



Mekong River Commission

Regional Stakeholder Forum on the Pak Beng Hydropower Project and the Council Study

FORUM REPORT

22-23 February 2017
Luang Prabang, Lao PDR

March 2017

Prepared by
The Mekong River Commission Secretariat

This report is a record of the proceedings of the Regional Stakeholder Forum on the Pak Beng Hydropower Project and Council Study hosted by the Lao Government and the MRC Secretariat on 22-23 February 2017 in Luang Prabang, Lao PDR.

Table of Contents

I.	Background.....	5
1.	The MRC and Stakeholder engagement	5
2.	Stakeholder engagement for hydropower development	6
3.	Prior consultation and stakeholder engagement	6
II.	Regional Stakeholder Forum on the Pak Beng Hydropower Project and the Council Study .	7
1.	Objectives	8
2.	Approach and proceedings of the forum	8
3.	Overview and key information	9
3.1.	MRC procedures and prior consultation process	9
3.2.	MRC Prior consultation cases and lessons learnt from PNPCA implementation.....	11
3.3.	Lao PDR’s economic growth and sustainable hydropower development	14
3.4.	Lao Mekong Pak Beng Hydropower Project.....	15
3.5.	Approach and methodology for the Technical Review of Pak Beng.....	15
4.	Documented comments and views	19
4.1	Comments and recommendations for Pak Beng Hydropower Project	19
4.2	Comments and recommendations for the Council study	33
5.	Follow up and next steps	36
III.	Forum’s photo gallery	37

List of Figures

Figure 1. MRC Stakeholder Engagement Platform	5
Figure 2. Overview of forum’s participants.....	8
Figure 3. MRC Procedural Tools for Water Diplomacy	10
Figure 4. Prior consultation process framework.....	10
Figure 5. Roadmap for Pak Beng prior consultation process	13
Figure 6. Recommended three-staged Prior Consultation Process.....	13
Figure 7. MRC proposed three-stage PNPCA process	14

ACRONYMS AND ABBREVIATIONS

BDP	MRC Basin Development Plan Programme
CIA	Cumulative Impact Assessment
CNMC	Cambodia National Mekong Committee
CSO	Civil Society Organisation
EIA	Environmental Impact Assessment
JC	MRC Joint Committee
JCWG	MRC Joint Committee Working Group
LMB	Lower Mekong Basin
LNMC	Lao National Mekong Committee
MRC	Mekong River Commission
MRCS	Mekong River Commission Secretariat
NGO	Non-Governmental Organisation
PC	Prior Consultation
PDG	Preliminary Design Guidance
PNPCA	Procedures for Notification, Prior Consultation and Agreement
PP	Public Participation
RAP	Resettlement Action Plan
RBO	River Basin Organisation
SEA	Strategic Environment Assessment
SIA	Social Impact Assessment
TNMC	Thai National Mekong Committee
VNMC	Viet Nam National Mekong Committee

I. Background

1. The MRC and Stakeholder engagement

The Mekong River Commission (MRC) is the only inter-governmental organisation that works directly with the governments of Cambodia, Lao PDR, Thailand and Viet Nam to jointly manage the shared water resources and the sustainable development of the Mekong River. The MRC is a platform for water diplomacy and regional cooperation in which member states share the benefits of common water resources despite different national interests. It also acts as a regional knowledge hub on water resources management that helps to inform the decision-making process based on scientific evidence.

Promoting regional cooperation for sustainable development plays a key role in the operations of the MRC, but this can only be achieved if those involved in this development have a voice in the decision-making process. Since its inception in 1995, the MRC has adopted a participatory approach in its work to expand the opportunities for collaboration with both internal and external stakeholders.

Internal stakeholders are defined as government bodies in the MRC structure such as the MRC Council, Joint Committee, the Secretariat, the National Mekong Committees and their Secretariats, and the principal line agencies in each member country.

External stakeholders are non-state bodies such as development partners, dialogue partners, NGOs, implementing partners, civil society organizations, research institutions, academics, individuals and other groups who have interests or stakes. They are the ones who can contribute information, views and their perspectives to development planning.

As part of its broader stakeholder engagement efforts, in the past MRC hosted a series of fora such as basin development plan, sustainable hydropower, climate change and fisheries fora as well as MRC international conferences and MRC Summits. Regarding public participation, MRC has been working on improving its participatory approach by including a broad range of interested stakeholders to share and contribute important knowledge and relevant perspectives to the process.

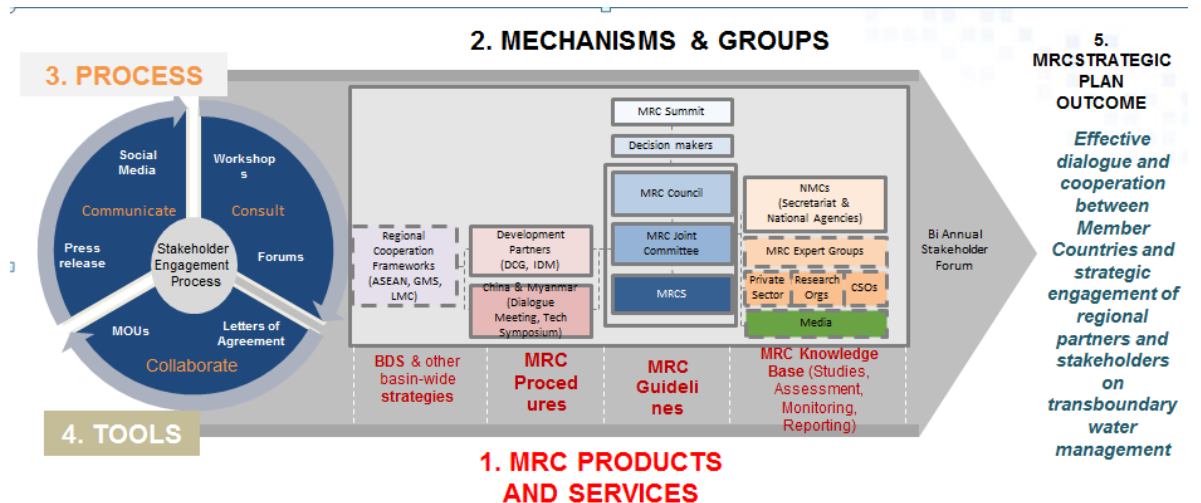


Figure 1. MRC Stakeholder Engagement Platform

In the MRC's strategic cycle of 2016-2020, broader stakeholder engagement is one of its priorities. Some actions, tools and mechanism have been identified to enhance stakeholder engagement and water diplomacy such as: implementing MRC procedures, strengthening cooperation with dialogue partners (China and Myanmar), leveraging partnership with regional mechanisms (ASEAN, GMS), convening an annual regional stakeholder platform, establishing working groups and expert groups as well as holding several public events for Mekong citizens.

2. Stakeholder engagement for hydropower development

By its nature, hydropower development in the lower Mekong River Basin calls for effective public participation in its planning and implementation. There is thus a compelling case for any hydropower development strategy in the LMB to identify and consult with relevant representatives of stakeholder groups and to include them within the decision-making framework.

Through the development and implementation of the MRC procedures and hydropower projects, the MRC Member Countries have agreed to the importance of public engagement. The MRC values the voice and concerns of the stakeholder groups and interested parties in contributing to the well-being of the people living in the Mekong Basin. The MRC is committed to supporting the Mekong countries in meeting the needs of national development whilst balancing interests and needs to ensure the sustainable development and management of the Mekong basin.

The MRC as a regional entity which aims to be the central point for information collection and as the link between key stakeholders within the region. The MRC member countries already practice within a spirit of cooperation and understanding and the MRC is in a unique position to be able to foster public participation in hydropower development in the LMB by bringing together technical experts and high-level decision makers and linking this to a public participation process at national and regional levels.

3. Prior consultation and stakeholder engagement

Prior Consultation¹ is a process for the MRC Member Countries to discuss and evaluate benefits and associated risks of any proposed water-use project that may have significant impacts on the Mekong River mainstream's flow regimes, water quality and other environmental and socio-economic conditions.

The prior consultation is undertaken by the MRC Joint Committee (JC), a body comprised of one senior-level government official from each Member Country, and supported by the MRC Secretariat in its technical and administrative functions. Each National Mekong Committee provides national administrative and coordinating functions, and supports the JC in the implementation of related activities.

A Joint Committee Working Group (JCWG) acts as an advisory body to assist the Joint Committee during implementation of the Prior Consultation. The JCWG with the support of

¹ The Prior Consultation process is detailed under the MRC Procedures of Notification, Prior Consultation and Agreement which is procedural rule for water diplomacy.

the MRC Secretariat will review aspects such as dam safety, fish migration, sediment, hydrology and hydraulics, navigation and environmental and socio-economic impacts.

Civil society and members of the public will be engaged by the respective National Mekong Committee in each country. Responsibility for holding in-country consultations or information-sharing meetings rests with the respective government agencies. The National Mekong Committee, a government coordination body from each of the Member Countries, is in charge of planning such sessions in their respective countries.

Stakeholders are engaged through regional consultation meetings, in addition to a number of national information sharing and national consultations for affected communities. The stakeholder consultations are facilitated in such a way to solicit views and concerns of different stakeholders and other interested parties on the project to the notifying country for their consideration. The MRC Secretariat will facilitate consultations with stakeholders in good faith and systematically document their views and demonstrate how those views will be considered by the MRC governance bodies and provide feedback on them.

During the prior consultation process, there are different channels for receiving, documenting and transmitting all legitimate concerns and views from interested stakeholders not limited to communication and engagement, but also via comments and feedback from the public through MRC web-active comment box at <http://www.mrcmekong.org/stakeholder-consultations>.

At the end of the six-month prior consultation process, a Technical Review Report (TRR) will document the MRC Secretariat's review of the technical aspects, environmental, economic and social impacts together with findings and recommendations from regional fora. The notified member countries will officially express their opinions and concerns in the reply forms, taking into consideration results of the national public meetings. The reply forms and the TRR will then be presented to the MRC governance bodies for consideration during negotiation on how to advance with the proposed project.

The MRC has so far experienced two prior consultation cases – the Xayaburi and Don Sahong hydropower projects, both of which are located within the Mekong mainstream in Lao PDR. National meetings were organised based on the national laws and procedures. At the regional level, the MRCS facilitated one regional stakeholder meeting for Don Sahong hydropower project, but not for Xayaburi. The proposed Pak Beng hydropower project is the third case to be considered through the Prior Consultation process.

II. Regional Stakeholder Forum on the Pak Beng Hydropower Project and the Council Study

The Prior Consultation process implements the PNPCA and guidelines. The proposed Pak Beng Hydropower Project is a run-of-river hydropower project on the Mekong mainstream, located in the northern of Lao PDR. The six-month Prior Consultation Process for the proposed Pak Beng Hydropower Project officially started on 20 December 2016.

The Council Study is part of the MRC basin planning process. The Council Study focuses on updating and enhancing MRC knowledge base including its databases, assessment methodologies and tools and knowledge of development impacts. These are useful for basin planning purposes as well as infrastructure project review and assessment such as during

PNPCA. The knowledge gained so far from the Council Study in terms of the assessment of hydrology, sediment, fisheries, environment, and socio-economic impacts will contribute to review of and recommendations for the proposed Pak Beng hydropower project, as well as future projects. The Council Study has been undertaken through different forms of regional technical working group meetings, national consultations, a BDP regional stakeholder forum and at a greater Mekong forum.

1. Objectives

This Regional Stakeholder Forum, held on the 22-23 February 2017, in Luang Prabang, Lao PDR is the first regional stakeholder consultation for the MRC’s Council Study and the prior consultation for the Pak Beng Hydropower project, with the following shared objectives:

- i. sharing information on the progress and expected outputs of these two key works of the MRC;
- ii. jointly reviewing and providing comments and recommendations on the design of the council study assessment method, tools and indicators;
- iii. sharing information, exchanging and documenting views on the proposed Pak Beng hydropower project and importance of stakeholder engagement during the process and beyond.

2. Approach and proceedings of the forum

Using the lessons learnt from previous engagements, the MRC has built on these to become more responsive to requests; proactively engage with key players (developers, governments, civil society, etc.), and ensure improved transparency, timely and adequate sharing information, and earlier engagement with stakeholders.

The regional stakeholder forum focused on information sharing, communicating the PNPCA process and mandate, reaffirming the importance of stakeholder engagement in good faith and the enhanced MRC mechanism, soliciting of preliminary views on the project and the proposed approach by the MRC to review the project.

The forum attracted more than 180 participants representing MRC member countries, development partners, NGOs and civil society, as well as research institutions, academics, private developers and media. (Annex 1 – List of participants)

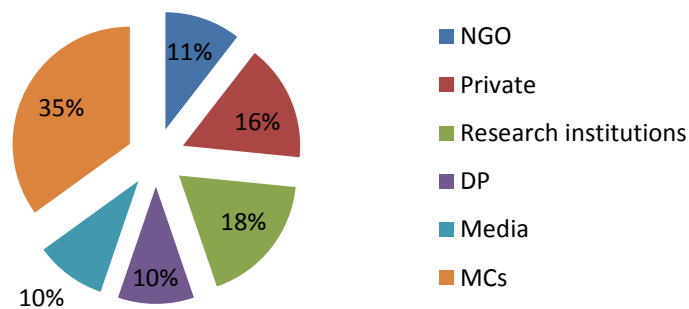


Figure 2. Overview of forum’s participants

The forum's participants were able to share their views and opinions on the Pak Beng hydropower project both in terms of technical aspects such as hydrology, hydraulics, sediment, dam safety, navigation, environment, fisheries, as well as its socio-economic impacts.

For the Council Study, the discussion focused on the impact assessment methodology and approaches for the study regarding hydrology, ecosystem, biological resources, and social and economic impacts.

In support of the discussion, the MRC Secretariat and Ministry of Energy and Mines on behalf of the Lao Government provided presentations including an overview of MRC Prior Consultation process and lessons learnt, followed by introduction on Lao sustainable hydropower strategy and the Pak Beng project, and briefing on approach, scope and methodology for the MRCS technical review of the Pak Beng Hydropower Project regarding transboundary issues, and the Council study team provided updates on the Council study overall assessment approach (Annex 2 – Agenda).

The group discussions on hydrology and sediment, and environment and fisheries attracted many participants reflecting their interest and concerns. Meanwhile discussion in the socio-economic group focused on possible transboundary impacts as well as some local impacts. In general, the forum clarified the timing of the Prior Consultation process and commencement of the proposed use as well as the run-of river scheme in terms of flow regime, discussed understanding of cumulative impacts and effectiveness of mitigation measures, expressed concerns over coordination of cascade dams operations in term of *sediment trapping/transport* and *fish migration and fish hatching* and *analysis of dam safety (dam break)*, and recommended preventive measures for socio-economic impacts on the directly affected communities in Laos and Thailand.

For the Council Study, the discussion lastly focused on the design of the cumulative impact assessment (CIA). The meta indicators to support the process triggered many questions regarding meaning, aggregation, and political dimension with resilience and vulnerability identified as important issues although the details are not yet clear. Comments from the stakeholder on the policy relevant indicators were also made.

3. Overview and key information

In the two-day forum, the first day was dedicated for the prior consultation process for the proposed Pak Beng hydropower project and the 2nd day focused on the Council Study. The following sections provide an overview and key information that was presented in support of the group discussions.

3.1. MRC procedures and prior consultation process

The MRC is one of the few intergovernmental river basin organisations that are governed by a specific set of rules developed to coordinate technical cooperation among its members. Since the establishment of the 1995 Mekong Agreement, the MRC has developed five sets of procedural rules on water quality, data sharing, water use monitoring, water flow maintenance, and water use cooperation to support the implementation of the agreement. With PNPCA being one of these.

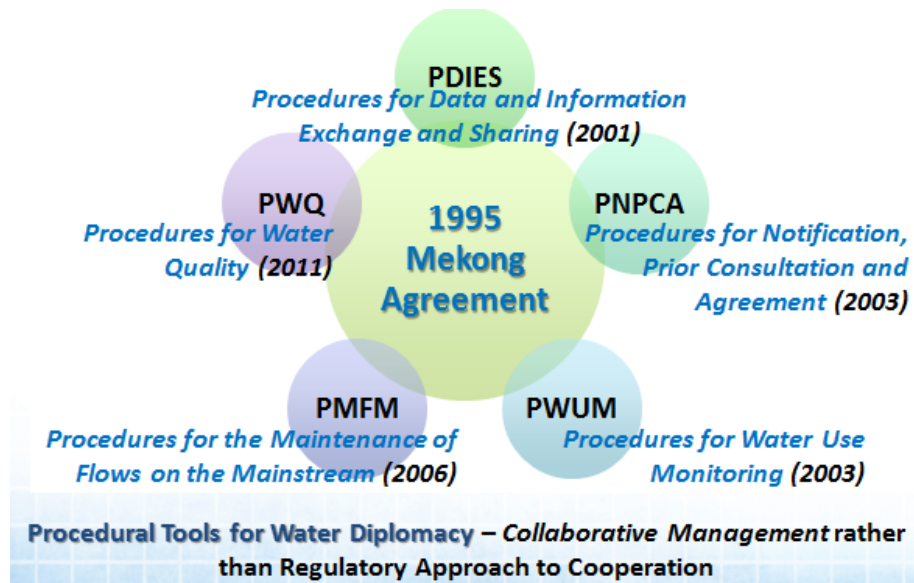


Figure 3. MRC Procedural Tools for Water Diplomacy

Within the PNPCA, the process of Prior Consultation “neither implies a right to veto the use nor a unilateral right to use water by any riparian without taking into account other riparian rights”. It rather is designed for the notified countries to make recommendations and for the proposing country to accept certain measures, to mitigate any potential impact and to find a better way to share the benefits.

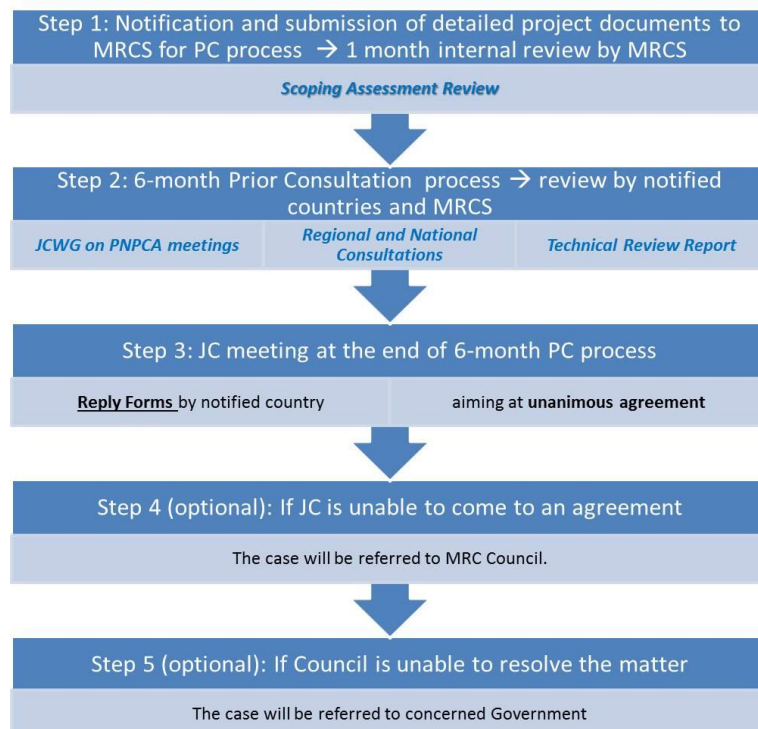


Figure 4. Prior consultation process framework

The prior consultation process framework involves five steps within a seven month period. The MRC Secretariat undertakes an active facilitation role for step 1 and step 2 with specific outcomes including (using the Pak Beng Hydropower Project as the example):

- A Scoping Assessment Review: internal review report with a checklist on the submitted documents of the proposed project.
- Meetings of the PNPCA JCWG: the MRCS will organize three meetings for the Joint Committee Working Group on PNPCA to discuss and review aspects such as dam safety, fish migration, sediment flow, navigation and environmental and socio-economic impacts.
- Regional and National Consultations: for Pak Beng prior consultation process, there will be 2 regional stakeholder forums, and 6 national public meetings in 3 notified countries.
- Technical Review Report: this report is prepared by the MRC Secretariat and documents MRC Secretariat's review finding on the technical aspects, environmental, economic and social impacts together with findings and recommendations from regional forums. This is supported by technical experts and a field visit.

The outcomes of two steps above will provide additional information to the Meeting of the Joint Committee at the end of the prior consultation process aiming for unanimous agreement amongst Member Countries. The notified member countries will officially express their opinions and concerns in the reply forms, taking into consideration results of the national public meetings. These reply forms will also be shared at the JC meeting.

In the case where there is no unanimous agreement at the MRC JC meeting, then the case will be referred to higher level as mentioned under step 4 and step 5 in the figure above.

For more information, please visit MRC website

- ✓ PNPCA overview under MRC Procedure Framework
<http://www.mrcmekong.org/assets/Publications/2.-PNPCA-Overview-under-MRC-Procedure-Framework.-130217.pdf>
- ✓ PNPCA brochure <http://www.mrcmekong.org/assets/Publications/PNPCA-brochure-11th-design-final.pdf>

3.2. MRC Prior consultation cases and lessons learnt from PNPCA implementation

Prior consultation is an opportunity for Member Countries and interested stakeholders to review development projects subject to MRC's PNPCA. Through the prior consultation process, the notifying country has the responsibility to share detailed information of projects. Through consultation, MRC encourages scientific assessments, facilitation of negotiations (document adequacy), and joint monitoring.

The table below summarizes the three MRC prior consultation cases as implemented or proposed implementation.

Project	Important dates	Meetings	Outcomes	Project's design features
Pak Beng	Submission: 4 November 2016	- 3 PNPCA JCWG - 2 regional consultations	Discussion and review in progress	Installed capacity 912 MW Average annual output 47.65×10^8

	Prior Consultation: 20 December 2016 – 20 June 2017	- 6 national consultations		KWh Tonnage of ship lock 500t
Don Sahong ²	Submission for PC: 30 June 2014 Prior Consultation: 25 Jul 2014 - 24 Jan 2015	- 3 PNPCA JCWG - 1 regional consultation - 14 national consultations	MRC-JC Special Session agreed to report outcomes to MRC Council for further guidance MRC Council decided in June 2015 to refer to national government level for further resolution	Capacity: 260 MW Output: 2044 GWh/year of clean energy Construction started February 2015 Overall completion approx. 20% Expected COD: end of 2019
Xayaburi	Submission: 20 Sept 2010 Prior Consultation: 22 Oct 2010- 22 Apr 2011	- 3 PNPCA JCWG - 8 national consultations	The case was referred to MRC Council At the 18 th MRC Council Meeting in Dec 2011, the Council agreed to conduct a <i>study on sustainable management and development of the Mekong River including impacts by mainstream hydropower project</i> (Council Study) Following recommendations of the prior consultation process, Lao Gov't and developer decided to invest about \$400 million to improve dam's design of Xayaburi project	Capacity: 1285 MW Output: 7000 GWh/year of clean energy Construction started November 2012 Overall completion 73,8% Expected COD: end of 2019

The roadmap below illustrates the timeline for Pak Beng prior consultation process between December 2016 and June 2017.

² Don Sahong was initially submitted by Lao PDR under Notification of PNPCA. However, following consideration by the MRC JC it was decided that it should under Prior Consultation.

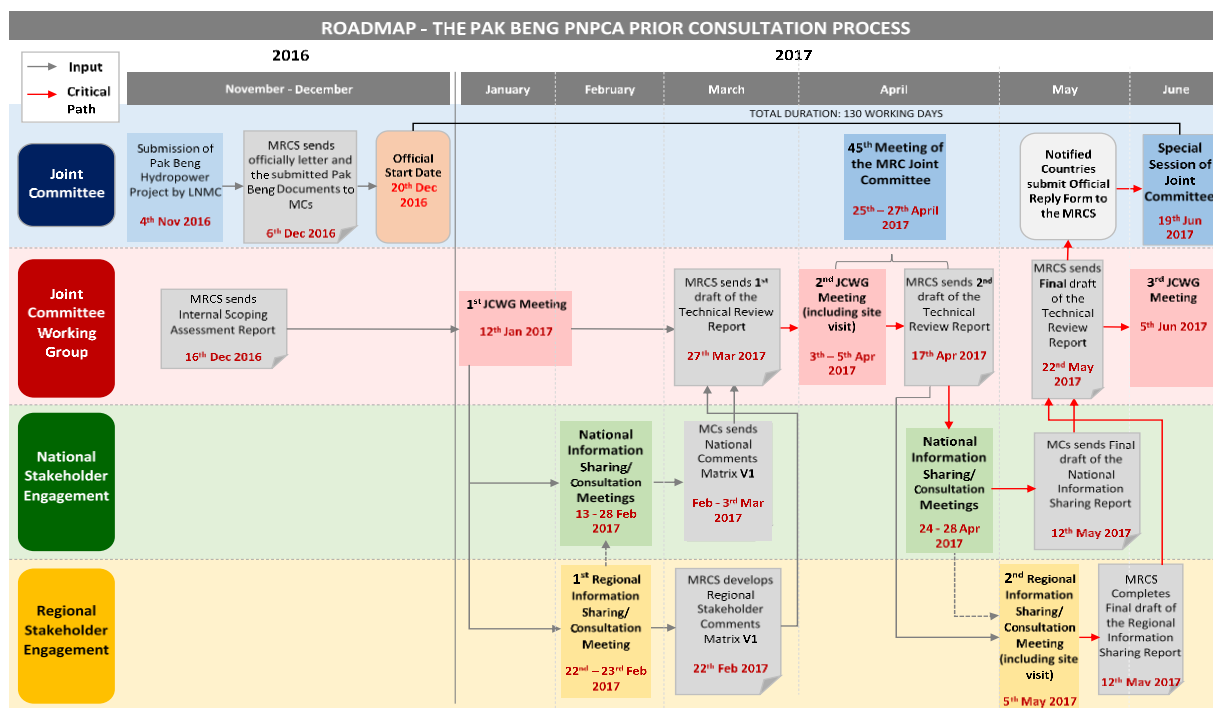


Figure 5. Roadmap for Pak Beng prior consultation process

For greater clarity, the MRC Secretariat is working on a Commentary Note on the PNPCA and its Guidelines which will provide further clarity for its implementation and will adopt “best practice” in international law. Another reference document, Report on Lessons Learnt from PNPCA Implementation that resulted from a Dialogue Workshop in February 2016 is on the MRC’s website:

<http://www.mrcmekong.org/assets/Publications/PNPCA-WORKSHOP-REPORT-Bangkok-Feb-2016-Final-web.pdf>

For the Pak Beng prior consultation process, specific lessons learnt have already been adopted resulting in improved proactivity, transparency, adequacy and early engagement.

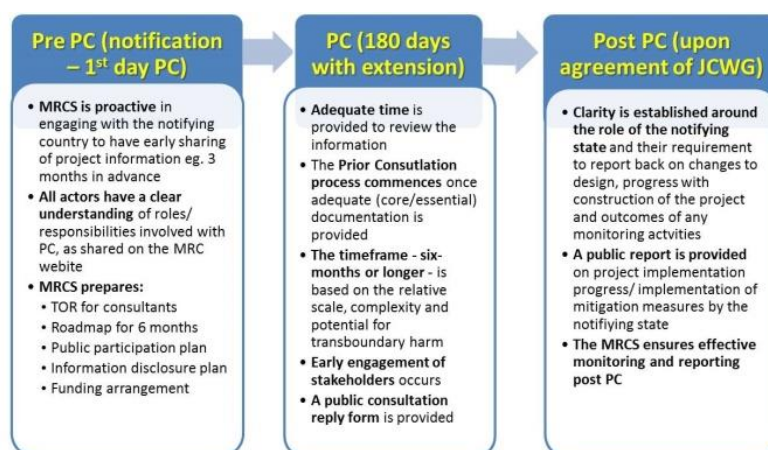


Figure 6. Recommended three-staged Prior Consultation Process

Moreover, the MRC is working on a three-staged Prior Consultation Process, in which Pre and Post- Prior Consultation are important stages supporting the project implementation. As part of the Post- Prior Consultation process for Pak Beng, the MRC Secretariat is working

on details of a joint action plan for approval and agreement by the Joint Committee. The figure below provides an overview of a possible three-stage PNPCA process.

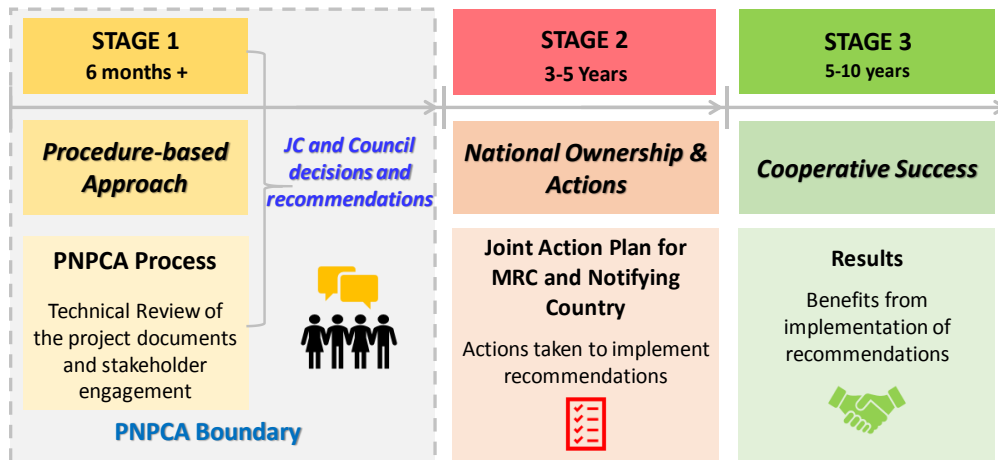


Figure 7. MRC proposed three-stage PNPCA process

For more information, forum's presentations are on the MRC website:

- ✓ Implementation of Previous Prior Consultation Processes and Lessons Learnt
<http://www.mrcmekong.org/assets/Publications/3.-PNPCA-Implementation-and-Lessons-Learned.-130217-rev.pdf>
- ✓ Objectives and Roadmap for Prior Consultation Process of Pak Beng Hydropower Project
<http://www.mrcmekong.org/assets/Publications/4.-Objectives-and-Roadmap-PBHP-PC.-130217.pdf>

3.3. Lao PDR's economic growth and sustainable hydropower development

During the Regional Stakeholder Forum, a representative from the Government of Lao introduced Laos' policy on sustainable hydropower development. In summary, Lao PDR has developed a hydropower development policy and standards, including: (1) National Policy on Environment and Social Sustainability of Hydropower Sector – now replaced by Policy on Sustainable Hydropower Development, and (2) Social and Environmental Standards and Obligations (SESO) – annex to Concession Agreements.

The Lao's Policy on Sustainable Hydropower Development has certain requirements as follows:

- All large hydropower projects must produce a full Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP)
- The right of all project-affected people will be recognized, and achieved through a Resettlement & Social Development Plan
- A watershed adaptive management and participatory planning strategy will be developed to stabilize land use, and manage Protected Areas
- Consultations will be conducted with all project-affected communities
- Revenue sharing with the Environment Protection Fund (EPF)
- Ensure financial and technical sustainability of the Project

For more information, the relevant presentation by MEM is on the MRC website
<http://www.mrcmekong.org/assets/Publications/Council-Study/PPT-on-Lao-hydropower-development.pdf>

3.4. Lao Mekong Pak Beng Hydropower Project

During the Regional Stakeholder Forum, a representative from the Government of Lao PDR also presented an introduction of the Pak Beng Hydropower project looking at comprehensive aspects of Project Brief, Hydrology, Sedimentation, Geology and Exploration, Design Layout, Trans-boundary Impacts, Dam safety, Fish Pass facility, Navigation, Water quality, Sustainable Operation and Management.

The Pak Beng Hydropower Project is the most upper hydropower dam within the Laos cascade of mainstream hydropower development for the Mekong River. It is located in the upper reaches of the Mekong River near Pak Beng District in Oudomxay Province of northern Laos. The dam site is approximately 14km upstream from the Pak Beng District Office. Its installed capacity will be 912 megawatts and has 16 units. The average annual output will be around 47,750 hundred million kilowatts per hour. The dam will be designed with a ship lock with capacity for a 500 tonne ship.

In August 2007, the Government of Lao and China Datang International Power Generation Co., Ltd (DTP) signed a Memorandum of Understanding (MOU) for the Pak Beng Hydroelectric Power Project. In December 2008, the Feasibility Study Report (FSL 345m, installed capacity 1230MW) was submitted to GOL by DTP. In December 2012, the Project Development Agreement (PDA) was signed. In March 2014, the ESIA was approved by GOL. In July 2014, the Feasibility Study Report (FSL 340m, installed capacity 912MW) was submitted to GOL by DTP.

For more information, the presentation by MEM is on the MRC website

<http://www.mrcmekong.org/assets/Publications/Council-Study/2017.2.22-Pak-Beng-HPP-Presentation>

3.5. Approach and methodology for the Technical Review of Pak Beng

The PNPCA Technical Review aims to provide the basis for the MRC Joint Committee to consider all viable and reasonable measures to avoid, minimise or mitigate potential transboundary impacts of the proposed project. The technical review looks at the overall concept of the proposed project according to the submitted feasibility study and the Environment Impact Assessment (EIA). It will evaluate the project against the MRC Preliminary Design Guidance for Proposed Mainstream Dams in the Lower Mekong Basin (PDG) and will identify gaps and revisions if needed.

The PDG provides overall guidance to project developers and countries regarding mainstream hydropower schemes including guidance in the form of performance targets, design and operating principles for mitigation measures, compliance monitoring and adaptive management; and cross-checks against the documentation submitted such as fisheries/fish passage, sediment transport and morphology, water quality, aquatic ecosystem health and environmental flows, navigation and dam safety.

Other MRC references of relevance to the Technical Review include: the MRC Basin Development Strategy 2016-2020, the Assessment of Basin-wide Development Scenario 2011 & its Review 2015, the Interim Report on Guidelines for Hydropower Environmental Impact Mitigation and Risk Management in the Lower Mekong Mainstream and

Tributaries, the Interim Reports of the MRC Council Study, and Social Impact Monitoring and Vulnerability Assessment (SIMVA).

The Technical Review will consider the potential transboundary changes for seven disciplines below:

- Hydrology and Hydraulics
- Sediment Transport and River Morphology
- Dam safety
- Navigation
- Water quality and aquatic ecosystem
- Fish ecology and passage
- Socio-economic impacts

These potential transboundary changes will be evaluated. Measures recommended based on the approach and methodologies are reflected in the table below for each issue.

Approach	Methodology
<p>Hydrology/Hydraulics: ramping rate, hydro peaking, timing and duration of low and high flows, smoother hydrograph, changes in water level/discharge or flow regimes</p> <p>Sediment/Morphology: reservoir sedimentation, sediment starvation downstream, strategies to maintain reservoir capacity, and sediment management and mitigation strategies, changes to sediment transport/deposition/erosion upstream/downstream of impoundment considering potential impact on geomorphic features (river channel, deep pools or wet lands) ...</p>	<p>STEP 1 – Comparison of the baseline information</p> <p>STEP 2 – Review of the proposed mitigation and management components</p> <p>STEP 3 – Review of the dam design and proposed management and mitigation measures to ensure the passage of flows/sediments through the impoundment and preservation of important seasonal patterns</p> <p>STEP 4 – Evaluation of the potential residual impacts</p> <p>STEP 5 – Evaluation of the proposed hydrological/sediment monitoring programme to ensure that it has the capacity to identify and quantify potential impacts</p> <p>STEP 6 – Evaluation of proposed management measures in response to changes detected through the monitoring programme</p> <p>STEP 7 – Integration of the findings with the findings of environment and fisheries evaluation</p> <p>STEP 8 – Assessment of the proposed project in a basin-wide context</p> <p>STEP 9 – Knowledge gaps to be identified throughout the assessment process; recommending appropriate monitoring approaches and strategies to fill the gaps</p>
<p>Dam safety: concept of safe design, construction and operation of the proposed dam; national requirements & international good practice for the safety of dams; safety issues related to geology, earthquake, flood risk, structural layout, etc. associated with location, scale and structure of the dam; the</p>	<ul style="list-style-type: none"> • Feasibility Report reviewed with a particular focus on Dam Safety • Discussion with relevant Pak Beng Hydropower Dam Engineers and Government officers • A field visit • Comparisons with similar cases (to compile recommendations)

<p>proposed Emergency Preparedness Plan (EPP) & Dam Safety Management System (DSMS); and recommendations.</p>	
<p>Navigation: Lock structure, safety, durability, The most efficient operation and maintenance system, Accessibility, Environmental issues</p>	<ul style="list-style-type: none"> • Review of the Feasibility Report with a particular focus on Navigation ship lock and access channels. • Discussion with relevant Pak Beng Hydropower Dam Engineers and Government officers • A field visit • Comparison with similar cases, best practices (to compile recommendations)
<p>Fisheries and Environment: Local and transboundary impacts on fisheries and aquatic ecosystem functioning & environment over the course of the dam's life – construction, commissioning, operation and closure; Gaps regarding knowledge on fisheries and biological behavior of fish species; Knowledge on aquatic ecology and water quality; Possible cumulative effects of Pak Beng; and Review of mitigation measures proposed by the developer and advise on their likely effectiveness;.</p>	<ul style="list-style-type: none"> • Screening of the submitted Pak Beng HPP documents in relation to fisheries & environment aspects and assess compliance with MRC's Preliminary Design Guidance (PDG). • Drafting of the technical report on possible transboundary fisheries and environment impacts and effectiveness of the measures proposed to avoid, minimize and mitigate adverse impacts on fisheries and the environment of Pak Beng Hydropower Project. • A field visit to the Pak Beng dam site to review the environment and topographical conditions of the dam site and discuss the various aspects of the dam design and operation with the developers and line agencies in situ. • A field visit to Xayaburi Dam is also recommended as any mitigation at Pak Beng needs to be compatible with Xayaburi. • Preparation and presentations of preliminary findings of review process and findings of field visits to 2nd JCWG Meeting. • Compile all outcomes of the Fisheries EEG into one concise, consolidated and harmonized report according to the needs of the PNPCA JCWG. • Develop an executive summary of findings including key conclusions into a summary report for the final MRC Prior Consultation Technical Review Report.

<p>Socio-economic: Robustness of the socio-economic impact assessment methodology used; Possible additional impacts (both positive and negative); Adequacy of mitigation measures proposed to avoid, minimize and mitigate the negative impacts, and Recommendation of additional measures and a transboundary socio-economic impact monitoring programme.</p>	<ul style="list-style-type: none"> • Review the: <ul style="list-style-type: none"> ▪ SIA in line with international best practice ▪ Size of existing and proposed projects ▪ Social impact area: focusing on transboundary impacts ▪ Affected people: focus on downstream communities – also quick review of local impacts ▪ Physical attributes and location ▪ Consideration of alternatives ▪ Risks of accidents and hazards ▪ Characteristics and existing land/water use ▪ Data collection methods and surveys ▪ Scoping of social effects, focusing on <u>transboundary</u> aspects ▪ Prediction of direct effects and secondary, temporary, permanent, indirect and cumulative effects: Livelihoods incl. Agriculture production related to water resources, nutrition, food security, education.... ▪ Prediction of effects on human health and sustainable development • Identify potential impacts not already identified • Review mitigation measures and suggest additional measures • A field visit • Review using international frameworks, including the IFC and EU for hydropower projects.
---	---

All presentations are available on MRC website.

- ✓ Overall Approach for Technical Review of the Pak Beng Hydropower Project <http://www.mrcmekong.org/assets/Publications/8.-Overall-Approach-for-TRR.-130217.pdf>
- ✓ Approach and Methodology for Technical Review of the Pak Beng Hydropower Project - Hydrology and Hydraulics - Sediment Transport and River Morphology <http://www.mrcmekong.org/assets/Publications/9.-Hydrology-and-sediment-160217.pdf>
- ✓ Approach and Methodology for Technical Review of the Pak Beng Hydropower Project - Dam Safety Review <http://www.mrcmekong.org/assets/Publications/10.-Dam-Safety.-140217.pdf>
- ✓ Approach and Methodology for Technical Review of the Pak Beng Hydropower Project - Navigation Ship Lock Review <http://www.mrcmekong.org/assets/Publications/11.-Navigation.-140217.pdf>
- ✓ Approach and Methodology for Technical Review of the Pak Beng Hydropower Project Fisheries and Environment <http://www.mrcmekong.org/assets/Publications/12.-Fisheries-and-environment.-140217.pdf>
- ✓ Approach and Methodology for Technical Review of the Pak Beng Hydropower Project Socio-Economic Review <http://www.mrcmekong.org/assets/Publications/13-Socio-economic0-140217.pdf>

4. Documented comments and views

Comments and suggestions have been placed into four categories based on the nature of the concerns for ease of reference and follow up.

- i. **Knowledge related comments:** these are general questions or comments where answers could be provided mostly at the forum. These comments sought additional information and knowledge necessary for an increased understanding. For the few unanswered questions, they are recorded in this report and they will be addressed in the 2nd Forum.
- ii. **Design related comments:** these are questions and/or comments, recommendations have information or elements relating to technical structure of the dam. They were documented for further actions by the developer/Lao Government.
- iii. **Review of the method related comments:** these are comments and recommendations for the MRC Secretariat to consider and refer to during the review of project documents. They will be reflected in the Technical Review Report (TRR) as relevant.
- iv. **Approach related comments:** these are comments and suggestions for improvement of the MRC procedures and the prior consultation process.

Following the forum structure, the record of comments has been tabulated for the proposed Pak Beng hydropower project and the Council Study, separately. However, during the discussion and through comment record, there was evidence of a connection between these two, specifically how the Council study can be useful and timely support for the technical review of the proposed Pak Beng project and future project assessment.

4.1 Comments and recommendations for Pak Beng Hydropower Project

The comments, questions and recommendations (and MRC responses) expressed in the plenary and group discussions on Pak Beng have been classified and recorded within the following MRC comment matrix. They are grouped by the following issues: PNPCA process, Pak Beng Hydropower Project, Hydrology, Sedimentation, Environment and Water Quality, Fisheries, Socio-Economic, Dam Safety and Navigation.

PNPCA Process

	COMMENTS/SUGGESTIONS	RESPONSES
Knowledge Related	PNPCA as collaborative process, not cooperative. How cooperative can the process be and to what extent are the results binding?	PNPCA aims to encourage MCs to consider results based on mutual agreement. Cooperation is suggested as a deeper level of mutual agreement.
	Collaboration vs. compliance to procedure? Clarification was required on what 'compliance' means?	Compliance within MRCS functions refers more to compliance with the procedures (timelines / processes) rather than compliance in relation to adherence to construction and mitigation measures. Encouraging MCs to comply based on mutual agreement
	Who decides about going ahead or	Commencement of the proposed use is

	<p>not? Who decides what changes get accepted / endorsed?</p> <p>Time in relation to Prior Consultation and the commencement of a proposed use. What is the timing for the commencement of proposed use? Example was given on concern by stakeholders over observed commencement of construction / preparatory works prior to completion of consultation process</p>	<p>determined by the proposing country after the formal period of PC is over.</p> <p>Lessons learnt investigations consider all aspects of the PNPCA process and consider timing issues also. The development of Commentary for implementing PNPCA will aim to provide more clarity around this issue. In the past, it was up to the proposing state to act on recommendations and to share this info. For example, Lao government took action to revise the designs for Xayaburi and share information regarding the revised designs.</p> <p>For Pak Beng and future projects, MRC will need to work on a joint action plan for post-consultation.</p>
	<p>Greater clarity is required on Public Consultation processes. Once country submits notification – it means the project will go ahead so what is the meaning of consultations?</p> <p>How will MRC ensure that the PNPCA process is not just a green light for the project progressing? Look again at lesson learnt, particularly limitations on stakeholder engagement, there is a need to learn more. What were the reasons for not taking stakeholder comments into the JCWG process? National NGO’s would like earlier involvement in the PNPCA process. For example early national information sharing. Greater involvement of developers should be included in the PNPCA process. Developer needs to be there to answer/clarify questions.</p>	<p>Information sharing and consultation meetings are planned at the national and regional levels. They have the objectives of:</p> <ul style="list-style-type: none"> - Sharing of Information - Contributing to the review and assessment of project - Obtaining views and concerns with regards to the proposed use - Suggesting mitigation measures and risk management - Support Joint monitoring of the progress of project and recommend measures to address impacts <p>Prior Consultation is not joint decision making or approval/rejection of the proposed use.</p> <p>MCR has to fulfill its role and responsibility as stipulated in the PNPCA and Guidelines. The final decision is the responsibility of the member countries and their governments</p>
	<p>Joint action plan issues raised in relation to notifying country and notified countries.</p>	<p>Concerns, recommendations, suggestions resulted from Stakeholder Forums will be informally shared with notifying country and formally</p>

		discussed between notifying and notified countries in order to develop an agreed action plan to address concerns.
	What's the process for reviewing documents prior to initiating prior consultation – what if insufficient the documents provided within this one month period?	Notified country has stated their commitment to fulfil the requirements of submitted documents before submitting them. For the Pak Beng project, 22 documents were provided to MRCS with a tight timeline for review. MRCS spent one month to quickly review them following the checklist.
Approach Related	COMMENTS/SUGGESTIONS	RESPONSES
	<p>There are cases of projects that were not submitted for PC as they came before PNPCA into effect. What to do with those?</p> <p>What about projects that were only submitted for notification? Anything being done about them?</p>	<p>For projects implemented before PNPCA entered into force, MRC addresses them through its routine monitoring of impacts as well as studies/assessment to provide recommendations for improvement from a basin-wide point of view.</p> <p>For projects submitted for notification only, MRC has not been active in the past in following up. However, this is one area where more information sharing is needed and a discussion with MCs on scope to engage with these notified projects.</p>
	<p>Look at lesson learnt, what to integrate on Pak Beng?</p> <p>The Don Sahong and Xayaburi project did not reach an agreement yet, despite that, Pak Beng is on the go, then how is the cascade issue being addressed?</p> <p>How does Don Sahong / Xayaburi inform Pak Beng? Are there opportunities to review earlier proposals given learning from the two Prior Consultation processes and cumulative impacts from previous dams?</p>	<p>MRC has conducted a lessons learnt process from the previous two cases. The report is on the MRC website. For Pak Beng, the process has been improved with the intention to make the Prior Consultation even more meaningful.</p> <p>Under the MRC basin planning, various studies have been conducted and a cumulative impact assessment of the proposed developments (including irrigation and hydropower) has been undertaken – the Assessment of Basin-wide Development Scenarios (BDP2 study). In addition, a Strategic Environmental Assessment (SEA) of Mainstream Dams was also carried out. Currently, the MRC is completing its assessment on Hydropower Risks</p>

		<p>Mitigation measures (ISH 03/06). Finally, the Council Study is a major comprehensive study that will update the results of the BDP and SEA to inform the issue of hydropower cascade.</p> <p>The results of Council Study will inform planning and decision-making for future developments.</p>
	Preliminary Design Guidance should be reviewed? It does not mention anything on hydrology/hydraulic assessments.	The MRCS will start the process of reviewing the PDG in the second half of 2017
	Need to support countries in carrying out their own assessments	The MRCS conducts its Technical Review in support of member countries (JC) to consider the proposed use. MRCS also financially supports member countries with national experts for their review.

Lao hydropower development strategy and Pak Beng Hydropower Project in general

	COMMENTS/SUGGESTIONS	RESPONSES FROM LAO PDR
Knowledge Related	Based on the previous two prior consultations, what is Laos government doing for Pak Beng consultations?	Lao PDR submitted the documents for the Pak Beng Hydropower project and followed MRC PNPCA process.
	On energy trade. Are MOUs binding? How does China's surplus affect Laos production. Will grid expansion to Vietnam be required?	<p>MOUs are considered binding (cooperative) through terms as commissioned. Numbers are indicative. No default, no penalty, cooperation by agreement.</p> <p>The grid to Vietnam will need to be extended. Assessment of energy demand is based on current knowledge. The World Bank is undertaking studies of the power line connection between Southern Lao and Southern Vietnam</p>
	Uncertainty about reliability of supply given cumulative impacts (cascade effects)? How can all potential be developed?	Laos energy production targets include other forms of energy production – wind, solar and coal possible options.
	Zero emission considered questionable? Aren't there emissions from hydropower, too?	There is debate on this issue.
	Can the effectiveness of mitigation of existing dams be studied first before	Consultation with many experts who confirm that mitigation measures are

	considering for the next one?	sufficient Not a big problem to develop five projects at the same time as long as they are economically sound and mitigate negative impacts on environment.
	Resettlement should provide better livelihoods than currently.	Our policy is that resettled people lives should be better than original lives.
	Don't think it is run of river. Concerns whether Pak Beng is truly a run of river project?	No peaking, constant generation according to inflow, no flow regulation
	How does cooperation / joint operation China-Lao work?	Preparing cooperation with China on hydropower operation. A coordination centre will be set up in the Lao Ministry of Energy and Mines. In the future, there will be online monitoring of the cascade with technical support from China.
	Re-emphasise the need to clarify whether the Laos government has reviewed / approved the documents provided by the developer.	After consultation and review, MEM sent all documents to National Assembly for review and approval before submitting to MRC.
	Concerns raised about impacts to Thailand. Do we know if there is impact in Thailand – who is responsible? What are the impacts to the Thai side of the border? Does possible backwaters into Thai side trigger ESIA process in Thailand	The project has already been revised so not to impact Thailand – at the cost of reduced installed capacity. Now, no resettlement in Thai side needed. Lao government is confident that there will be no impacts on Thailand. After redesign full supply level was lowered – there is no likely impact.

Hydrology

	COMMENTS/SUGGESTIONS	RESPONSES
Knowledge Related	Will assessments from the Pak Beng PNPCA review be used to re-evaluate assessments undertaken for Don Sahong and Xayaburi?	Developers of the Don Sahong and Xayaburi should consider this concern.
	Is there an improvement in the quality of documents provided for review, compared to earlier PNPCA processes?	The submitted documents of the Pak Beng were largely improved, compared to the previous Prior Consultation process.
	There is concern that the baselines do not appropriately capture the significant variability in flows over the past ten years. The baseline may	Flow pattern on the mainstream have changed about five years ago: higher flows in the dry season and lower flows in the wet season. The

	require reconsidering?	developer of the Pak Beng Hydropower Project should consider this recent trend.
	What will the process be for filling data gaps relating to hydrology/hydraulics?	The engineering technique was applied to fill missing data. This was elaborated in the submitted documents.
	Reports submitted by the developer to date consider flow conditions from 2005. These flow conditions have already changed because of upstream dams. Data to 2014 can be used now.	Ministry of Lao PDR stated hydrological data up to 2015 has been used. Additionally, the flow conditions will be reassessed considering changes in current observed data.
	It would be useful to access (Chinese) data on land use change?	This concern is well noted, however, access to land use dataset in China could be a challenge. The ongoing Council Study have been addressing the issue of land use change in the Lower Mekong Basin.
	Clarify the steps 1 – 9 in the hydrological assessment. Review to be conducted by May.	The technical review needs to be discussed by the MRC Joint Committee in mid- June. Therefore, knowledge gap filling cannot happen within the 6 month of the Prior Consultation process.
	Which step are we currently in, in the 9 step process.	Steps 1 and 2 under completion.
	Can stakeholders access (consistent) hydrological data?	The MRC hydrological data is widely available on the website. If privately provided, license conditions may impose fees for access to this data.
Design Related	COMMENTS/SUGGESTIONS	RESPONSES
	How is the system managed once complete? How will dam operations be coordinated? How do competing uses (power production vs. agricultural use) get addressed?	It is claimed that the Pak Beng is a run-of-river dam. Only 1m max. fluctuation in one day. The Ministry of Lao PDR’s view is that water levels will be managed within fluctuations of 1 meter only. Furthermore, all the dams will be coordinated. A coordination centre is being set up at the MEM.
	How will water use be optimised between water for irrigation / for electricity generation and how will dam operation decisions be made to reduce downstream impacts.	
	Concerns raised about how much water will be stored?	
Statement: Other models show that fluctuations will be higher than 1m..		

	Expert opinion offered that fluctuation would be up to 3 meters.	
Review Method Related	COMMENTS/SUGGESTIONS	RESPONSES
	Have there been consideration given to groundwater connectivity in the assessment?	Groundwater data/information is very limited in the region.
	What will the area impacted by backwater be? Comment made that effects could impact up to 30km into Thai territory.	MEM of Lao PDR has been reviewing and further assessing the impact of the backwater. Lowering dam height is a possible option to be considered.
	BDP cross section data – 1998 is considered outdated. This could nullify calculations of backwater impacts.	Ministry of Lao PDR responded that the developer was using recently collected data to study the backwater. The date could be requested through a formal channel.
	Concerns raised about paucity / suitability of data. Council study provides new information / data sets for consideration.	MEM of Lao PDR will incrementally make new data sets available.

Sediment

Knowledge Related	COMMENTS/SUGGESTIONS	RESPONSES
	Sediment – modelling considers sediment trapped in Chinese dams. How will coordination of sediment flow be considered given changes in sediment flow from upstream Chinese dams.	“All dams in the Mekong should be coordinated with each other”. Based on BDP and sediment monitoring, Council Study assessment will provide further recommendations on this issue.
Review Method Related	COMMENTS/SUGGESTIONS	RESPONSES
	The review should consider downstream impacts from changes to sedimentation.	MEM of Lao PDR considers 50-year operation and 100-year operation. These assessments have been carried out by developer.
	Improve understanding of changes to flow over long term (50 – 100 years) with emphasis on impacts on sedimentation processes/flushing	
	Do sediment calculations consider potential changes from climate change and cumulative impacts?	MEM of Lao PDR clarified that some scenarios have been assessed. Gaps exist in this knowledge.

Fisheries, water quality and aquatic ecology

Knowledge Related	COMMENTS/SUGGESTIONS	RESPONSES
	Is the attraction mechanism likely to work?	Examine entrance of the proposed natural-like bypass fishway to ensure enough attraction flow provided.

Hatching for fish? To address problems in Pak Beng, how is Xayaburi taken into account ?	Need minimal natural flow or water velocity to survive fish larvae or hatching to pass through reservoirs of both Pak Beng and Xayaburi dams.
Fish migration – how to ensure downstream migration of fish larvae. Concerns raised about fish larvae passage? Can fish losses be quantified? Surely not all fish can pass – can the loss be quantified	On-site tests, different species, different migration patterns. Tests are being considered in relation to flow velocity, species specific fish migration needs. Yes – developer Aquaculture Fish farming options will be considered for release back to the river.
Quantification of fish to be passed	Difficult, assessment of functioning of passage.
Tb impacts on fisheries within cascade. Has the operations of dams considered fish passage given cascade effects?	Use of MRC data, review of species, preliminary proposed design – technical review outstanding. Xayaburi has fish passage aspects incorporated in its design which should benefit fish spawning from Pak Beng hatchery.
What kind of migratory species	Developer should provide this information.
Is there sufficient site-specific fish data for Pak Beng?	The MRC Review Team should look at this matter closely and Developer should provide this information.
Evidence to give confidence that the electric fence will work?	The MRC Review Team should look at this matter closely and the developer should test the efficacy of this electric fence.
What studies have informed Pak Beng fish pass design?	The MRC Review Team should look at this matter closely and developer should provide this information.
How has the attraction flow been calculated?	The MRC Review Team should look at this matter closely and developer should do this work.
Species are different in ways they handle water velocity? Energy-how will Pak Beng handle this?	The MRC Review Team should look at this matter closely and the developer should design the structure to maintain minimal flow for different fish species for whole year round.
What are the swimming abilities of the fish?	The MRC Review Team should look at this matter closely and the developer should provide the information for designing the dam and fish passage.
What species of fish are expected	The MRC Review Team should look

	and at what time of year?	at this matter closely and the developer should provide the information for designing and operation of the dam to pass most fish species up and downstream
	What biomass of fish does the fish pass need to handle?	The MRC Review Team should look at this matter closely and the developer should design and build an effective fish passage for accommodate high fish biomass.
	Are there any provisions for downstream migration?	MRC PDG
Design Related	COMMENTS/SUGGESTIONS	RESPONSES
	Limited accuracy predictability Mainstream tributaries/flood plain => interrelated ecosystem → Small sampling size/short survey period	The developer should increase sampling / provide related information
	To date little/no successful examples globally? design implication →Functionality of nature-live fish-passage?	The developer should provide justification for design
	Increase in fishing activity to be expected → Management of downstream fisheries and bypass channel needs consideration	The developer should consider this aspect
Review Method Related	COMMENTS/SUGGESTIONS	RESPONSES
	Is the necessary information available? Biomass to pass facilities Characteristics of species spawning habitat fish in associated tributaries lacking	The review team to assess and the developer should provide this information.
	Viable population needed → Mitigation strategy needs to take life cycle/migration patterns into account	The MRC Technical review to consider/investigate measurable objectives of non-fish-pass mitigation measures by installing effective fish passage facilities.
	Sufficient consideration of impacts by other dams? Methodology for TB impact assessment need to be learnt	The Review team to verify.
	Further analysis is required on impacts on fish from Don Sahong when considering Pak Beng PNPCA review.	The MRC technical review will look at this matter carefully.
	The developer only considers water quality issues during construction phase → Water quality considerations	The MRC Review Team to consider PWQ for assessment of water quality throughout the project cycle.

	Did the developer refer to the MRC water quality data?	
--	--	--

Socio-economic

	COMMENTS/SUGGESTIONS	RESPONSES
Knowledge Related	To what extent does the criteria balance between benefits of the project and its impacts	The Council study provides a score of impacts at different levels, and a method to review benefit/impact ratio, which could be used for Pak Beng
	Impact zone: transboundary impact, local impact	Local impacts will be reviewed, but the focus will be on transboundary impacts
	Resettlement induced conflicts	Noted but it is ultimately a national issue.
	What key impacts will be identified?	SIMVA covers socio-economic aspects of fisheries, livelihoods and others. These will be considered in the Pak Beng technical review
	Can impacts further downstream be identified? How much two-way communication?	The review covers downstream area including Delta Two way communication or consultation will be checked in the review
	The use of MRC reports / tools by developer? Can MRC exceed assessment and verify developer proposals using its own data and knowledge	Relative improvement seen in the Pak Beng documentation – Xayaburi doesn't refer to a corridor – picture is improving with Pak Beng (reference to SIMVA, not a 15km corridor but 5km) Yes, the review will use other sources of data/knowledge
	Upstream focus?	When it is transboundary, yes
	How to use most updated data (SIMVA 2011)	Docs mostly focus on local impacts Updated GIS data at MRC Review will use more up to data available
	Clarification: Social management and support plans need to be developed and implemented. Not just social monitoring.	Documents include these already. And they will be reviewed
	Can the MRCS verify the tools / models used by the developer?	
Is there any compensation mechanism for backwater impact?	Lao Government prepared to provide review (guarantee).	
Review	COMMENTS/SUGGESTIONS	RESPONSES

Method Related	Make clear definition of impact area and aspects of the review: employment, livelihoods, electricity, etc ... with consideration of livelihood baseline	Noted
	Take into account concerns of ethnic minority groups	Noted
	Cross-cutting issues such as gender, risk management	Noted
	Poverty reduction impact and sustainability development including migration issues, incl. different groups eg. Youth	Coordinate with other themes including hydrology and fish ecology team
	Cumulative impacts can be relevant Consider long-term downstream impacts. How many years does the socio-economic and monitoring plan cover and does it refer to best practice	Noted and will be looked at.
	Does the assessment distinguish between construction and operation phases	Noted
	Change of water level and quality during operation → Direct impacts vs. indirect impacts and cumulative impacts	Noted
	PAP 25 villages – like by developer 27 villages – IR? 10 million USD enough?	Inconsistencies between documents will be spelled out.

Dam Safety

	COMMENTS/SUGGESTIONS	RESPONSES
Knowledge Related	Make the project documents easy to understand for general audience	Submitted technical documents were written in conventional technical standard style which is an accepted worldwide practice. The MRCS produced a fact sheet and overview of key features of submitted documents which summarizes all technical analysis as well as the technical design using ordinary language as to make the document easier to understand. http://www.mrcmekong.org/assets/Publications/Fact-sheet-of-Pak-Beng-26-Jan-2017.pdf http://www.mrcmekong.org/assets/Publications/Overview-of-Key-Features-of-Submitted-Documents-26-Jan-2016.pdf
Design Related	The proper dam	In common practice what the Pak Beng Dam

	<p>safety design is important and there will there be a full detailed report</p>	<p>Developer has provided is acceptable. To ask in general for “full detailed report” at a feasibility stage can be likely accepted by PB Project if such a request can describe specific concern(s) or point to a specific issue or question.</p> <p>Many details related to Dam Safety have been provided in our initial assessment and in general all details will be provided during the “Detailed Design Phase” which is common practice for hydropower projects.</p>
<p>Review Method Related</p>	<p>Consider the probable maximum flow in the long term (more than 500 up to 1000 years)</p>	<p>In accordance with requirements of Lao Electric Power Technical Standards and by reference to design experience of similar projects, the maximum flood of key hydraulic structures is based upon 2,000-year frequency floods.</p> <p>Yet a request to MEM can be addressed for an additional check of the design against the Probable Maximum Flood (PMF).</p>
	<p>Take into consideration the earthquake impacts</p>	<p>The Engineering Status Report (Section 1.4.3) has already indicated that a site specific earthquake safety evaluation has been carried out and that the horizontal seismic peak ground acceleration for the design and check earthquakes are 0.157g and 0.372g respectively.</p> <p>Further details of the seismic risk are already included in Section 2.3 of the Engineering Status Report which concludes that there are three active faults within 10km of the dam site and records of significant earthquakes in the area. The design accelerations stated in Section 1.4.3 are given as being the 10% probability of the 50yr earthquake and the 2% probability of the 100 yr earthquake. These equate to a 475 yr return period of 0.157g and a 5000yr return period of 0.372g.</p> <p>To verify the seismic design criteria for the dam given the high regional seismicity and the closeness of an active fault it is recommended that the design criteria and seismic loads are reviewed early in the detailed design stage and agreed with the peer review panel. The ICOLD guidelines relate the design criteria to the hazard level created by the dam. It is also therefore important to carry out a downstream impact and hazard assessment for the dam earlier in the detailed design stages.</p>

	<p>Probable maximum capacity of reservoir</p>	<p>Operation of the dam and reservoir is discussed in the Engineering Status Report in terms of dam safety. Firm operating rules will required as the design proceeds. Also the impact of floods downstream of the dam need to be considered and the flood gate operation should be integrated into any flood forecasting system for villages and towns downstream.</p> <p>An operational strategy needs to be developed with the other existing (or under construction) hydropower schemes on the Mekong. This will require operational information sharing with Xayaburi to ensure that releases from Pak Beng do not affect the safety of Xayaburi. In the future this strategy will need to take into account the Luang Prabang project when it is developed.</p>
	<p>Take into consideration the security risks (human interference, attack, during pre and post construction)</p>	<p>This matter is related to national defence and is part of the Lao Government and the duty of the Ministry of Defence in particular which is to protect the national assets by planning and designing protection measures to assure security against risks (human interference, attack, during pre and post construction). Meanwhile the description related to this kind of national security and political stability matters are not required topics to be included in a regular Hydropower Feasibility Report.</p>
	<p>Consider using technology such as GPS, real time monitoring for earthquake</p>	<p>To verify the seismic design criteria for the dam given the high regional seismicity and the closeness of an active fault. It is recommended that the design criteria and seismic loads are reviewed early in the detailed design stage and agreed with the peer review panel. The inclusion of “technology such as GPS, real time monitoring for earthquake” will be advised by the peer review panel.</p>
	<p>Develop dam safety monitoring plan after dam construction by independent experts</p>	<p>Details of the proposed dam safety management system, including an Emergency Preparedness Plan, have been included in the Engineering Status Report. In general these appear reasonable for the early stage of the project.</p> <p>Further areas in particular that require development during the detailed design are:</p> <ul style="list-style-type: none"> • The Emergency Preparedness Plan needs to be developed in consultation with the local emergency disaster management teams. In particular this needs to cover areas that are affected by any dam break flood wave. • The instrumentation and dam safety monitoring needs to be targeted to a failure modes assessment so

		that monitoring can provide an early warning of initiation of the dam failure modes. It is recommended that these are progressed during the detailed design stage.
	Improve seismic monitoring instrument (ground acceleration meter) Set up monitoring instrument for seismic movement to collect and share data to improve dam safety.	A Set up monitoring instrument for seismic movement to collect and share data to improve dam safety can be recommended to the Lao MEM for their consideration.
	Conduct dam break study in terms of cascade dam system (domino effects).	A dam break study should be recommended to be carried out during the detailed design stage.
	Dam-break scenario	A dam break study should be recommended to be carried out during the detailed design stage.

Navigation

	COMMENTS	RECOMMENDATIONS
Knowledge Related	Lack of mechanism to manage the situation when the areas covered by 2 agreements are not addressed (Mekong Agreement and JCCCN Agreement)	MRC is an observer to the JCCCN and information sharing and reviewing of standards have occurred between MRC and JCCCN.
Design Related	Is there a backup solution if the ship lock is not working?	Propose solution when the ship lock is not working by developer.
	Can the ship locks be multifunction between vessel passage and fish passage?	The ship locks from time to time can be used for other purposes such as fish passage during construction in Xayaburi, or for giant fish or to open the gates for flash flood but the ship locks cannot replace other devices.
	Need to ensure that there are backup options to ensure continuous navigation (backup options) and that they allow for future increase of vessel capacity.	Propose solution when the ship lock is not working by developer.
	Who will pay for navigation / use of ship locks?	The development agreement between the developer and the Lao government should make it explicit that users of the

		lock do not have to pay for the use of the lock.
	After the agreed concession period between the developer and the Lao government, free passage of vessels needs to continue when the dam reverts to private ownership.	The development agreement between the developer and the Lao government should make it explicit that users of the lock do not have to pay for the use of the lock even when the dam reverts to private ownership.
	Can the operation hours of the ship lock increase?	Propose to increase the operation hours of the ship lock to more than 12 hours
	Is there a clear agreement between the developer and the governments who will cover the passing fees?	To make clear in the agreement that the developers will not charge passing fees to boat owners.

4.2 Comments and recommendations for the Council study

Details of comments, questions and recommendations during the plenary and group discussions on Council Study has been classified and recorded under MRC comment matrix. This section provides an overview of comments and recommendations for Council Study assessment approach focusing on economic and social, and hydrology and environment.

Economic and Social

	COMMENTS	RECOMMENDATIONS / ANSWERS
Knowledge Related	Why is energy security missing?	This issue will be included in the macro-economic assessment and briefly in the socio-economic assessment.
	How do you assess relationship between water and energy security.	Normalise all values.
	Does the council study have capacity for its own primary data collection.	Some data includes recent 2010 – 11 MRC (SIMVA) data sets including household surveys, fish catch changes etc
Approach Related	Recommendation made that adaptive capacity and resilience should be part of social and economic assessments.	The various assessment indicators about security are reflecting aspect of adaptive capacity and resilience
	GDP is only one measure of development. Recommended that other social dimensions should be incorporated.	Need to include other social dimensions
	The economic value of tourism seems to be a gap in the GDP assessments as well as the cost of flooding.	Tourism is included within the calculation of ecosystem services. It is also a specific sector that is assessed. Flooding is included in the climate scenario assessments.

	There is a link between ecosystem decline and labour productivity. For natural resource reliant communities, labour capital declines as people leave due to a declining environment.	Noted
	The way dams and weirs are operated are important factors that may be missed when assessing drought or flood impacts, as well as migration rates.	Noted as important considerations but difficult to quantify.
	Can other positive socio-economic trends be captured and promoted in the assessments (e.g. governance factors, law and order changes) either in a qualitative and quantitative sense.	They are important, however maybe difficult to cover due to limited time and budget.
	How can macroeconomic assessments value add or link to microeconomic assessments.	Microeconomic assessments are inputs to macroeconomic assessment.
	Socio economic assessments have been a pragmatic approach given tight time frames.	There is scope for improving assessment methodologies in the future.
	Site specific assessments should be done at site scale such as at dam sites. Recommendation that MRCS commit resources to such activities and tools.	Noted
	It would be ideal to assess impacts of different combinations of dams	Noted
Methodology related	Concern raised as some assessments used reliable data but other assessments were experimental at this stage.	It should be noted that the socio economic assessments commenced late and time periods were tight. It was mentioned that the socio-economic assessments have been pragmatic approaches given time constraints and the absence of established models (e.g. within MRCS for example). The role of expert panels and national committees is important in verifying / quality assurance of uncertain assessments that are exploratory. These assessments can also be used to build the capacity of staff within member countries.
	How do you calculate the economic value of different sectors?	Use a range of data sources. Recommendation that it is better to use representative sectors/crops.
	There is disparity between the	Current assessment is not

	geographic extent of the mainstream Mekong and data that is at a national scale.	disaggregated. Some data is provincial.
	There is a challenge in undertaking cumulative impacts given limited data and technical difficulties in deriving cumulative impacts.	Much of the data used comes from the thematic study areas, such as hydrological modelling and social impact assessments. There is a difference between the macro scale assessment and micro scale assessment. Ranges or bounds of possibility will be provided.
	How do you assess progress to SDGs.	The measure of Vulnerability is looking at SDG aspects of food security, health security and water security.

Hydrology and Environment

	COMMENTS	RECOMMENDATIONS / ANSWERS
Knowledge Related	Any examples from other rivers utilized for DRIFT	DRIFT has been used in a number of other rivers for instance international court processes; process in the Mekong started in 2003 (IBFM)
	How to have a correct understanding to start with when data is lacking	Highlight data gaps, set up monitoring to fill the gaps; it is very important to improve data for information and knowledge improvement and better decision making; continuation of the CS recommended
	A reliable outcome of the CS required as the request comes from the highest political level	Highest level meeting after CS completion (MRC Summit 2018)
Approach Related	Data quality and availability for modelling is a concern	Ensure data quality and availability; process of updating data for modelling in the future needs to be in place; transfer of knowledge about data assumptions and data used to the countries; data report will be prepared by the CS including data gap filling and assumptions; not only data but also understanding of the system is extremely important – CS process enhances the understanding
	DRIFT tools suitable for this region? Relies on expert judgement as data is lacking especially for the ecosystems	DRIFT needs to be verified and its usefulness assessed; data available from literature and other sources integrated in the assessment
	Technology transfer and	National experts will be invited to

	communication of the results	participate in implementing the modelling; hands-on training
	Concern timely delivery of results of the CS	Get version 1 done, put it out, improve in the future
Methodology related	Concern about different datasets, locations and data collection methods and how these can be compared, combined and used for modelling	Standardized data collection methods should be implemented; integrate and analyze data for information which can be used in modelling; data harmonization and gap filling implemented in CS

5. Follow up and next steps

All comments and views have been documented in this report. The MRC Secretariat has provided answers to most questions based on the information available. For those questions and recommendations that are outstanding there is a need to discuss and consult further with the developer and Laos' Government. These answers/feedbacks will be followed up on and presented at the 2nd Regional Stakeholder Forum in May 2017.

The key points and comments matrix will be considered and inform the MRC's 1st draft Technical Review Report (TRR). The 1st draft TRR will be presented at the 2nd Meeting of PNPCA JCWG on 3-5 April 2017 for review and discussion. After that, the MRCS will revise the 1st draft TRR and develop a 2nd draft TRR which will be used for the national and regional consultation meetings.

The second regional stakeholder forum will be held on the 5th May 2017. At the 2nd meeting, stakeholders will be updated on the Prior Consultation process, be advised on how early views have been considered, discuss the progress of the MRC technical review and gain additional views on the review. All recommendations and suggestion will then be documented and shared. The MRCS will finalize the National and Regional Consultation Reports which will inform the final draft TRR.

The 3rd Meeting of PNPCA JCWG is planned on 5th June 2017 when the meeting will consider the final draft TRR, before sending the final Technical Review Report to Member Countries and sharing it to stakeholders.

On the 19th June 2017, the MRC JC will meet through a Special JC Session to discuss the findings of the PNPCA JCWG, formal response by the notified member countries through the Reply Form and TRR to derive common agreement (including Post PC).

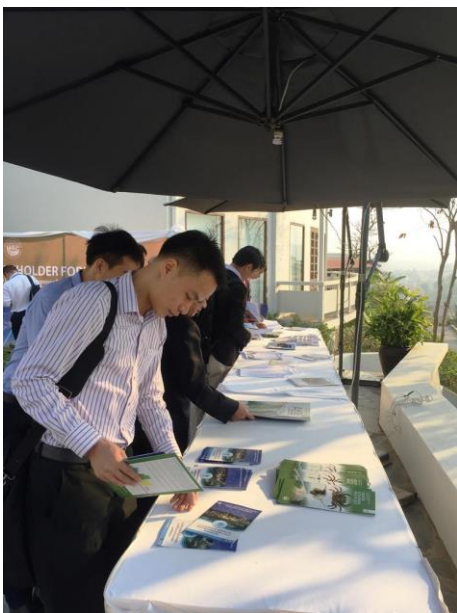
In principle, the prior consultation will close on 20 June 2017. Next steps for the PNPCA process and post prior-consultation engagement plans will continue with discussion and follow-up actions.

For the Council Study, the team will assess and integrate the stakeholder feedback into the technical methodology documents. As the next step, a small technical group meeting on CIA with member countries and the 8th RTWG meeting will be held back-to-back in March 2017 to finalize and agree on the assessment methodology. The 2nd Regional stakeholder forum for Council Study is planned for end of the year to share the preliminary results and outcomes of the Council Study as well as its next step.

III. Forum's photo gallery

Plenary sessions













Group discussions







Interviews

