understanding of what the priorities should be:

Priority Rank	Indicator or Asset	Category
1	Government registration for water extraction for development	Governance and Water Quantity
2	Government architecture	Governance
3	River basin resilience	Governance
4	Biodiversity/habitat loss	Ecosystems
5	Fish stress	Ecosystems
6	Ecosystems	Ecosystems
7	Economic dependence	Socio-economic
8	Societal well-being	Socio-economic
9	Vulnerability	Socio-economic
10	Environmental water stress	Water Quantity
11	Agricultural water stress	Water Quantity
12	Human water stress	Water Quantity
13	Urban water pollution	Water Quality
14	Nutrient pollution	Water Quality

Though an exhaustive list of environmental and social assets that could be included in the framework for the 3S basins was not produced in this session, it did provide insight into the importance of issues for each of the countries. From these lists, it would be possible to develop a matrix of assets and indicators. The list would require some research to ensure that the most critical assets are included, and to ensure that the list would be in step with existing government policies and, in particular, with any conservation or management priorities for each country.

2.5 SESSION 4 – FACILITATED DISCUSSIONS ON OPERATIONALISATION OF THE FRAMEWORK

Session 4 was intended to bring together the inputs from Sessions 2 and 3 and to brainstorm on how to make the framework a reality. It was also a chance to have a discussion on whether the framework is required and whether it could be supported by government policies. The objectives of the session included:

- Identification of general data requirements (type, location, frequency, period of record, etc) to support consistent and defensible assessment.
- Identification of agencies responsible for collecting, storing and managing that data.

- Agreement on the approach and schedule for each country to confirm their internal data collection activities and acceptable means of data sharing (if not completed during the workshop).
- Next steps to further the framework operationalization.

Comments from the participants included the following:

- Any conceptual framework for water ecology assessments in the 3S basins should be distributed among the key organization including government organization (e.g. Ministry of Natural Resources and Environment).
- So that national priorities are considered, the focus for the 3S basins should not just be regional but national.

Cambodia:

- The framework design should have its corresponding institution identified to carry forward the work, from report to monitoring and implementation.
- Apart from the individual country data requirements to contribute to a framework, there should be list of common data requirements for designing the framework. It was also suggested that developing a framework needing fewer but specific data would be easier to develop and operationalise and will also facilitate effective data analysis.
- Increase the benefits of data sharing and, on a country-by-country basis, articulate the importance of doing so to save time and resources.

Comments that were country-specific include the following:

- Participants from Lao PDR noted that policy decisions that would apply to operationalisation of the framework are mostly top down.
- Participants from Lao PDR also commented that as only the Sekong basin lies within their country, a case needs to be made to the government of Lao PDR to achieve support for a framework with limited geographical application to the country.
- Participants from Cambodia noted that the National Mekong Committee has the authority to lobby framework/ideas/plans to related ministries and the Prime Minister as well; which requires a bottom up approach. But, in general, approaches are holistic in nature and policy decisions are a mix of top down and bottom up.
- Participants from Viet Nam noted that efforts of consultants active in the process of investigating and planning development goals should be coordinated to ensure efficiency and to avoid duplication of efforts.

Next steps and further direction on the framework development:

While the consultation did not yield a definitive outline for a framework, constructive discussion with the participants identified several steps that could be taken to further the development of a framework:

Step 1 – Agreement among the three countries for a common framework objective(s)

This will require different approaches for each country. For example, in Lao PDR, workshop participants identified the top-down approach as the best way to implement policies. Participants noted that it will be important to work with focal points such as the National Mekong Committees to further develop the framework. This may require establishing Working Groups for each country so that the process does not stall and to ensure that the objectives are clearly defined, meet domestic policies and can be incorporated for the 3S basins. The participants also mentioned during the workshop that IUCN should align themselves more closely with the National Mekong Committees rather than the MRC to further the framework.

The objectives of the framework need to be clearly defined. A clear statement of the objectives was not achieved in the workshop. As the approach in the workshop was to ask participants for their opinion on what should be included in the framework objectives, a different approach could be taken as part of this step. That approach could include the development of a set of objectives developed at the country level – by a National Working Group in each country – and then discussed at the regional level on its applicability as well as requirement of any amendments and addition. Following this input on pre-determined objectives, a comprehensive and mutually agreed set of framework objectives can be achieved.

Step 2 – Each country develops their contribution regarding environmental and social assets as well as indicators.

Each country will need to assess their environmental and social assets that overlap with the 3S basins and identify them for the framework. Rationale for their inclusion will need to be provided along with any existing monitoring and data that has been collected. This information will be used to determine which indicators can be used to monitor the assets and how these apply transboundary.

Step 3 – Collect data for each country

This aspect was a key discussion during the February 2015 workshop. At that time, it was apparent that many disparate datasets exist and there may be issues with data compatibility. As identified in this workshop, existing MOUs and MOAs may be useful for data sharing. These agreements would need to be reviewed to determine if they are applicable to the 3S basins. If they are, this could save significant time in establishing data sharing.

Step 4 - Alignment of the designed framework with the each individual country's policy and also the globally set SDGs and MDGs.

This step is a follow up to step 2 above. As each country identifies their environmental and social assets that are of priority for the framework, each country will need to ensure that the resultant framework aligns with their domestic policies as well as sustainable development goals and Millennium Development Goals.

Step 5: Present the framework to each government to gain support.

The participants identified different approaches for each of their countries. To gain support from key stakeholders in each country, a presentation should be made to highlight the goals and objectives of the framework. This presentation would need to identify the benefits the framework provides for each country as well as any shared benefits that are transboundary in nature.

3.0 SUMMARY STATEMENT

The consultation was beneficial in furthering the concept of a trans-boundary water ecology assessment framework, with participants offering constructive input on issues that are of importance in their respective countries. Participants also suggested that IUCN should work with national committees and form a Working Group in each country to develop and promote the framework. Additionally, information gathered from this workshop will also support the Next Steps that were identified as a result of the February 2015 workshop. Specifically, these steps include:

1. Re-confirming the framework objective(s) - this step should comprise the development, circulation and group acceptance of a Terms of Reference document that clarifies objectives, definitions and scope.
2. Defining the ecological and social assets - each country should complete a preliminary internal assessment and summarize their ecological and social assets; provide a rationale for why these assets should be considered and provide supporting documentation on the status of these assets within their country.

APPENDICES

Appendix 1

Agenda



BRIDGE CONSULTATION ON “COMMON FRAMEWORK FOR WATER ECOLOGY ASSESSMENTS IN THE 3S (SEKONG, SESAN AND SRE POK) BASINS”

FOUR WINGS HOTEL, 40 SUKHUMVIT ROAD 26,

KLONGTOEY, BANGKOK 10110 THAILAND

(04 DECEMBER 2015)

Agenda

Time	Agenda
08:30 - 09:00	Registration
09:00 - 09:10	Opening and Welcome (Introduce the objectives of the meeting) Mr. Vishwa Sinha, IUCN Asia Regional Office
09:10 – 09:20	BRIDGE Project Presentation Mr. Vishwa Sinha, IUCN Asia Regional Office
09:20 – 09:45	Round of Introduction
09:45 – 11:15	Session 1: Presentation and Q/A Review of the indicator based water ecology assessment methodology Discuss outputs of stakeholder consultation from the BRIDGE technical forum (February 2015) on development of common water ecology framework for the 3S basins
11:15 - 11:30	Coffee Break & Group Picture
11:30 – 12:30	Session 2: Facilitated Discussions on the framework objectives <ul style="list-style-type: none">▪ Framework objectives, definitions and scope▪ How does each country envision the framework functioning?
12:30 – 13:30	Lunch Break
13:30 - 16:00	Session 3: Ecological and social assets and the indicator and scoring systems Country Group Work (90 minutes) <ul style="list-style-type: none">▪ Identify potential ecological and social assets/values of concern based on in-country priorities▪ Discuss the level of understanding of these assets in-country Facilitated discussions on of indicators and scoring system for monitoring the assets (60 minutes) (Coffee break included)
16:00 - 17:30	Session 4: Facilitated discussions on operationalisation of the framework <ul style="list-style-type: none">▪ State of data availability and scientific work required to support framework operationalisation▪ Regional and national initiatives/platforms available to support framework operationalisation
17:30 – 17:45	Wrap up of meeting

Appendix 2

List of Participants

No.	Name	Position	Organization
<i>Regional Participants</i>			
1	Mr. Vanna Nuon	Technical Officer	Climate Change and Adaptation, Mekong River Commission
<i>Vietnam Participants</i>			
2	Ms. Truong Tung Hoa	Officer	Department of Water Resources, Ministry of Natural Resources and Environment
3	Mr. Nguyen Van Tuan	Member	Institute of Water Resources Planning, Ministry of Agriculture and Rural Development
4	Associate Professor. Hoang Duc Huy	Lecturer	Department of Ecology and Evolutionary Biology, Ho Chi Minh City University of Science
<i>Cambodian Participants</i>			
5	Dr. Seak Sophat	Head of Natural Resources Management and Development, Faculty of Development Study	Royal University of Phnom Penh
6	Mr. Pich Sereywath	Deputy Director of Department of Community Fisheries Development	Ministry of Agriculture, Forestry and Fisheries. (MAFF)
7	Mr. Touch Bunthang	Deputy Director, Inland Fisheries Research and Development Institute (IFReDI)	Ministry of Agriculture, Forestry and Fisheries
<i>Lao PDR Participants</i>			
8	Mr. Vannaphar Tammajedy	Deputy Director of Namxouang Aquaculture Development Center	Department of Livestock and Fisheries, MAF
9	Mme. Chanlakhone Homkingkeo	Water Quality Monitoring and Management Division	Department of Water Resources, MoNRE