Mekong River Commission

The 5th MRC Regional Stakeholder Forum

1st Regional Information Sharing for Pak Lay Hydropower Project
and
Prioritised Works on Basin Planning and Environmental Management

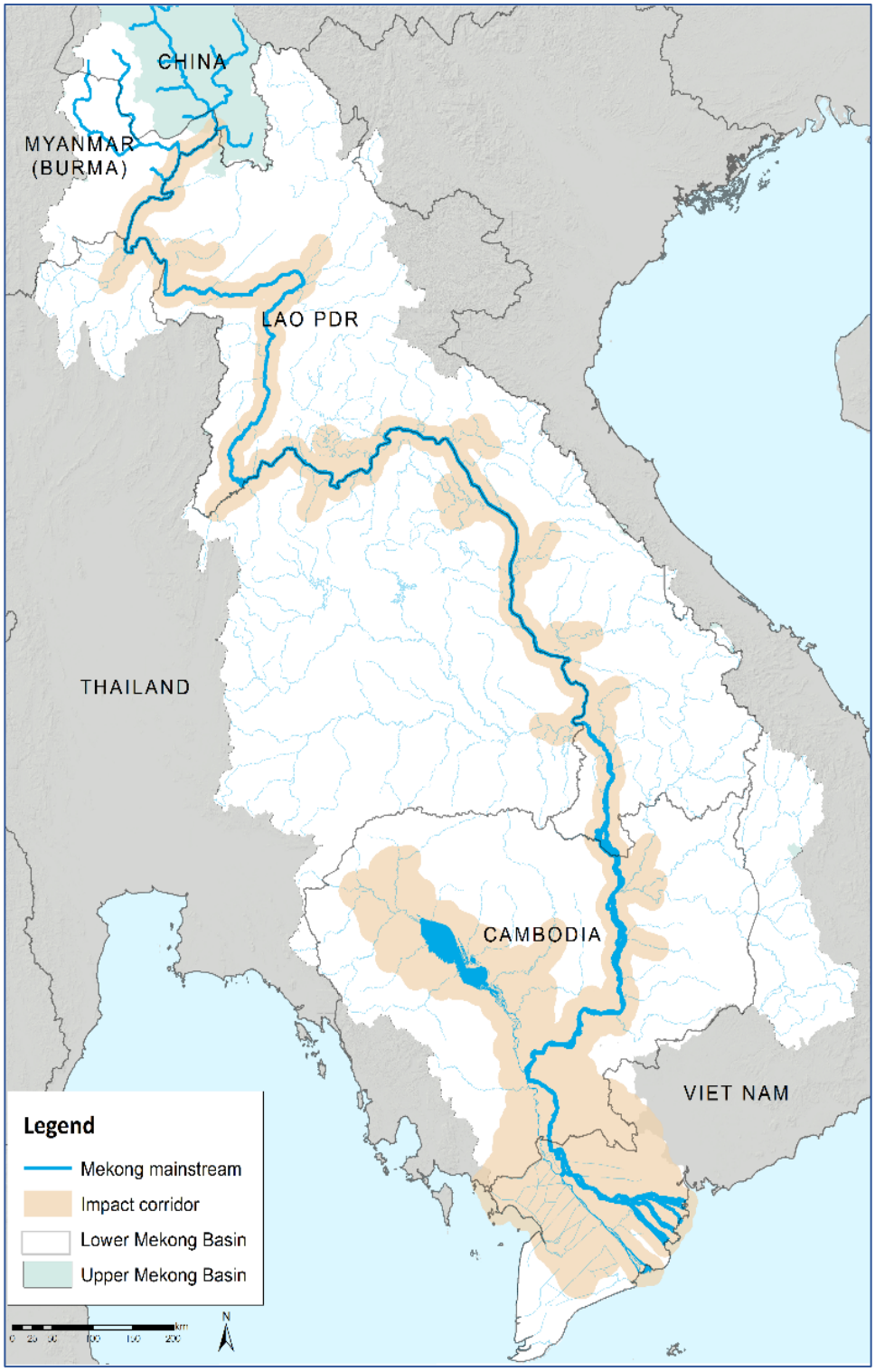
20–21 September 2018
Vientiane, Lao PDR

FORUM REPORT
(with clarification by Government of Lao)

Updated November 2018

Prepared by
The Mekong River Commission Secretariat

This report is a record of the proceedings of the 5th Regional Stakeholder Forum organised by the MRC Secretariat (MRCS) on 20–21 September 2018 in Vientiane, Lao PDR.



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I. Background

Over the past 23 years, the Mekong River Commission (MRC) has made several interventions and implemented various frameworks and guidance initiatives to create an avenue for an active involvement of different stakeholders from the MRC Member Countries (MCs) and Mekong region when it comes to water and related resources development and management in the basin.

Recognising the interests involved in the basin and the importance of a shared and informed understanding of different stakeholders' perspectives, the MRC has been implementing various activities to strengthen relationships with a broad range of actors and players outside the MCs' governments, including in the private sector, civil society and academia, and other partners working in the Mekong region. Stakeholder engagement is central to the MRC's public participation framework and is practiced in each country based on national laws and plans. The MRC organises **Regional Stakeholder Forums** (RSF), an institutionalised and regular mechanism for engaging broader stakeholders, every year. This is to address mutual interests and concerns of both internal, comprising the governments of the MRC Member Countries, and external stakeholders, including non-government organisations (NGOs), the private sector, media, partners, and other interested groups. As part of the MRC's regional stakeholder engagement mechanism, the forums serve as a platform for the MRC's MCs and other relevant stakeholders to share information, discuss, provide, and exchange views and recommendations on reasonable and equitable use of water and related resources in the Mekong River system.

Four Regional Stakeholder Forums were organised in 2017, bringing together not only representatives from the governments, but also from the private sector, development partners, researchers, NGOs, and civil society organisations to an open and constructive dialogue on pressing issues affecting the Mekong River Basin and on how the MRC is addressing and should address them.

This 5th MRC Regional Stakeholder Forum was designed to have continued dialogues, exchanges, and discussions with relevant and interested stakeholders on various ongoing and emerging issues. They are as follows: (1) Prior Consultation process for the Pak Lay Hydropower Project and (2) 2018 prioritised works on basin planning and environmental management, including the Joint Action Plan (JAP) for Pak Beng Hydropower Project, Joint Environmental Monitoring (JEM), Xayaburi Design Changes review, Procedures for Notification, Prior Consultation and Agreement (PNPCA) Commentary, Guidelines for Transboundary Environmental Impact Assessments (TbEIA), update of the Preliminary Design Guidance (PDG) for mainstream dams, Sustainable Hydropower Development Strategy (SHDS), and Mekong Climate Change Adaptation Strategy and Action Plan (MASAP).

II. Approach of the forum

As decision-making processes on management of water and related resources often address multiple objectives, involve diverse interests, and have far-reaching effects, we are working on a multiple-dimension approach with consideration of cost effectiveness. With that approach, the MRC organises a forum with multiple relevant issues and subjects that address public interest.

Forum objectives

The first regional information-sharing/consultation meeting on the Pak Lay Hydropower Project Prior Consultation process took place on the first day of the 5th Regional Stakeholder Forum (5th RSF), with the following objectives:

1. To provide information on and reinforce understanding of the MRC's Prior Consultation process under the PNPCA and the 1995 Mekong Agreement;
2. To provide information on the general understanding of the proposed Pak Lay Hydropower Project; and,
3. To obtain viewpoints and comments on the approach and methodology to be undertaken by the MRC in conducting a Technical Review of the proposed Pak Lay Hydropower Project.

The second day of the 5th RSF was devoted to other key MRC works that meet public interest. It aimed to achieve the following:

4. To inform the stakeholders about the status and progress of the MRC's ongoing works related to planning and management of the basin;
5. To consult with broader stakeholders and exchange views on how to further and improve the MRC's works, i.e. the JEM, Sustainable Hydropower Development Strategy, PNPCA Commentary, etc. towards sustainable development of the Mekong basin; and,
6. To seek stakeholders' advice and support in the future implementation of the discussed initiatives, including the MASAP, TbEIA, JAP, and updated Preliminary Design Guidance.

Participants

The forum was open and free of charge. The MRCS and the Member Countries welcomed all participants. A total of 160 participants represented developers and hydropower-related companies, NGOs, research institutions, civil society, media, as well as MRC MCs and MRC Development Partners. In order to support fuller participation of the under-represented groups, MRCS offered travel support for local NGO representatives and a few researchers. Like for previous forums, representatives from civil society networks in the upper and lower north-eastern part of Thailand participated in the Thai delegation. NGOs in Viet Nam and Cambodia also participated, as did international NGOs. (see Annex 1: List of participants)

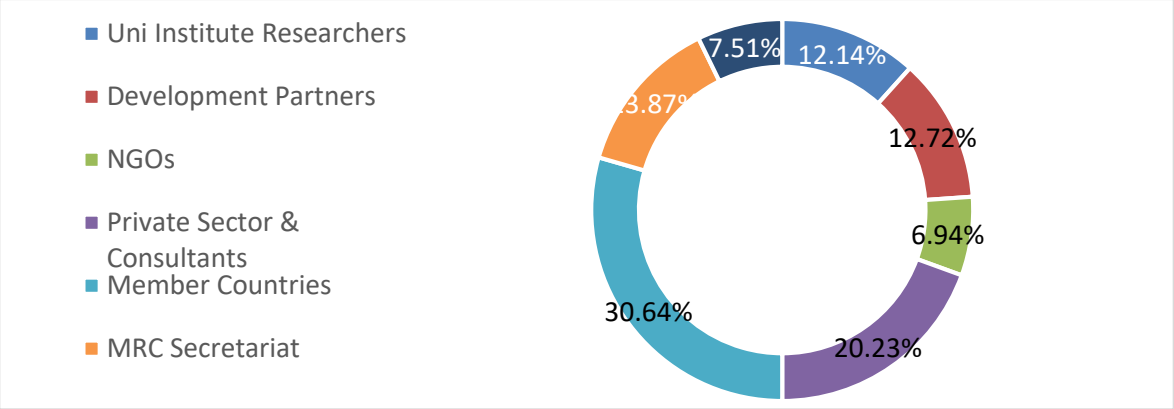

Figure 1. Overview of forum participants

Forum proceedings

To facilitate timely information sharing and transparency for an effective consultation and discussion, information had been made available on the MRC's website to the extent possible for one month before the event. The website has been updated and maintained as source of reference: http://www.mrcmekong.org/news-and-events/events/mrc-regional-stakeholder-forum-5/. The MRCS has also made efforts to communicate and promote engagement including through media releases, opinion pieces in regional newspapers, and social media (Facebook).

The forum was organised to provide an enabling environment for stakeholders to discuss, provide, and exchange views, interests, and concerns on several issues that the MRC is working on. In facilitating the discussion, the plenary session was designed with short presentations to introduce the topics, their statuss and progress to all participants. It was then followed by parallel group discussions with appropriate time given for in-depth discussions on certain topics amongst interested stakeholders. In each group discussion, the methodology used for recording stakeholder inputs was a matrix of comments, recommendations, and responses. This is to ensure key points were captured, debated, recorded, and then followed up.

For Day 1 "1st Regional Information Sharing for Pak Lay Hydropower Project", the plenary session in the morning recapped the stakeholder engagement principles that will be applied for the Pak Lay's Prior Consultation process, overview of the PNPCA, lessons learnt of previous Prior Consultation processes and how things will be improved in the Pak Lay's Prior Consultation process, and followed by objectives and roadmap for Prior Consultation of the Pak Lay project. The Government of Lao PDR (GoL)'s representative, Mr. Chansaveng Bounyong, director general of the Energy Policy and Planning Department from the Ministry of Energy and Mines (MEM), presented the Lao hydropower development plan and overview of the Pak Lay Hydropower Project. The MRCS presented the approach and methodology to be used to conduct the Technical Review of the Pak Lay Hydropower Project, focusing on five technical aspects following the current PDG's requirements (hydrology, sediment, environment and fisheries, dam safety, and navigation) and socio-economic issues. The parallel groups then arranged for in-depth discussion on these aspects and issues.

Questions, comments, suggestions, responses, and follow-up actions made on the Prior Consultation for Pak Lay Hydropower Project have been recorded and presented in this report, under Part III.1: Prior Consultation process for the Pak Lay Hydropower Project, page 4–15.

For Day 2 "Prioritised works on Basin Planning and Environmental Management", the morning session was devoted to presentations introducing eight ongoing works that serve public interests: (1) Update of the PDG for proposed mainstream dams, (2) update of the SHDS, (3) PNPCA Commentary, (4) review of the Xayaburi design changes, (5) TbEIA Guidelines, (6) JEM, (7) JAP for the Pak Beng Hydropower Project, and (8) MASAP. The afternoon was spent on in-depth group discussions on these topics.

Questions, comments, suggestion, and responses made on these eight topics have been recorded and presented in this report, in the following Part III, page 15–37.

III. Summary of presentations and discussions

1. Prior Consultation process for the Pak Lay Hydropower Project

On 13 June 2018, Lao PDR submitted the Pak Lay Hydropower Project for Prior Consultation under the MRC's PNPCA. The six-month Prior Consultation process officially started on 08 August 2018. The Prior Consultation process allows the notified MCs to evaluate potential transboundary impacts of the proposed water use, and, with the support from the MRCS, to discuss these through the MRC's Joint Committee. The process aims to arrive at an agreement on the proposed use and a decision on measures that will apply to the project to avoid, minimise, and mitigate possible harmful effects on the environment and people downstream and upstream.

Taking lessons learnt from the previous implementation of the PNPCA, the stakeholder involvement should, therefore, aim to inform, consult, and involve potentially affected, interested stakeholders and the public on the proposed Pak Lay project, as well as on the Prior Consultation process. Moreover, relevant information will be made available to the public and be shared with stakeholder groups ahead of their participation in any public consultation meetings to allow enough time for them to provide feedback.

During the Prior Consultation process for the Pak Lay Hydropower Project, two regional information-sharing and consultation meetings have been planned, together with a series of national consultation meetings.

The presentations made on this topic are available on MRC website. They are

1. MRC stakeholder engagement principles and mechanism
2. Overview of the PNPCA under the overall MRC procedural framework and the 1995 Mekong Agreement
3. Implementation of previous Prior Consultation processes and subsequent developments including lessons learned, studies, and guidelines
4. Objectives and Roadmap for the Prior Consultation of the Pak Lay Hydropower Project
5. Lao national development and poverty reduction strategy and plan including sustainable hydropower development and applicable national & regional policies and guidelines
6. Overview of the Pak Lay Hydropower Project
7. Approach and methodology for assessment of the Pak Lay Hydropower Project – Overview
8. Approach and methodology for assessment of the Pak Lay Hydropower Project - Hydrology & sediment
9. Approach and methodology for assessment of the Pak Lay Hydropower Project - Environment & fisheries
10. Approach and methodology for assessment of the Pak Lay Hydropower Project - Dam safety
11. Approach and methodology for assessment of the Pak Lay Hydropower Project - Navigation
12. Approach and methodology for assessment of the Pak Lay Hydropower Project - Socio-economic issues

During the discussion, questions have been raised regarding fish-related issues and socio-economic impacts as well as on dam safety. Like in previous cases, concerns are on transboundary impacts and cascade standardised procedures for quality control across cascades during construction and operation of dams. Several questions and comments were related to the progress and status of the JAP for Pak Beng Hydropower Project and the Xayaburi design change review as well as its linkage to the Prior Consultation process of the Pak Lay project. The developer for Xayaburi also provided additional information and clarification on the MRCS' review and stakeholders' questions.

With regards to the fish-related issues, the discussion was about fish data surveys, assurance of survival rates of migrated fishes, fish species data, and design of the fish passages.

For socio-economic impact assessment, comments and suggestions were on the environmental impact assessment (EIA) and cumulative impact assessment (CIA) report in relation to impact on the downstream (flood); water management and adaptation from upstream to downstream; strategy for community resettlement; linkage of transboundary social impact to the technical area;, gender sensitiveness; and social components in the CIA.

Some comments strongly suggested adopting the lessons learnt, experience and good design of the Xayaburi for the Pak Lay's design, construction, and operation later on. Given the expressed interested in a good and sustainable project, there is a need to update the outdated data in the project document. Stakeholders also expressed their concerns and interest in opportunities for them to participate in the process. They requested more information regarding national consultations for the Pak Lay Prior Consultation process as well as on the linkages between the national meetings and regional meetings. The meeting also discussed the international standard for dam construction and operation and how different the Chinese standard is.

In summary, some key recommendations are as follows:

- Study carefully the detailed hydraulic condition for further infrastructure design
- Collect baseline data and information on diversity and biology/ecology of concerned species and ensure sufficient data as well as an appropriate approach and methodology for assessment of environment and fisheries of the Pak Lay Hydropower Project, especially regarding fish species
- Improve the navigation design, taking into account additional fish passage
- Conduct more research and data analysis, particularly regarding dam safety and quality control
- Conduct more a specific and in-depth socio-economic impact assessment, rather than generic socio-economic impacts
- Address transboundary impacts and benefit-sharing issues
- Ensure the accuracy and adequateness of information and data in the CIA/transboundary environmental and social impact assessments. The developer needs to revise/update the documents provided, especially sections that are copied from Pak Beng Hydropower Project documents
- Provide more in-depth information and technical discussion at consultation meetings and assign the developer/project owner an active role in the discussion
- Have independent parties monitor developers to ensure the quality assurance during construction and operation of the dams

- Ensure broader engagement to open the national consultation processes. The information about the Pak Lay national consultation meetings should be made available to the public

Details of questions, comments, suggestions, and follow-up actions regarding the Technical Review of the Pak Lay Hydropower Project (HPP) made at the forum are recorded in the below table:

	Questions? **Comments/Suggestions**	**Responses and follow-ups**
Knowledge related	The submitted documents indicate intended export to Thailand. Will EGAT agree to purchase the power?	Acknowledge the issue of the power market that Lao PDR is facing, EGAT and Lao Government are coordinating to update the power development plan, priority projects include those that serve the 9000MW MoU. This should be confirmed by MCs.
Knowledge related	Request to confirm whether the FS and EIA reports are already approved by the Lao Government? In case other MCs have concerns, how to go about in case the documents are already approved?	Following internal process, Lao Government has to approve each stage of each study before submission to the MRC to undertake the technical review; however, comments from riparian countries will be taken into consideration for detailed design and may re-optimization occur. E.g. for Xayaburi a lot was changed (new spillway design-bottom outlet, improved fish-pass etc.), under such circumstance the project cost has increased, and Lao Government has complied as an effort toward a good and more sustainable project. The issue will be further discussed with GoL and MCs.
Knowledge related	Pak Beng – Joint Statement and Joint Action Plan (JAP) – what is the opinion of Lao Government on this plan?	The JAP is still under consideration by the Joint Committee – MRC needs to have JAP approved in order to pave the way for its implementation. It is expected to get approval in 2018 as a working version
Knowledge related	Study other reservoirs (infrastructure) that also impedes sediment transport, other than only dams	Council Study has addressed this issue. This issue will also be considered in the Technical Review Report (TRR) under cumulative impacts assessment for the proposed Pak Lay HPP.
Knowledge related	How strong of fish data survey and how long of the fish survey? What is the priority urgency to solve the problem?	Only 1 time in 4 days (dry season) and 4 days (in wet season) but can't find what year. In the downstream, it was found that the fish survey was conducted in 2011 only 1 time.

	Questions? Comments/Suggestions	Responses and follow-ups
Review method related	Concerning the fish survival. How can we assure the survival rate of migrated fish to the downstream with the effective mitigation measures?	The effective reservoir management is required. The TRR already includes clear recommendations in this regard. These may be taken up in a post PC JAP. It is recommended that the PLHPP fish pass is compatible with the Xayaburi fish pass. The JEM will also assess the long-term effectiveness of fish pass designs.
Review method related	The cascade dams make change to the river system, MRCS and relevant line agencies should collect fish species adequately to design the fish passage. The current surveyed fish species is small comparing to the natural fish species in tributaries.	The issue is well noted. For Pak Beng, there are around 100 fish species. The RCS produced a list of fishes for all the dams (Pak Beng, Xayaburi, Luang Prabang). It is important to look at the species to adjust design accordingly. Some additional sampling is required. All the dams should list the targeted fish species and share information with other dam operators. MRCS already recommended to consider the fish passage and variety of fish species and sizes.
Review method related	Recommendation is made to developer invest in local fish measures, e.g. in case local fish species are endangered, through aquaculture or breeding and restocking - also has socio-economic effect aside of health/nutrition benefit	We note the recommendation for consideration through the 6-month prior consultation process.
Review method related	Concerned expressed on the impacts on fish resources especially on the single migration zone from the downstream. How can the perfect fish passage design can mitigate these impacts?	This issue of fish pass design would need coordination between dam operators. It will be considered for further discussion.
Review method related	With regard to fish pass in the downstream, we need more details on layout of upstream migration during construction. In consideration that dimensions are much smaller then what was done for Xayaburi, then	MRCS through the 6-month prior consultation process will further discuss this issue and refer to Xayaburi fish pass for Pak Lay's consideration.

	Questions? Comments/Suggestions	Responses and follow-ups
	whether this dimension is adequate, especially in case fish biomass increases further downstream?	
Review method related	Regarding Xayaburi lessons learnt and the timeline: will Xayaburi monitoring information be available prior to construction of Pak Lay, e.g. regarding effectiveness of fish pass?	It takes a bit longer time to see effectiveness of fish pass for Xayaburi. The MRC Joint Environment Monitoring (JEM) is planned to look into this issue.
Knowledge related	Regarding necessary coordination in the cascade, Lao Government conducted some study 10 years ago acknowledging that some Government entity for coordination would be needed, e.g. to coordinate sediment flushing – what is the progress on that study?	Currently CNR, through AFD funding, is supporting GoL on establishment of a Coordination and Monitoring Centre (CMC). It is acknowledged that this study is not yet completed but MEM needs to advance fast on the monitoring center. It started with EDL and there will be real-time transmission of water levels etc. to the MEM, including data from CCTV installed up- and downstream of the reservoirs. For large dams in mainstream, all dams need to share information, MEM also discussed this with PowerChina, upstream dams in China also need to share data.
Design related	Any standardized procedures among four MCs for the design / commenting on the project? Means of quality control on construction among MCs?	As part of the PNPCA, the Lao Government usually submits the projects at the Feasibility Study stage. The 1995 Mekong Agreement is basis for cooperation mechanism. In terms of quality control, it would typically be carried out by the independent panels that recommended in the TRR.
Design related	The operation rules of other dams should be considered for the operation of Pak Lay.	Proposed operational rules for Pak Lay HPP was submitted. We noted the issue of cascade dam and also plan to have a recommendation in this regard. These may also be taken up in a post PC JAP.
Design related	What are the different between Chinese and International Standards?	For this issue, the MRC has asked for the Chinese standards to be translated in English. As responded by the Chinese developer, since the ICOLD has more flood parameters that Chinese standard, they follow the flood

	Questions? Comments/Suggestions	Responses and follow-ups
		parameters of ICOLD. But for the calculation methodologies, using Chinese standard. It's a common concern, and the TRR has recommended that a more stringent of the standards should be used.
Design related	If both Chinese standard and ICOLD are proved as performance standards, will they acceptable for MRC?	If the Chinese Standards are equivalent or better than the ICOLD standards, then the PLHPP would be considered aligned with the PDG2009. MRCS will have further assessment and inform the results later.
Review method related	MRC should adopt the lessons learnt from the current Xayaburi Dam Project into the review method.	The revision of DG will consider the lessons learnt from Xayaburi and the developers should benefit from the revision. As planned, MRCS through the 6-month prior consultation process will adopt the lessons learned from the previous PNPCA processes especially the Xayaburi case and the DG2018 to fill the gaps and provide clarity for TRR for Pak Lay HPP
Review method related	Suggestion to take real time data from Xayaburi project into consideration of Pak Lay design.	The comment is noted for further consideration.
Review method related	Given the expressed interested in a good and sustainable project and the fact that a lot of outdated data is referenced in the project documents, please clarify whether there is any strategy or plan to update, e.g. with MRC Council study and other updated information?	Acknowledge the long process of studies and reports that started in 2007 and the documents were submitted to MoNRE in 2016. The TRR recommends that special emphasis will be given to the use of the MRCS data, studies and tools for the Pak Lay impacts assessments.
Review method related	In case MCs still do not approve the results of CS, however part of the results can be used for the TRR of Pak Lay, then it might affect the TRR.	The Siem Reap Declaration considers the key findings from the Council Study, including at both policy and technical levels in order to capture development opportunities and address trade-offs, benefit sharing, risks as a reference for planning and implementation of national plans and projects, and in relevant MRC work.

	Questions? Comments/Suggestions	Responses and follow-ups
Design related	Earthquake impact is considered in the design or not?	Yes. The seismic hazard management, structure stability and flood standards are taken into consideration, but more information is need.
Design related	What type of the model used for the dam safety?	No information of the failure modes provided by the developer. More information is needed for further assessment. The TRR includes clear recommendations in this regard. These may be taken up in a post PC JAP.
Design related	What are the impacts to the downstream in case the Pak Lay dam break? Is there any simulation?	MRCS is asking developer more information about dam break and consequence analysis.
Review method related	Dam safety: What are the Chinese Standards? What are key differences? What was used for other mainstream dams?	Similar objectives for both Chinese and other standards; MRC has asked for the Chinese standards to be translated to English for understanding better. In short, Flood Return Period uses ICOLD standard, because it is higher, while Calculation follows Chinese Method.
Review method related	Concern of the impact of Pak Lay to Lao communities in the lower area → flood happened in Thailand. Sometimes there has not good coordination between the countries and the region on mainstream management → How can we fill the gap? How can we adapt the water management from upstream to downstream to mitigate negative impacts? How can we suggest prolonging the prior consultation to address all of the issues?	This is a common concern. The TRR will include recommendations in this regard.

	Questions? Comments/Suggestions	Responses and follow-ups
Review method related	Lao Government ppt indicates 240 masl as operating water level; what is the backwater effect under normal flow conditions?	This is a common concern that will be addressed in the TRR.
Review method related	How can we carry out the Tb-social impacts and link to the technical areas?	The draft DG 2018 will be used for further reviewing and link among different sectors that might affect the livelihood of local communities. If the DG2018 has been used by the developers with the maximum mitigation measures, MRCS believes that all impacts will be reduced into the residual impacts.
Review method related	There should be explicit in gender component in this project. Also, the people migration due to the nutrition changes should be considered.	The comment is noted and considered for recommendation in the TRR.
Review method related	CIA in the social component should be well-addressed in this Project.	CIA and Transboundary impacts are common concerns and will be reflected in the TRR.
Review method related	Cost and benefit analysis in social context.	MRCS took note this issue and will consider for the TRR.
Review method related	Will be Energy assessment done? Is that a component in the socio-economic impacts?	MRCS is undertaking a comprehensive review and update of the Basin-wide hydropower development strategy. This issue will be addressed in the strategy that planned to be completed early 2019
Review method related	Who will be responsible for community resettlement and what is the strategy? Where are the resettled areas for this Project? How can we assure to restore the same livelihood before the commencement of the Project?	Project's Developer and GoL will take the responsibility of resettlement action plan including in the provincial, district and community levels. These issues have been addressed in SIA and SMMP reports. MRC will be responsible for transboundary issues. The draft TbEIA includes the responsibility and financial support for transboundary issues.

	Questions? Comments/Suggestions	Responses and follow-ups
Review method related	How can we divide the responsibility of different stakeholders to cover assessment of all impacts and how to address the role of private sector? Are there opportunities for other stakeholders to participate in because the fields are vast: education, health, etc.?	MRCS will continue stakeholder engagement in a meaningful manner, in its functions and authority. This issue will be further discussed with MCs for better engagement and involvement of multi-stakeholders in the process.
Review method related	There need some linkages between national consultation meetings and regional meetings in the PNPCA process to be improved.	MRCS is ready to support the MCs in conducting national consultations. The suggestion is noted for organization of the 2nd Regional Consultation Meeting
Review method related	Request for more information regarding national-level consultations/participation for Pak Lay? What has happened so far / will happen and how?	The national consultation meetings are led by the Member Countries. The MRCS will work with MCs to enhance the national consultation process.
Review method related	How has the notifying country (e.g. Lao PDR) taken into account the lessons learnt that were presented?	All four Countries have reviewed and discussed lessons learnt through the MRC Joint Platform, which normally focusing on implementation of all Procedures; MRCS believes the notifying country has also considered the lessons learnt. MRCS will work with LNMCS and MEM to document the effort made.

2. Update of the Preliminary Design Guidance for Proposed Mainstream Dams on the Lower Mekong Basin (PDG)

During the reviews of submitted documentation for the PNPCA Prior Consultation processes, certain gaps in the Preliminary Design Guidance (PDG) were revealed that needed to be filled. Areas of ambiguity also needed to be clarified, and revisions to improve applicability to significant tributary projects, in terms of transboundary impacts, were required. Therefore, a process is under way to update the current PDG, while maintaining the purpose and principles that were defined during its formulation in 2009, but enhancing it by considering the following:

- Lessons learnt from the PNPCA Prior Consultation process for the review of three

mainstream projects.

- Additional technical guidance in the form of manuals on environmental impact mitigation and regionally relevant case studies as a separate supporting set of documents that can provide a wealth of information and reference material to effectively enhance the PDG.

The updated PDG provides contemporary, research-based performance targets and design and operating principles for mitigation measures, monitoring, and adaptive management.

The presentation on this topic is available on MRC website: http://www.mrcmekong.org/assets/Uploads/1.-Review-and-Update-of-PDG.-120918.pdf

Details of questions, comments, suggestions, responses, and follow-up actions regarding the updated PDG made at the forum are recorded in the below table:

Questions? **Comments / Suggestions**	**Responses and follow-ups**
What is the scope of the updated PDG? Does it only apply to the remaining six–seven mainstream dams planned? Or how does it extend to those that underwent or are in the process of Prior Consultation, i.e. Pak Beng and Pak Lay, and how about tributaries?	The significance of impacts from some tributaries is acknowledged (cf. also CS results), but the current update only mandated the MRCS to focus on the mainstream. However, the new document lays out some flexibility to use it also on tributaries.
Many developments on the mainstream means there are two angles to take into account: (1) Chinese dams and the influence of inter–reservoir operation, since there is not only a single cascade; (2) the guideline should include some projects on tributaries, i.e. dams of a certain scale on the tributaries should be included in the DG, especially the large-scale dams.	Chapter 1 emphasises the importance of basin planning. Certain parts of the DG have some guiding information for developers to take into account the inter–reservoir operation and climate change issues.
Basin planning should be closely connected to the DG and also the national plans.	The recommendation is noted for consideration. The DG is about designing the specific dams for sustainable development and mitigating risks, while basin planning is about optimising plans and multiple projects, and recommending ways to adapt the projects, including through DG use.
Mitigation measures should be implemented for safe operation of dams.	The operation of dams includes multiple issues, also relating to design and construction standards.
Long-term view: A system of cascading projects requires adaptative management, a	The recommendation is noted. The MRC pays attention to consistent design

Questions? Comments / Suggestions	Responses and follow-ups
flexible system, and guidance on how to create awareness/recognition of cascading impacts in the future. Adaptive management is required in both the design phase and the operation phase.	and performance of operation for all cascade dams to make sure they are doing better in terms of design and operation.
With regards to the roles of actors, we acknowledge participation of several actors and players (developers, operators, companies) with differences. The government should be a key responsible actor for setting up a dam operation coordination system. It is a role of a government to set up the mechanism for the joint operation to harmonise operations between different developers in the basin. At the basin level, the MRC can facilitate cooperation between countries. JEM can provide significant support to this process.	The recommendation is well noted.
The adaptive management should not be limited to only the design stage, but should also guide and cover the operation phase since the operator cannot do much when the structure is in place.	Adaptive management is one of the topics emphasised in updated PDG, and it is a sub-topic on each aspect covering from the design to operation phase. In the sub-section “Project Monitoring and Adaptive Management”, it advises on the monitoring during project construction and operations, which will help show if design and operational measures have been effective, or whether adaptations should be implemented.
The update of the PDG should be undertaken through a step-by-step approach. Best practices recommend starting with engineering part, then the socio-economic part and other planning.	The flow of the updated PDG content is following this logic. Physical aspects of the environment are addressed first, and then the biological aspects. Dam safety and navigation are included, because the actions of one project can have ramifications much beyond the individual project and cooperation is essential.

Questions? Comments / Suggestions	Responses and follow-ups
	Riparian communities and river-based livelihoods is included because environmental and infrastructure changes that are not able to be fully mitigated (i.e. the residual impacts) can in turn have socio-economic consequences for river-dependent communities.
Set up a coordination committee for inter–reservoir operation led by the MRC	This issue will be discussed with relevant counterparts and partners.
Joint operation and coordination: How is this taken up in the new DG? What level of commitment is expected from developers to collectively minimise impacts, and is there a specific clause regarding conflicts between different operators with different power purchasing agreements, who are each maximising their production? There is a high environmental risk if e.g. sediment flushing is not coordinated among different dams.	Lao PDR is currently developing a coordination centre for hydropower projects to ensure smooth operation and liaison between projects aiming to maximise production and minimise negative impacts.
The PDG needs to be more specific about its recommendations, and make direct responsibilities to the MCs, and the developers for clear actions that need to be taken by different actors. For the developers, they expect the DG to specify the actors' roles.	It is mentioned under topic 1.2: Uses and users.
In the DG, there should have specific clause that advice the joint efforts to minimize impacts, for example flashing sediments…	The updated PDG includes a sub-section on risks. This sub-section outlines the types of risks that may prevent achievement of objectives and, where relevant, highlights interlinkages with other topics.
We acknowledge the importance of updating and reviewing work; however, there are many developments existing on mainstream already, so how effective will the new guidelines be?	This document provides guidance to inform design and planning that will have implications for both the construction and operation stages of a dam development. The effectiveness of this document also depends on government enforcement.
Considering Chinese dams, there is a need for inter–reservoir operation. We should for some	This guidance may be considered useful for tributary dam developments notified

Questions? Comments / Suggestions	Responses and follow-ups
tributaries, not all, consider refering to the lesson from Xe Pian Xe Nam Noi: A big dam has a potentially big effect. If the guidelines only considers the six remaining mainstream dams, that would not be good enough. Updates of national/regional river basin plans should be closely connected to this topic.	under the PNPCA, but the limitations in the scope of this guidance should be acknowledged.
The ISH 11 project already provided lot of useful information on baseline information for hydropower development, and it should be further applied.	This document should be taken into account by hydropower developers. Documents are free and available on the MRC website. The team stands by ready for any support if needed.
Please highlight one recommendation suggested by an NGO that has been taken into account?	Most NGO comments revolved around issues of stakeholder participation, matters related to affected people, gender and food security. Under Section 9 of the updated DG on livelihoods, these comments helped clarify and strengthen the formulations, always with a view to transboundary impacts, as this is the mandate of MRC.

3. Update of the Sustainable Hydropower Development Strategy (SHDS)

A concept of the "nexus between water, food, and energy" has been debated extensively and is become increasingly common. It has emphasised the need for integrated water planning, much like the mandate of the MRC. A battery of studies and research have recommended that basin-wide cooperation with integrated development planning is essential to achieve basin-scale sustainable development for the Mekong basin. In response to the need make basin development more "optimal" and sustainable, addressing long-term needs including environmental protection and water, food, and energy security, updating the MRC's Sustainable Hydropower Development Strategy (SHDS) is essential.

The main output of the updated SHDS is a short list of hydropower development pathways with a clear analysis of the trade-offs that each option entails. The updated SHDS will also detail the cost and benefit of preferred development options and will provide an agreed set of strategic actions to facilitate implementation of the strategy.

The presentation on this topic is available on MRC website: http://www.mrcmekong.org/assets/Uploads/3.-Review-and-Update-of-SHDS.-120918.pdf

Details of questions, comments, suggestions, responses, and follow up-actions regarding the updated SHDS made at the forum are recorded in the below table:

Questions? Comments / Recommendations	Responses and follow-ups
Noting there is a need to look beyond national power development plans (PDPs) to get a more holistic picture. E.g. Thailand also has the Alternative Energy Development Plan, focused on renewables, and an energy efficiency plan, which could have implications for amount of hydroelectricity Thailand imports in the future.	The MRCS is aware of this and taking this into account, while reviewing and updating the SHDS.
How is the China (Yunnan province) oversupply of hydropower taken into account, in terms of how it affects supply to and demand of Lower Mekong countries?	The MRCS is aware of this, but in principle focuses on the Lower Mekong countries; but the MRCS acknowledges that a way has to be found to factor in the issue to make it a meaningful study.
The MRCS offered support to the review of the Lao Hydropower Strategy—what is the progress?	The MRCS offered support to the Lao MoNRE and MEM to cooperate and indicate potential value to be gained from ongoing MRC processes, with details to be confirmed with Lao government. The MRCS has also engaged with The World Bank, which is supporting the Lao government in its update of its Power Development Plan.
How will three SHDS reconcile differences between the export plans (e.g. Lao PDR and Cambodia) and import plans (e.g. Vietnam and Thailand) as there are significant differences. E.g. the table on page 14 of the summary note points out there is almost 10,000 MW of difference? How will export plans of non-MRC Member Countries be factored in, e.g. for China, which also has significant excess and reportedly plans to export to Lower Mekong countries?	In developing estimates of hydropower benefits under the current pathway, it is necessary to determine how the development of Lower Mekong Basin (LMB) hydropower projects interacts with already installed hydropower capacity (including the 15,600 MW of hydropower installed in the Lancang cascade in China) and with existing national PDPs. This is particularly the case for Thailand and Vietnam where current PDPs envisage significantly lower levels of LMB hydropower imports than are implied by current hydropower expansion planned in Cambodia and Lao PDR. Resolving these inconsistencies is important as a means of enabling the full potential benefits of LMB hydropower development to be captured. In this SHDS, we have also estimated how hydropower benefits change under an "integrated" case in which LMB countries are prepared to rely on imported hydropower to reduce the need to invest in new generating capacity located in their own country. This

Questions? Comments / Recommendations	Responses and follow-ups
	provides an indication of how a regionally coordinated approach to power planning might enhance the benefits of LMB hydropower.
How will existing (and committed) projects be evaluated *vis-à-vis* trade-offs? More specifically, when assessing trade-offs, will the SHDS evaluate operational regimes of existing (and committed) dams? Changing operations of existing dams can help reduce social and environmental costs, but will likely involve trade-offs with electricity output/revenue.	Key components of the SHDS are to mitigate adverse transboundary impacts, while enhancing benefits beyond national borders through greater regional cooperation, and for the resulting net benefits to be equitably shared. This may require the implementation of workable benefit-sharing mechanisms, which indicate where the regional benefits are greater through e.g. integration, etc., also transboundary/national impacts of individual dams. This will be explored more during the review and update of the SHDS.
If only planned projects are considered for pathway optimisation/trade-off discussion, what then about existing and committed projects, e.g. where there is also some degree of flexibility to achieve different outcomes under different operational regimes? E.g. flood risk can be reduced at the expense of power production?	The study focuses on the huge potential to discuss better potential outcomes of the 20,000 MW capacity of planned projects. Recently, the MRCS has finished the MRC mitigation guideline, which also guides the hydropower developers/operators to design and operate their hydropower plants.
What opportunities will there be for non-government stakeholders to participate in the interactive planning workshops planned for October and November?	The MRCS will engage broad stakeholders in the second interactive planning workshop, planned for December, when the document is more mature with more details.

4. Procedures for Notification, Prior Consultation, and Agreement (PNPCA) Commentary

The MRC Secretariat (MRCS) has received 54 notifications since the adoption of the Procedures for Notification, Prior Consultation, and Agreement (PNPCA) in late 2003 by the MRC's Council and of the Guidelines on Implementation of the PNPCA in August 2005 by the MRC's Joint Committee. It was observed by some legal experts that the 1995 Mekong Agreement and the PNPCA represent a leading-edge practice internationally. The MRC has also observed that the implementation of the PNPCA (particularly for the Prior Consultation) has drawn a great deal of attention and involvement from a wide range of stakeholders. The MRC has documented several lessons learns as well as pending and emerging challenges. The MRC's MCs have concurred that it is important to learn from this experience, improve subsequent implementation, and provide greater certainty and clarity for all MCs and other key stakeholders about the PNPCA process.

The Commentary is to supplement the current Guidelines on Implementation of the PNPCA by placing the key provisions of the PNPCA in a wider context of international best practice. The commentary would present the MRC and its MCs with an opportunity to strengthen confidence, build measures, and demonstrate global leadership in the cooperative management of a major international basin by systematically identifying which aspects of the PNPCA works effectively, which aspects present challenges in implementation, which improvements or changes in approach might address such challenges, and how such improvements or changes could be attained.

The presentation on this topic is available on MRC website:
http://www.mrcmekong.org/assets/Uploads/3.-PNPCA-Commentary.-120918.pdf

Details of questions, comments, suggestions, and responses regarding the PNPCA Commentary made at the forum are recorded in the below table:

Questions? **Comments / Recommendations**	**Responses and follow-ups**
Who will be the disclaimer of this commentary? How will this complementary provide support the 1995 MA?	This is the working document to supplement the PNPCA procedures. The commentary is not about changing the PNPCA regime *per se*, but about holding it up against other international examples.
The exact timeframe for notification should be well addressed. What is the time period for the host country to re-consider after receiving feedback from the PACs?	An early stage of engagement and notification from the host country is very important since the preparation of feasibility study. This is based on the best practice from S-Pool.
When will the commentary be finalised and presented to the four MCs?	It will be presented during the Joint Committee Meeting for the committee to acknowledge this document.
The definition of terminology (e.g. wet and dry season) should be included in the commentary.	This will be prepared as a separate document for the joint platform works, but will not be included in this commentary.
In the key recommendations for PNPCA Commentary, it is suggested to have early notification, which is contradictory to the timeline that is mentioned in the PNPCA process, i.e. only one month.	This is a recommendation which aims for better implementation of the Prior Consultation process. The MRC TbEIA would also be a solution to the need for early engagement prior to the Prior Consultation process. There is the example of the Pulp Mills case, where it was suggested to share information already during the EIA stage.

Questions? Comments / Recommendations	Responses and follow-ups
Request to clarify the early information sharingDoes the PNPCA process require the notifying country to submit the case, and then the MRCS has one month for its internal review (completeness check) before submitting to other (notified) countries?	Yes, it is. The MRCS will have a one-month period to review/check completeness prior to the actual review process commencing, •
When will the full commentary be released, and will interested stakeholders outside member governments have opportunity to provide inputs? The summary note and presentation at the forum didn't provide details of the 19 commentaries.	This is subject to discussion with the National Mekong Committees (NMCs), as the PNPCA Commentary is developed through a participatory process and with ownership by the NMCs. Due to limited time, the presentation included only the substance of the PNPCA Commentary as to inform on the progress of the work.
Consider reviewing and referencing relevant national laws and policies in the PNPCA Commentary. While the process reviewed international standards, it didn't review national ones. The national review doesn't necessarily have to be comprehensive, but could focus on ones that have relevance to the PNPCA Commentary and recommendations. For example, share project information several months before a Prior Consultation process, public disclosure of impact assessments, as well as the need to undertake transboundary and cumulative impact assessments (e.g. articles 7 and 10 in Laos Sustainable Hydropower Development Policy (2015); and sections 5.7 and 5.10 in the Implementation Guidelines (2016)).	The suggestion is well noted. It will be considered in consultation with the national counterparts.

5. Xayaburi Design Changes Review

Following the completion of the Prior Consultation process for the Xayaburi HPP in April

2011, the Lao government commissioned a compliance report in August 2011 in response to the MRC's TRR on the Prior Consultation process of the project. During this period, the Lao government and the Xayaburi Power Company Ltd (XPCL) conducted studies to propose redesign solutions to meet the concerns of the MRC's MCs, raised during the Prior Consultation process. These concerns include, for example, fish passage, sediment transport, navigation facility, and seismic risks.

The MRCS has since the second half of 2017 carried out the design changes review. The review considers only officially provided, or publicly available, reports, drawings, presentations, and correspondences provided by the Lao government and the developer as well as their advisors (i.e. redesign reports received in February 2014; presentations in July 2015; drawings in August 2016; and report on design adaptation of the Xayaburi HPP in November 2017*)*.

The design changes review of the Xayaburi project is intended to determine whether the recommendations of the PNPCA's Xayaburi Technical Review Report by the MRCS have, in general, been taken up in the redesign of the Xayaburi project.

This review covers six aspects, including (1) navigation; (2) fisheries, fish ecology, & passage; (3) water quality and aquatic ecology; (4) hydrology; (5) sediment; and (6) dam safety. In conclusion, the developer has made commendable efforts to reduce harmful effects. The documentation provided primarily outlines the infrastructural changes; however, there are still fewer details on monitoring, data, and analysis for rigorous scientific assessment. The Lao PDR's Standard Environmental and Social Obligations (SESO) has domesticated the provision of the 1995 Mekong Agreement, but it is not known how this has been taken up in the concession agreement and power purchasing agreement. It is necessary to provide descriptions of operating rules for a better assessment, and also to establish the record of the use once commenced, as outlined in Article 5.4.3 of the PNPCA, and as stipulated in the Procedure for Water Use Monitoring.

The details of review results are listed in the presentation and it is available on the MRC website: http://www.mrcmekong.org/assets/Uploads/4.-Xayaburi-Design-Changes.-140918.pdf

Details of questions, comments, suggestions, responses, and follow-up actions regarding the review of the Xayaburi design changes made at the forum are recorded in the below table:

Questions? **Comments / Recommendations**	**Responses and follow-ups**
Xayaburi Power Company Limited (XPCL) appreciated the review of the MRCS on the Xayaburi design changes and responded that the company has addressed all recommendations made by the MRCS. The design of the navigation lock was adapted, and the lock has been used in the past three to four years for fish passages. The project is currently in the process of raising upstream	The MRCS appreciated the information provided by XPCL and advised that the full report and other detailed data and information related to the design adaptation made to the Xayaburi project shall be transmitted to the MRCS through LNMCS for the record.

Questions? Comments / Recommendations	Responses and follow-ups
water levels to finalise the water supply level needed and test the first turbine in October/November. All seven turbines will be operational in June 2019. The company is keen to share the full report, dated January 2018, and other detailed data and information related to the design adaptations made to the Xayaburi project.	
The Lao government engineering company informed that the report on design adaptation has been submitted to the MRCS covering all recommended review aspects (including spillway and sediment).	The MRCS appreciated efforts in sharing information on the design adaptation made for Xayaburi project and welcomed further sharing of the latest report as well as detailed data and information on relevant studies and monitoring during the design adaptation.
Lao PDR's SESO should be addressed early, from the beginning of a hydropower development initiative. It should be in the concession agreement or power purchasing agreement, and it should be handled by MEM and MoNRE.	The MRCS acknowledged that the Lao SESO has domesticated the provision of the 1995 Mekong Agreement, but it is not known how this has been taken up in the concession agreement and power purchasing agreement.
Upstream fish migration during construction of the dam (four–five years) should be considered and certain facilities established to enable and facilitate their migration.	Monitoring data on fish migration during construction are recommended to be shared with the MRCS.
The Xayaburi fishway has been modified, and some fish species can migrate upstream beyond the Xayaburi dam site. How can we adapt the Xayaburi design, and what are the difficulties in applying Xayaburi's fishway design?	Continued monitoring data of fish migration undertaken by the company could provide the possibility to assess the effectiveness of the fish passage and further adapt the facilities as lessons are being learnt.
Pöyri as developer of the Xayburi has detailed information responding to the redesign changes review result. At the beginning of this year, the documents were submitted to GoL, and the company offers the opportunity to clarify the issues one by one.	The MRCS takes note of the offer and needs to further liaise with the Lao government, as the official communication channel for MRCS. The MRCS acknowledges the ongoing need for sharing of information.
The review result should be more specific about recommendations: Which are for the MCs, for the developer, for the owner/GoL? The need for action/next steps is different for different parties. Environmental flow is a long-term issue, and it has been known for a long time that this is an issue.	The MRCS acknowledges the recommendations. The MRCS will update the review recommendation accordingly, after receiving the full report and other detailed data relating to the design adaptation made to the Xayaburi project from the Lao NMC.

Questions? Comments / Recommendations	Responses and follow-ups
Request for clarification regarding the last updated information that the MRC has received on Xayaburi design adaptation report—is it from last year? Did what was submitted to the GoL in January this year also include some information on the operating rules?	The latest report on Xayaburi design adaptation, version January 2018, and other related data and information are recommended to be transmitted to the MRCS via the official channel of the LNMCS for the MRC's records.
During the discussion on the Xayaburi redesign review, and through the statement by XPCL, it became obvious that not all of the many detailed documents that the company has shared with the government have been made available to the MRC.	The MRCS took note on this comment. The MRCS will follow up with the LNMCS and MEM on this and needs their cooperation.

6. Guidelines for Transboundary Environmental Impact Assessment in the Lower Mekong Basin (TbEIA Guidelines)

The MRC's MCs have resolved to develop and implement a Guidelines for Transboundary Environmental Impact Assessment (TbEIA) in response to the 1998 MRC Council Resolution and 2003 Joint Committee decision. The decision to have the TbEIA Guidelines is to facilitate cooperation and support the protection of the environment, natural resources, aquatic life and conditions, and the ecological balance of the Lower Mekong River Basin. It also aims to prevent and cease harmful effects resulting from development projects, all in accordance with the 1995 Mekong Agreement.

The TbEIA Guidelines are built on and supplements the PNPCA. They also use and consider various MRC procedures, including the Procedures for Data and Information Exchange and Sharing, Procedures for Water Use Monitoring, Procedures for the Maintenance of Flow on the Mainstream, and Procedures for Water Quality, in addressing potential transboundary environmental impacts of development projects. They are also developed with valuable experience gained from the MRC-supported consultations on Mekong mainstream dam projects, lessons learnt from the 3S river studies commissioned by the MRC, and observation of transboundary EIA practices in other regional contexts, such as the Espoo Convention. The guidelines aim to facilitate MCs' cooperation in conducting EIA for projects with potential transboundary environmental impacts, while respecting differences among the EIA legislations in the MCs and specifics of their national EIA systems.

The general objective of the TbEIA Guidelines is to support application of "Objectives and Principles of Cooperation", stated in the 1995 Mekong Agreement, namely articles 3, 5, 6, 7, and 8.

The presentation is available on MRC website: http://www.mrcmekong.org/assets/Uploads/5.-TbEIA.-170918.pdf

Details of questions, comments, suggestions, responses, and follow-up actions regarding the TbEIA Guidelines made at the forum are recorded in the below table:

Questions? Comments / Recommendations	Responses and follow-ups
Regarding the 1995 Mekong Agreement, the MCs implement what they agreed, they adopt and adjust the national laws to the 1995 Mekong Agreement, The four MCs need to find the relevant way to comply with the 1995 Mekong Agreement. This should be applied to TbEIA as well.	The MRCS encourages the four MCs to apply the TbEIA Guidelines in ways consistent with the national laws as the first step, and the guidelines are developed based on this assumption. The next step is to find a way for long-term implementation.
To what extent will the TbEIA Guidelines relate to other possible national policies, e.g. Lao PDR's national energy policy, etc.?	This is the perfect initiative for the MCs to address the environmental impacts in their policies, including the transboundary aspect. The MRCS will take note of this issue.
Will the TbEIA Guidelines be applied to both existing and future projects?	Yes, the current TbEIA Guidelines apply for both existing projects (i.e. operation phase) and further projects.
Agreed that the old procedure should not be separate. We need two types of monitoring. The TbEIA Guidelines should address the cumulative impact, not only transboundary impacts.	The MRC took note of these comments.
To what extend do the TbEIA Guidelines consider the social impact?	The assessment is conducted beyond the country's boundaries, and therefore it covers the social impacts.
Will the TbEIA Guidelines be applied for Pak Beng?	The TbEIA Guidelines will be applied for all mainstream development projects.
Aquaculture should be subject to the TbEIA Guidelines.	With regards to the scope of the TbEIA Guidelines, it covers all kinds of projects that fall under cooperation – see Article 1 of Mekong Agreement. Even if no national EIA process exists for a certain sector, but significant transboundary impacts are possible, then other MCs need to be notified and a process for TbEIA would need to be discussed. An aquaculture project will be subject to the TbEIA Guidelines if the national EIA guidelines/systems in an MC require EIAs for aquaculture projects. If the national EIA systems do not require EIAs for aquaculture projects, then the aquaculture

Questions? Comments / Recommendations	Responses and follow-ups
	projects in that country are not subject to TbEIA.
Environmental protection laws in national legal systems usually do not refer to needs for TbEIAs. What about cases of potential cumulative impact, even if transboundary impact is not evident in the individual project? How would that be dealt with under the TbEIA Guidelines?	At the moment, the application of the TbEIA Guidelines is voluntary and the country of origin can decide to use it or not.
In the TbEIA Guidelines, how are socio-economic issues taken into account, also in relation to the DG of 2018?	According to the principle of state sovereignty, the process follows national EIA processes; the only difference is that environmental impacts are assessed beyond the country of origin's border, which also includes social impact assessment.
What is the status of the TbEIA Guidelines development? How is it linked to DG of 2018?	The main content of the TbEIA document is agreed upon. It is a working document, to be updated with lessons learnt from application practice. There are some pending issues, including mainstream/tributaries or the previously raised issue of aquaculture. The TbEIA Guidelines is not extensively covered in the DG of 2018 text, but it is referenced, suggesting that any assessment should make a reference to the MRC TbEIA process.
The Pak Beng developer mentions in their documents that no agreed TbEIA format exists and suggests that the four countries should approve the TbEIA Guidelines; if it cannot be officially adopted as binding document, perhaps a working document can be agreed upon?	This is good news, and the MRCS took note of this.
Is TbEIA a project-specific process? If yes, why is the Pak Lay assessment very similar to the one for Pak Beng?	The developer conducts the TbEIA. The Pak Lay assessment is following the previous cases, and therefore perhaps no reference is made to TbEIA. The MRCS is working with the Joint Committee on the similarity of the two documents.
In line with response provided by the MRCS, which indicated that social impacts are included, make it more explicit in the TbEIA Guidelines that it is inclusive of social impacts	Yes, the TbEIA Guidelines include both environment and socio-economic impact assessment.

Questions? Comments / Recommendations	Responses and follow-ups
and that this would generally be in line with national EIA regulations.	
Strengthen link with DG (Section 9 on riparian communities and river-based livelihoods)	It will be considered and discussed with the team to make linkages in the documents, if applicable.
Link to the PNPCA Commentary and consider mentioning related policies beyond just EIA, as there are provisions on related to TbEIA in some existing policies (e.g. in Lao PDR).	It will be considered and discussed with the team to make linkages in the documents, if applicable.

7. Joint Environmental Monitoring (JEM)

The MRC's TRRs on the three mainstream hydropower projects have provided the same recommendation. The TRRs recommended there be a need to design and implement a detailed, scientifically robust environmental monitoring programme, with sufficient budget, to properly assess several important impacts. These include the assessment of impacts on hydrology and hydraulics, river geomorphology and sediment, water quality, aquatic ecology, and fisheries. This is in order to design or redesign effective impact mitigation measures for the protection of fisheries, the environment, and river ecology in the Lower Mekong Basin. As a result, the MRC initiated Joint Environment Monitoring (JEM) of the mainstream hydropower projects.

The JEM has three primary purposes. First, it is to fill the gaps of environmental data and information for Mekong mainstream hydropower project planning and design. Second, it is to support the MCs to jointly monitor and report on the transboundary environmental impacts of Mekong mainstream hydropower projects during construction and operation to inform mitigation and management measures. Third, it is to facilitate environment data and information sharing and exchange among the concerned MCs.

Work on the JEM is under way. The MRC's Joint Committee is expected to approve it by the end of 2018, with implementation expected to kick off in mid-2019.

The presentation is available on MRC website:
http://www.mrcmekong.org/assets/Uploads/6.-JEM.-170918.pdf

Details of questions, comments, suggestions, responses, and follow-up actions regarding JEM made at the forum are recorded in the below table:

Questions? Comments / Recommendations	Responses and follow-ups
The monitoring network along the mainstream, including parameters and methodology, are agreed. The question of sufficient data on fish	Some additional parameters, e.g. phytoplankton and sampling stations, should be added for the specific locations. New technology should be considered and included into JEM, e.g. sediment monitoring.

Questions? Comments / Recommendations	Responses and follow-ups
and biomass should be discussed and further implemented.	
Will JEM and JAP apply to both existing and future projects?	JEM will apply for both ongoing and future projects, but JAP will apply only to Pak Beng HPP.
Companies supervising the construction and operation will follow specific concession, and focus only on that project not in the basin-wide level. How can we improve the approach?	JEM will support the operation phase of the project and can be used to compare with the baseline data to see some changes. The project component will be added to complement the basin-wide data for better analysis of the whole basin. Developers do not need to monitor at the basin-wide level.
If some parameters, e.g. chemicals and pesticides, are not relevant to the project's activities, do the developers need to monitor them?	The MRC agrees to monitor what is related to the project's activities.
Is JEM voluntary and how to get all developers to join JEM?	The guidelines are voluntary. They will be finalised after testing in some pilot projects.
Will the MRC develop only the guidelines or carry out the JEM?	The objectives of JEM are to share the monitoring data, including adaptive measures, after PNPCA procedures.
Will JEM be developed for the mainstream?	Yes, it is for the mainstream projects.
There should be a better clarification and identification of parties who involves in the JEM.	MRC will play important role to coordinate with the COO and Developers to get the data and share with the PAF. For the next step, we need to have reliable data and information. JEM will identify the key parameters that should be closely monitored during the implementation of Projects in a transparency manner and can use these as the database the efficiency of mitigation measures.
Who will gather all data from JEM and what is the procedures to use these data?	The MRC will synchronise data from the four MCs as well as analyse and interpret data. The data will be available on the data portal. The immediate users are MRC staff, who will use it to assess the efficiency of current mitigation measures. These are targeted for academics and scientific institutions and may request some costs for private sections. However, NMCs can request our data with no cost charged.

Questions? Comments / Recommendations	Responses and follow-ups
Regarding JEM, are developers using MRC data?	All MRC environmental monitoring data etc. are very comprehensive, but developers themselves may better address whether they are using the data.
How to apply JEM to some projects, e.g. Nam Ou, in tributaries that are impacted by deteriorating water quantity and quality from the mainstream?	Although JEM focuses on mainstream projects, some significant impacts on major tributaries should be addressed as well. Plans for JEM include adding more sampling stations in the tributaries.
To help clarify the roles and responsibilities of monitoring data collection, the MRC should explore the existing projects that get concession agreements from the GoL to see the current roles and responsibilities of developers in monitoring activities.	Following the drafting, testing, and finalisation of the JEM programme, the programme will eventually be gradually mainstreamed into the national systems of the MRC MCs and used by the developers according to the signed concession agreements of hydropower projects.
Would it be possible to establish one monitoring team from the four MCs to implement JEM and for the MRC to support it financially? This would be better than each MC doing it?	In the 2019 annual work plan, a joint monitoring team for Don Sahong Project will be established as a pilot project and this might be upscaled for further JEM implementation.
Will JEM include riparian livelihoods?	Only riparian fisheries are included as part of JEM.
Will sediment be monitored in JEM?	Only general sediment and nutrition related to agriculture will be monitored in the JEM programme. JEM will focus on the design. The roles and responsibilities of data collection and budget will be clarified after two pilot projects are tested and finalised.
Can JEM be linked to the baseline monitoring and not focus only on the impact assessment from hydropower projects?	Yes, JEM is also applied for collecting baseline data and monitoring changes.
Does JEM serve for MRC Indicative framework or only for mainstream hydropower projects?	JEM will complement the general basin-wide management. Some specific site-specific parameters will be added.
What is the timeline of JEM finalisation and testing in the pilot sites?	The first draft is in review, and the second draft will be submitted for further consultations with MCs. Training will be provided later. Two proposals are for Don Sahong and Xayaburi testing

Questions? Comments / Recommendations	Responses and follow-ups
	in 2019 and 2020, respectively, which will be implemented if the funding is secured.
How does the JEM relate and contribute to and is informed by the MRC Indicator Framework?	Key indicators of JEM are selected based on the current draft MRC Indicator Framework.
How will social impacts/monitoring be included? A response indicated it was mainly through the fisheries component. However, there is scope to expand this, e.g. sediment, which is one of the parameters in JEM and which has socio-economic impacts related to agriculture, riverbank gardens, etc.	JEM will be used to monitor and assess the food security and livelihoods conditions associated with fishing activities in the region to ensure that socio-economic impacts are fully recognised.
Considering two types of monitoring, i.e. daily/frequent and specifically needed/incident based—how does JEM address this?	The JEM programme will include five monitoring activities: (1) Hydrology and hydraulics, (2) sediment and river morphology, (3) water quality, (4) aquatic ecology, and (5) fish and fisheries. The detailed methods or protocols of each of the above monitoring activities will be developed.
Could you give a few good examples in regard to application of JEM?	• Regarding JEM, there is a good example from the Danube River, where in line with the EU Water Framework Directive, the ten countries together monitor the river. • Another example from Rhone River exists, where Switzerland and France jointly monitor sediment, hydrology, and hydraulics. • Colombia River, share by Canada/USA, has joint monitoring of salmon and other species.

8. Joint Action Plan (JAP) for Pak Beng Hydropower Project

At the end of the Prior Consultation process for the Pak Beng Hydropower Project, the MCs agreed to a statement, "calling on the government of Lao PDR to make all every effort to address any potential adverse transboundary impacts of the project". They also tasked the MRCS with preparing a a Joint Action Plan (JAP) that outlines a process for implementing the statement.

The aim of the JAP is to provide mechanisms for ongoing feedback between the project developer and Lao PDR and the MRC and stakeholders, regarding the ongoing design, construction, and future operations of the Pak Beng HPP. The intention is to monitor the implementation of the statement and support Lao PDR in its ongoing efforts to identify measures that may further avoid, minimise, or mitigate the potential impacts of the project.

The presentation is available on MRC website:

http://www.mrcmekong.org/assets/Uploads/8.-JAP-Summary-for-PBHPP.-120918.pdf

Details of questions, comments, suggestions, responses, and follow-up actions regarding the JAP for Pak Beng HPP made at the forum are recorded in the table below:

Questions? **Comments / Recommendations**	**Responses and follow-ups**
What are the Lao government's opinions on the JAP of the four MCs?	The final JAP was finalised in February 2017, after rounds of regional and national consultation meetings. By April 2018, Cambodia, Thailand and Viet Nam endorsed the final JAP, Version 5, through written communication. The MRC is awaiting only the response from Lao PDR. Lao PDR stated that they agreed with the JAP concept and only needs final consideration of some of the detailed activities.
We need more clarification on the degree of MRC involvement during the design phase. Will it only be providing recommendations and observations, but not approval?	The MRC will provide technical recommendations during the Prior Consultation to MCs through the TRR. The joint statement calls on the notifying country to make every effort to avoid, minimise, and mitigate potential transboundary adverse impacts as jointly identified and agreed in the TRR. The JAP will provide ongoing interactions between notified countries and the notifying country on design, construction, and operation in order to make a better project.
Does the obligation of the JAP go beyond the mandate of the MRC?	According to Article 5 and Article 7 of the 1995 Mekong Agreement, every MC has the responsibility and obligation to act within their own territory and towards each other in order to ensure reasonable and equitable uses of waters as well as to avoid, minimise, and mitigate transboundary impacts. The JAP is basically designed to address the above two main articles, while leaving the flexibility to the notified country to exercise its duty of conduct and duty of result.

Does the full version of the JAP include timeframe or milestones for each step?	The JAP is a breakthrough mechanism for MRC cooperation and addresses stakeholder concerns about consultations after the Prior Consultation process. However, as with any new mechanism, time is needed for finalisation and gradual implementation. To define the milestones is a great challenge for MRC. The attempt is to have direct interaction between concerned line agencies of Lao PDR when the JAP is approved in order to develop some key milestones. To implement the JAP, there is a need to have a tracking (monitoring) matrix during each development stage of the project, with issues to be discussed, responsible parties, and verified means that need to be periodically reported to the MRC Joint Committee.
Considering grievance mechanisms during the construction phase, the affected people can report their complaints to the developers or GoL. Are these mechanisms included in the JAP?	These issues should be the responsibility of the notifying country to work out with their developers. The 1995 Mekong Agreement does include Article 8, stating responsibility for damages, breach of which would empower the MRC to address the issue if proven and requested.
As JAP hasn't been yet agreed in detail, therefore we do not know yet whether the matrix is the best practice or not?	The JAP is the first step in implementing the statement, which is the joint commitment of both notifying and notified countries in addressing their identified concerns. Since it is the first-ever mechanism established by the MRC, adaptive learning is crucial throughout the process. For this reason, a tracking matrix would be an important tool to track the progress of JAP implementation as well as to keep the MRC's governing bodies informed and for their guidance.
How are the recommendations addressed in timely ways?	The JAP is designed as a collaborative mechanism to address the concerns raised by notified countries and other stakeholders as a post–Prior Consultation process. The pace and depth of its implementation depends on the effort and willingness of the notified country to

	implement it. The MRC always keeps all MCs engaged in the process.
Does the JAP include clear timeframes and milestones for each phase? And do they take into account findings and recommendations of the Pak Beng TRR, which highlighted the need for further studies? Presumably some of these would take at least one to two years and should be done in the design phase, prior to construction. Related to the above, how are the phases of the JAP being aligned with Lao planning and approval processes? Presumably, having issues in the design phase identified and addressed and subsequently incorporated into the concession agreement, prior to construction, can help ensure more effective monitoring, implementation, and enforcement of obligations.	To define the milestones is a great challenge for the MRC. The attempt is to have direct interaction between concerned line agencies of Lao PDR when the JAP is approved, in order to develop some key milestones. To implement the JAP, there is a need to have a a tracking (monitoring) matrix during each development stage of the project, with issues to be discussed, responsible parties, and verified means that need to be periodically reported to the MRC Joint Committee. The primary focus of the JAP is to address the design concerns in order to make a good project with smaller transboundary impacts and for it to be acceptable for all parties. It is the responsibility of the notifying country to finalize design taking into consideration of recommendations and suggestions and conclude terms with developers into the concession agreement accordingly.
How does the JAP ensure that timely and complete information exchange happens as no direct engagement between the MRC and the developer is foreseen, according to the summary note?	It is the first-ever JAP, and there is a need to have the JAP in place in order to improve the design, based on the Xayaburi experience, and to support the Pak Beng developer. The MRCS is grateful to XPCL for offering such extensive support; the company has been very helpful and very important comments were received during the PDG update. The openness to support the process and support is very much appreciated.

9. Mekong Climate Change Adaptation Strategy and Action Plan (MASAP)

The Mekong Climate Change Adaptation Strategy and Action Plan (MASAP) sets out the strategic priorities and actions at basin level through which the MRC can contribute to addressing climate change risks and strengthen basin-wide resilience. The MASAP identifies critical dimensions of development that need transboundary cooperation for the purpose of adaptation to climate change, and it enhances the capacity of MCs to implement their own national strategies. In terms of climate resilience for the LBM, the MASAP contributes to

ensuring that people, communities, businesses, and other organisations are able to cope with current climate variability as well as adapt to future climate change, preserving development gains, and minimising damages.

The MASAP is a statement of the LMB countries on strategic priorities and actions at basin level to address climate change risks and strengthen basin-wide resilience..

An action plan has been developed for the implementation of the MASAP, including the actions, a timeframe for each action, and identification of the relevant stakeholders and their roles and responsibilities. Among 20 identified activities for the action plan, the discussion focused on MASAP mainstreaming into regional and national policies/programs/plans through (1) transboundary adaptation projects, (2) regional and international cooperation and partnerships on climate change and adaptation, and (3) the need for adaptation to climate change to take account of planned upstream developments and to use climate financing opportunities.

The presentation is available on MRC website:
http://www.mrcmekong.org/assets/Uploads/8.-MASAP.-130918.pdf

Details of questions, comments, suggestions, responses, and follow-up actions regarding the MASAP made at the forum are recorded in the below table:

Questions? **Comments / Recommendations**	**Responses and follow-ups**
Regarding integrating MASAP activities into national plans, in consideration of national individual plans, how can we mainstream and integrate them into national plans with different timeframes?	We will start to review national plans/ national priorities for climate change adaptation, as mentioned in the MRC work plan. We will be focusing on the Nationally Determined Contributions (NDCs) to select potential activities for mainstreaming and integration. It is being done by national team and needs time to complete. Considering diversified stakeholder participation in process, we look forward to working with different partners during the process. Integration of climate change considerations can be done in any phase, e.g. during the formulation of a strategy/plan or during the implementation of the strategies/plans/ activities.
In principle, the MASAP activities are supposed to complement national activities, but national activities have already moved three years ahead of MASAP NDC, activities due to	The NDC design can be revisited, then we can redesign work plan to

its own delay. What will be the actual added value from MASAP activities for the national activities?	mainstreaming activities for upcoming years. MASAP mainstreaming can be in the implementation of national activities to add value on transboundary cooperation and capacity building.
Re-dividing activities to identify some priorities in responding to the fact that activities at the national level have been submitted and committed to the Conference of the Parties (COP) 21 under the United Nations Framework Convention on Climate Change. We can add on some activities focusing on the monitoring component, especially at the regional level.	The list of activities can be prioritised, and the suitable ones will be selected to be put into the MRC's annual work plan for implementation. The work of monitoring climate change impacts and adaptation has been considered as a priority and will be implemented starting in 2018 and will continue in the years to come.

VI. Annexes

Annex 1: List of participants

		Name	Country / Organisation
1	Mr	Chanthanet Boualapha	Lao PDR
2	Mr	Chansaveng Boungnong	Lao PDR
3	Mr	Aliyasack Tounalom	Lao PDR
4	Mr	Keomany Luanglith	Lao PDR
5	Mr	Viengsay Sophachanh	Lao PDR
6	Mr	Sommano Phounsavath	Lao PDR
7	Mr	Souksada Bodhivam	Lao PDR
8	Mr	Thongthip Chandalasane	Lao PDR
9	Mr	Khamsone Philavong	Lao PDR
10	Mr	Lamphone Deemanivong	Lao PDR
11	Mr	Ketsana Xaiyasarn	Lao PDR
12	Mr	Somphone Khamphanh	Lao PDR
13	Mr	Vonephasao Oraseng	Lao PDR
14	Mr	Somdeth Lakhonvong	Lao PDR
15	Ms	Manyvone Khongsavanh	Lao PDR
16	Mr	Soukvilay Vilavong	Lao PDR
17	Mr	Douangkham Singhanouvong	Lao PDR
18	Mr	Bounhieng Souvannahane	Lao PDR
19	Mr	Aphisath Phanthaly	Lao PDR
20	Mr	Athisone Silitham	Lao PDR
21	Mr	Bounphanh Saisipaseuth	Lao PDR
22	Ms	Ounphachanh Sengdavanh	Lao PDR
23	Ms	Phonemala Boudsabha	Lao PDR
24	Mr	Aondy Sayavongsa	Lao PDR
25	Ms	Thippachan Leuanevilay	Lao PDR
26	Mr	Boupha Phiathep	Lao PDR
27	Mr	Sengthong Pormuangpieng	Lao PDR
28	Mr	Alounzay Inthilath	Lao PDR
29	Mr	Bounmy Keovongsa	Lao PDR
30	Ms	Phatthany Keobounkhong	Lao PDR
31	Mr	Soukvanhxay Keola	Lao PDR
32	Ms	Pakkavanh Phissamai	Lao PDR
33	Ms	Nuanlaor Wongpinitwarodom	Thailand
34	Mr	Chaiyuth Sukhsri	Thailand
35	Ms	Anongtip Pongsuwichedsak	Thailand
36	Mr	Winai Wangpimool	Thailand
37	Mr	Satit Phiromchai	Thailand
38	Mr	Panut Manoonvoravong	Thailand
39	Mrs	Wirawan Rayan	Thailand
40	Mr	Naris Arthan	Thailand
41	Mr	Gun Wongart	Thailand
42	Mr	Laowthai Ninnuan	Thailand
43	Ms	Suphamat Punprasoet	Thailand

44	Ms	Wachiraporn Kumneropet	Thailand
45	Mr	Tran Minh Khoi	Viet Nam
46	Mr	Nguyen Huy Phuong	Viet Nam
47	Mr	Nguyen Ngoc Ha	Viet Nam
48	Dr	Hoang Minh Tuyen	Viet Nam
49	Dr	Le Thi Viet Hoa	Viet Nam
50	Mr	Nguyen Duc Vinh	Viet Nam
51	Mr	Nguyen Trung Quan	Viet Nam
52	Mr	Nguyen Van Trong	Viet Nam
53	Mr	Nguyen Dinh Dat	Viet Nam
54	Mr	Matthieu Bommier	AGENCE FRANÇAISE DE DÉVELOPPEMENT
55	Mr	Kevin Price	U.S. Embassy, Vientiane
56	Ms	Phoutsakhone Ounchith	IUCN
57	Ms	Somsanouk Nouansyvong	U.S. Embassy, Vientiane
58	Mr	Stew Motta	WLE Greater Mekong
59	Mr	Khonesavanh Xaymoungkhoune	AFD
60	Mr	Khatthaneth sensathith	Department of Climate Change, MoNRE, Lao PDR
61	Ms	somsanouk silibounthan	faculty of watre resources
62	Mr	Joscha Huegle	German Embassy
63	Mr	Ounheuan Saiyasith	Australian Embassy, Lao PDR
64	Mr	Dominique Vigie	Australian Embassy, Lao PDR
65	Ms	Jenni Lundmark	EU
66		Tristan Bellingham	New Zealand-Laos Renewable Energy Facility
67	Mr	Christian Olk	German Embassy
68	Ms	Tak Keoanan	Health Poverty Action
69	Ms	Daryl Fields	World Bank
70	Ms	Viengsompasong Inthavong	World Bank
71	Mr	Bunthoeun Seng	People In Need
72	Ms	Thao Chanthearyradh	Open Development Cambodia
73	Mr	Thai Bunleang	Community Peace-building Network
74	Mr.	Thoeun Sarorn	Community Peace-building Network
75	Mr	Dao Trong Tu	the Centre for Sustainable Development for Water Resources and Climate Change Adaptation (CEWAREC)
76	Ms	Elizabeth Thipphawong	Gender Development Association
77	Mr	Bertrand Meinier	GIZ
78	Mr	Vin Sokhal	Center for Policy Studies
79	Mr	Nhan Quang nguyen	Centre for Promotion of Integrated Water resources Management
80	Ms	Barbara Jaeggi Hasler	Swiss Agency for Development and Cooperation (SDC)
81	Ms	Phouthamath Sayyabounsou	Swiss Agency for Development and Cooperation (SDC)
82	Ms	Maria Koenig	GIZ
83	Ms	Erinda Pubill Panen	GIZ
84	Ms	Ana Felicio	GIZ
85	Mr	Virak Chan	World Bank

86	Ms	Anne Chaponniere	GIZ
87	Ms	Sopagna Set	GIZ
88	Mr	Knut Sierotzki	Poyry Energy Ltd.
89	Ms	Virawan Sombutsiri	Xayaburi Power Company Limited
90	Mr	Bhak Rakbamrung	CK Power Public Company Limited
91	Mr	Michael Eric Raeder	Xayaburi Power Company Limited
92	Mr	Montri Suwanmontri	NCG
93	Mr	Sengdara Kattingasack	National Consulting Group
94	Mr	Videth Visounnarath	National Consulting Group
95	Mr	Phouvong	Vientiane translation service
96	Mr	Wu Tao	Datang (Lao) Pakbeng Hydropower Co.,Ltd
97	Mr	Xie GuangLin	Datang (Lao) Pakbeng Hydropower Co.,Ltd
98	Mr	Zhang Yaobin	ZHONGNAN ENGINEERING CORPORATION LIMITED
99	Mr	Chen Gang	ZHONGNAN ENGINEERING CORPORATION LIMITED
100	Mr	Guo Yunqiang	ZHONGNAN ENGINEERING CORPORATION LIMITED
101	Ms	Preechaya Aunchai	Charoen Energy and Water Asia Co., Ltd.
102	Ms	Chitraporn Intharanok	Charoen Energy and Water Asia Co., Ltd.
103	Mr	Zhang Xianrun	POWERCHINA RESOURCES LTD
104	Mr	Xu Kun	POWERCHINA RESOURCES LTD
105	Mr	Ye Mao	POWERCHINA RESOURCES LTD
106	Mr	Huang Jing	POWERCHINA RESOURCES LTD
107	Mr	Jia Peng	POWERCHINA RESOURCES LTD
108	Mr	Zhao Fei	POWERCHINA RESOURCES LTD
109	Mr	Zhang Ling	POWERCHINA RESOURCES LTD
110	Ms	Megan Knight	Mekong River Commission Secretariat
111	Mr	Vorapote Choepaiboonvong	Nam Ngum 2 Power Company Limited
112	Mr	Daniel Malzbender	Consultant
113	Mr	Mathieu Chatenet	Entura
114	Mr	Mr. Sython Phetdaoheuang	FISHBIO
115	Mr	Sinsamout	FISHBIO
116	Mr	Bounta Nuanvixay	Earth Systems Sole Co., Ltd
117	Ms	Adina Violeta Paraschivescu	RENDCOR GmbH Austria
118	Mr	Voradeth Phonekeo	Hydropower Engineer
119	Mr	Lanekham Somsavanh	Senior Designer for ILF CONSULTING ENGINEERS-LAO
120	Mr	Saknoi Leangtongplew	Charoen Energy and Water Asia Co., Ltd.
121	Mr	Arcizet Romain	ILF Consulting Engineers
122	Mr	Alfred Klump	ILF Consulting Engineers Lao Co. Ltd.
123	Mr	Alain Pierre	Institut de Recherche pour le Développement (IRD)
124	Mr	Pham Van Tinh	Vietnam National University of Forestry, Hanoi, Vietnam
125	Mr	Saykham Sithavong	Faculty of Water Resources, National University of Laos

126	Ms	Somsanouk Silibounthan	Faculty of Water Resources, National University of Laos
127	Mr	Khamkeng Chanthavongsa	Faculty of Water Resources (FWR), NUOL
128	Mr	Thanongsith Pathoumthong	National University of Laos
129	Ms	Patchara Jaturakomol	Kasetsart University
130	Mr	Nguyen Thanh Tung	International Department, Institute of Hydropower and Renewable Energy
131	Mr	Bui Manh Tuan	Institute of South East Asia Studies - Vietnam
132	Mr	Phouthasone khouangvichit	Savannakhet University
133	Mr	Kanya Souksakoun	Australian National University
134	Ms	Ratana Pich	Kyoto University
135	Mr	Amith Phetsada	Kyoto University
136	Ms	Andrea Haefner	Laos-Australia Development Learning Facility (LADLF)
137	Mr	An Pich Hatda	MRC Secretariat
138	Mr	Naruepon Sukumasavin	MRC Secretariat
139	Mr	Truong Hong Tien	MRC Secretariat
140	Mr	Thim Ly	MRC Secretariat
141	Mr	Anoulak Kittikhoun	MRC Secretariat
142	Mr	So Nam	MRC Secretariat
143	Mr	Prayooth Yaowakhan	MRC Secretariat
144	Mr	Nguyen Dinh Cong	MRC Secretariat
145	Mr	Piriya Uraiwong	MRC Secretariat
146	Mr	Palakorn Chanbanyong	MRC Secretariat
147	Mr	Fumihiko Onodera	MRC Secretariat
148	Ms	Duong Hai Nhu	MSC Secretariat
149	Ms	Nguyen Thi Ngoc Minh	MSC Secretariat
150	Ms	Chamaporn Paiboonvorachat	MSC Secretariat
151	Ms	Dao Thi Ngoc Hoang	MSC Secretariat
152	Ms	Le Thi Huong Lien	MSC Secretariat
153	Mr	Meas Sopheak	MRC Secretariat
154	Ms	Ton Nu Thi Thanh Yen	MSC Secretariat
155	Ms	Juliet Mills	MSC Secretariat
156	Ms	Rattykone	MSC Secretariat
157	Mr	Vu Duc Tuan	MRC Secretariat
158	Ms	Janejira Chuthong	MSC Secretariat
159	Ms	Tuyen Doan	MSC Secretariat
160	Ms	Vu Thu Hong	MSC Secretariat

Annex 2: Agenda

AGENDA

The 5th MRC Regional Stakeholder Forum
20–21 September 2018 | Landmark Hotel, Vientiane, Lao PDR

DAY 1	The 1st Regional Information Sharing on Pak Lay Hydropower Project	
08.30	Registration	*All*
09.00	Welcome remarks (5')	*An Pich Hatda, Officer in Charge, MRCS*
09.05	Opening remarks (5')	*Mme Bounkham Vorachit, Vice Minister, MoNRE*
09.10	Objectives & MRC stakeholder engagement principles and mechanism (10')	*Anoulak Kittikhoun, Chief, Office of CEO, MRCS*
MRC'S PRIOR CONSULTATION PROCESS UNDER THE PNPCA AND THE 1995 MEKONG AGREEMENT		
09.20	Overview of the PNPCA under the overall MRC procedural framework and the 1995 Mekong Agreement (10') Implementation of previous Prior Consultation processes and subsequent developments including lessons learned, studies, and guidelines (10') Objectives and Roadmap for the Prior Consultation of the Pak Lay Hydropower Project (10') Q&A (15')	*An Pich Hatda, Director, and Thim Ly, Chief Basin Planner, Planning Division, MRCS*
10.05	Coffee break	

INTRODUCTION OF THE PAK LAY HYDROPOWER PROJECT		
10.30	Lao national development and poverty reduction strategy and plan, including sustainable hydropower development, and applicable national & regional policies and guidelines (15') Q&A (15')	*Chansaveng Bounyong, Director General, Energy Policy and Planning, MEM, Lao PDR*
11.00	Overview of the Pak Lay Hydropower Project (30') Q&A (30')	*Lao PDR*
12.00	Lunch	
APPROACH AND METHODOLOGY FOR THE TECHNICAL REVIEW OF THE PROPOSED PAK LAY HYDROPOWER PROJECT		
13.10	Approach and methodology for assessment of the Pak Lay Hydropower Project – overview, hydrology & sediment, environment & fisheries, navigation, dam safety and socio-economic issues (80')	*Technical Chiefs & Specialists, MRCS*
PARALLEL SESSIONS		
SESSION A – ENGINEERING		**SESSION B – ENVIRONMENT & SOCIO-ECONOMICS**
14.30	Hydrology, Hydraulics and Sediment Navigation Dam Safety *Dr. Janejira Chuthong, Dr. Nguyen Duc Tuan, Ms. Ton Nu Thi Thanh Yen, & Mr. Palakorn Chanbanyong*	Environment & Fisheries Socio-economics *Dr. So Nam & Ms. Nguyen Thi Ngoc Minh*
15.30	Coffee break	
16.00	Reporting back from parallel sessions (30')	*Rapporteurs*

16.30	Plenary discussion & next steps on engagement and communication plan within the Prior Consultation Process for the proposed Pak Lay Hydropower Project	*All*
17.00	**END OF DAY 1**	
DAY 2	**Basin planning and environmental management**	
09:00	Rationale, objectives, and agenda of Day 2 (10')	*Forum Facilitator, MRCS*
OVERALL APPROACH TO THE BASIN PLANNING AND ENVIRONMENTAL MANAGEMENT AND MONITORING		
9.10	Overall on the 2018 priorities to basin planning and development (60') - Update of the Preliminary Design Guidance (PDG) for proposed mainstream dams - Update of the Basin-wide Sustainable Hydropower Development Strategy (SHDS) - PNPCA Commentary - Review of the Xayaburi Design Changes Q&A (10')	*Planning Division, MRCS*
10.20	Coffee break	
10.50	Overall of the 2018 priorities to environmental management and monitoring (60') - Transboundary Environmental Impact Assessment (TbEIA) Guidelines - Joint Environment Monitoring (JEM) - Joint Action Plan (JAP) for the Pak Beng Hydropower Project - Mekong Adaptation Strategy and Action Plan (MASAP) Q&A (10')	*Planning Division and Environmental Management Division, MRCS*
12.00	Lunch break	
PARALLEL SESSIONS		

	SESSION A – BASIN DEVELOPMENT PLANNING	SESSION B – ENVIRONMENTAL MANAGEMENT AND MONITORING
13.00	Basin-wide Sustainable Hydropower Development Strategy (SHDS) The Mekong Climate Change Adaptation Strategy and Action Plan (MASAP) *Dr. An Pich Hatda, Dr. Nguyen Dinh Cong, Dr. Thim Ly & Mr. Palakorn Chanbanyong* Discussion (60') Key comments/recommendations (10')	TbEIA Guidelines Joint Environmental Monitoring (JEM) *Dr. Truong Hong Tien & Dr. So Nam* Discussion (60') Key comments/recommendations (10')
14.10	Preliminary Design Guidance (PDG) Xayaburi Design Changes Review *Dr. Thim Ly &Mr. Palakorn Chanbanyong* Discussion (60') Key comments/recommendations (10')	PNPCA Commentary Joint Action Plan (JAP) for Pak Beng Hydropower Project *Dr. An Pich Hatda & Dr. Piriya Uraiwong* Discussion (60') Key comments/recommendations (10')
15.20	Coffee break	
BRINGING EVERYTHING TOGETHER AND WAY FORWARD		
15.40	Reporting back from parallel sessions (40')	
16.20	Plenary feedback and next steps (30')	All
16.50	Closing remarks	*MRCS*
17.00	**END OF THE FORUM #5**	

Annex 3: Forum satisfaction survey

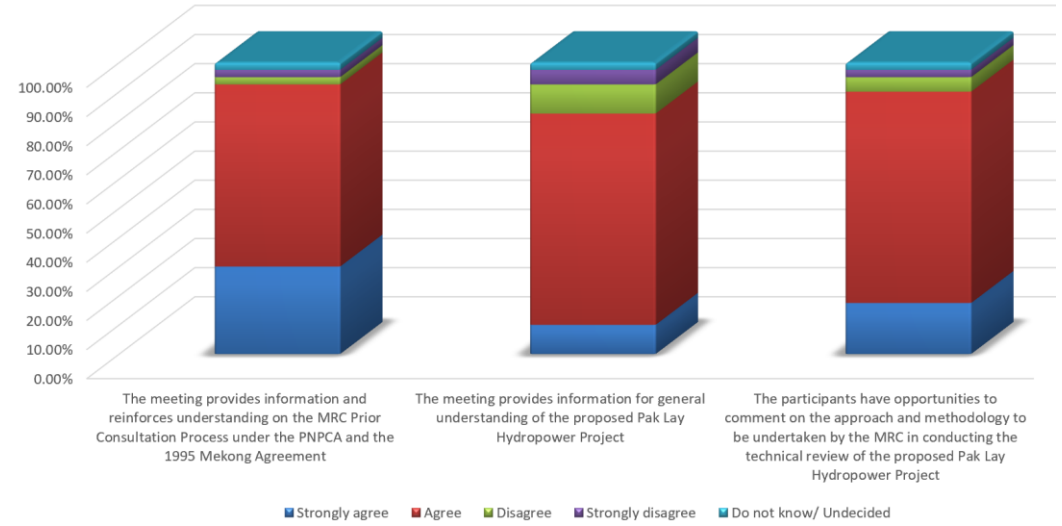

Figure 2. Overall assessment of objectives of Day 1

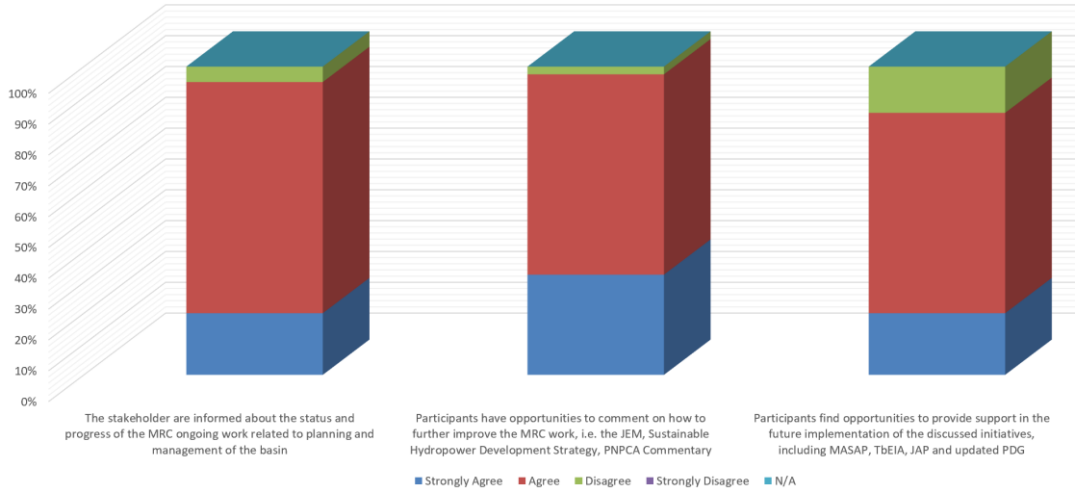

Figure 3. Overall assessment of objectives of Day 2

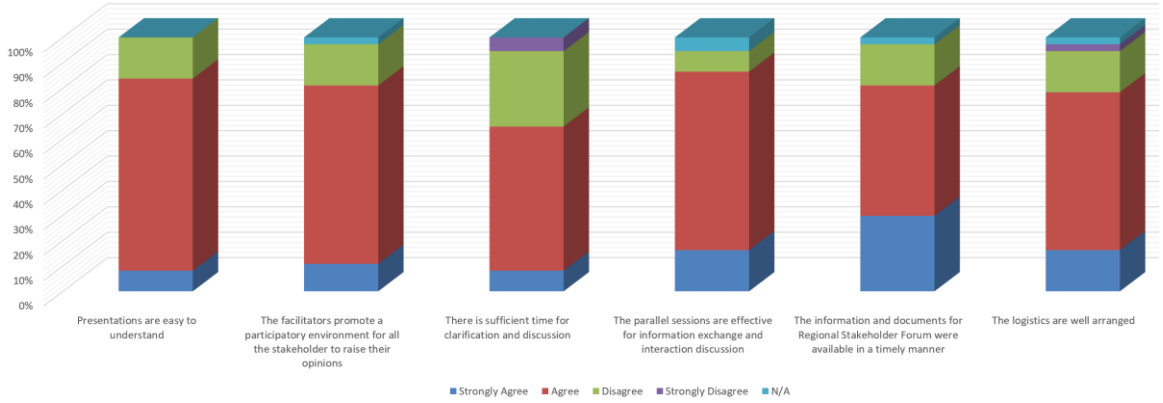

Figure 4. Overall evaluation of forum's structure and arrangement

Annex 4. Further clarification by the Government of Lao (GoL) and the Power China Resources Ltd. (PCR) as Pak Lay's developer on questions and comments made at the 1st Regional Stakeholder Information Sharing Meeting on PNPCA for Pak Lay Hydropower Project held on 20 September 2018

Comments from stakeholders as well as initial responses at the forum were documented in the forum report, page 6-12. During the technical review of the project's submitted documents, the MRCS specialists and experts will consider the suggestions and recommendation provided by the stakeholders.

On 18 November 2018, the MRCS received further written clarification from the Government of Lao and PCR on some questions and comments, as in the below table:

	Questions? **Comments/Suggestions**	**Responses and follow-ups**	**Further clarification provided by Government of Lao**
Knowledge related	The submitted documents indicate intended export to Thailand. Will EGAT agree to purchase the power?	Acknowledge the issue of the power market that Lao PDR is facing, EGAT and Lao Government are coordinating to update the power development plan, priority projects include those that serve the 9000MW MoU. This should be confirmed by MCs.	Follow up by the hydropower strategy update of the MRC. Lao Government will coordinate in updating the power development plan
Knowledge related	Request to confirm whether the FS and EIA reports are already approved by the Lao Government? In case other MCs have concerns, how to go about in case the documents are already approved?	Following internal process, Lao Government has to approve each stage of each study before submission to the MRC to undertake the technical review; however, comments from riparian countries will be taken into consideration for detailed design and may re-optimization occur. E.g. for Xayaburi a lot was changed (new spillway design-bottom outlet, improved fish-pass etc.), under such circumstance the project cost has increased, and Lao Government has	The MRC may include these concerns in their replies, Lao Government will complete the internal process

	Questions? Comments/Suggestions	Responses and follow-ups	Further clarification provided by Government of Lao
		complied as an effort toward a good and more sustainable project. The issue will be further discussed with GoL and MCs.	
Knowledge related	Study other reservoirs (infrastructure) that also impedes sediment transport, other than only dams	Council Study has addressed this issue. This issue will also be considered in the Technical Review Report (TRR) under cumulative impacts assessment for the proposed Pak Lay HPP.	The TRR includes references to large storage dams
Knowledge related	How strong of fish data survey and how long of the fish survey? What is the priority urgency to solve the problem?	Only 1 time in 4 days (dry season) and 4 days (in wet season) but can't find what year. In the downstream, it was found that the fish survey was conducted in 2011 only 1 time.	The methodology of survey has been identifying in EIA part "Existing Biotic Environment in the Project Area". The fish sampling has been conducted the same time with water quality. The sampling was representing the two seasons (wet and dry seasons). The Wet season sampling was from 13-16 Sep 2011. The dry Season Sampling was 3-6 Feb2012. The baseline from sampling will use for future planning and monitoring.
Review method related	Concerning the fish survival. How can we assure the survival rate of migrated fish to the downstream with the effective mitigation measures?	The effective reservoir management is required. The TRR already includes clear recommendations in this regard. These may be taken up in a post PC JAP. It is recommended that the PLHPP fish pass is compatible with the Xayaburi fish pass. The JEM will also assess the long-term effectiveness of fish pass designs.	It is recommended that the PLHPP fish pass is compatible with the Xayaburi fish pass. The Brazil institute IAV has given very positive comments on the fish pass design. Technically the project has designed that the fish swim through many ways such as fish passage, spill way, slow turbine (environmental friendly turbine), navigation lock. Operating water level and layout of fishway: The partition of the fishway will be of two-side vertical-slot type, arranged on the bank slope left to the powerhouse. The fishway will have a width of 6m, a water depth of 2.5m, a total length of approximately 1016.97m, and an average gradient of 2.1%. The upper end of the fishway is

	Questions? Comments/Suggestions	Responses and follow-ups	Further clarification provided by Government of Lao
			located about 100m upstream of the power station, and its lower end about 250m downstream of the tail water channel of the power station, meeting the requirements for normal operation of the fishway at the lowest downstream water level. Resting pools are arranged along the fishway at a certain spacing and at all turning points. The gradient of the bottom of the resting pools is 0. The structural mode of the fishway: The total flow of the two fishways is 3.7m3/s, and the average flow velocity in the vertical slots is 1.08m/s, complying with the migration requirements of the targeted fishes. The water replenishment system is arranged along the right side of the fishway, with a flow of about 4.7m3/s. The upstream intake of the system is adjacent to the right side of the fishway, and the water will be taken from the fishway in the reservoir. According to the overall model test of the project, the flow velocity at the water surface at the upper entrance zone of the fishway is about 0~0.5m/s. The water replenishment system and the fishway will totally take a water flow of 8.5m3/s approximately. The flow velocity at the upper entrance zone of the fishway will be significantly greater than that in the reservoir area, creating an obvious flow change. That will have good fish guiding effect and make the fishes to the downstream find the entrance of the fishway easily. The water replenishment system will be provided with two outlets on the downstream side. Outlet 1 is arranged downstream of the lower entrance of the fishway, and the water flow will fall into the

	Questions? Comments/Suggestions	Responses and follow-ups	Further clarification provided by Government of Lao
			river channel from the outlet and form an artificial waterfall. That will create fish-guiding water flow and sound at the downstream of the fishway entrance and enhance the fish-guiding effectiveness. Outlet 2 mainly aims to increase the flow in the lower section of the fishway. In practice, various fish-guiding flow patterns will be adopted based on the seasons and fish species to enhance the fish-passing effectiveness of the fishway. Additionally, the fishway is designed with a large resting pool in the middle section. Nature-imitated ecological bank slopes will be adopted for the pool. The fishes can take a rest and find food in the pool so as to have energy to complete the migration. In addition to the large resting pool, a 10m-long horizontal section will be arranged every 50m, where the average flow velocity is 0.25m/s and fishes can slow down and take a short rest. Fish passing in flood season: when the inflow exceeds 3-year flood (16700m3/s), the power station will stop power generation, all the gates for the flood-releasing structure will open, and the river channel will be recovered to the natural status. The water surface profile across the dam will be smooth and free of rolling, with an average flow velocity at the cross-section 5~6m/s. Therefore, the fishes can pass smoothly with no harm. Moreover, this duration is short normally (similar to Stage 2 of the construction period). During the construction period of the project, the left side of Stage 1 construction cofferdam will be basically in a status of natural river channel, and fish passing will not be affected. In Stage 2 of the construction period, all the water-releasing structures will be completed, with the reservoir not filled with water, so the difference between the water levels upstream and downstream of

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			the water-releasing structures will be small and will not affect the fish passing too.
Review method related	Recommendation is made to developer invest in local fish measures, e.g. in case local fish species are endangered, through aquaculture or breeding and restocking - also has socio-economic effect aside of health/nutrition benefit	We note the recommendation for consideration through the 6-month prior consultation process.	It's suggested to determine whether it's necessary to build a fish restocking station according to the fish passing status in the operation period.
Review method related	Concerned expressed on the impacts on fish resources especially on the single migration zone from the downstream. How can the perfect fish passage design can mitigate these impacts?	This issue of fish pass design would need coordination between dam operators. It will be considered for further discussion.	The fishway of Pak Lay HPP will provide fish passing conditions basically similar to the natural river course in both the construction period and the flood releasing period and allow the passing of any fish. Moreover, the fishway is designed with resting pools where the migratory fishes can take a rest.
Review method related	With regard to fish pass in the downstream, we need more details on layout of upstream migration during construction. In consideration that dimensions are much smaller then what was done for Xayaburi, then whether this dimension is adequate, especially in case fish	MRCS through the 6-month prior consultation process will further discuss this issue and refer to Xayaburi fish pass for Pak Lay's consideration.	Detailed information will be provided in the next stage.

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	biomass increases further downstream?		
Design related	Any standardized procedures among four MCs for the design / commenting on the project? Means of quality control on construction among MCs?	As part of the PNPCA, the Lao Government usually submits the projects at the Feasibility Study stage. The 1995 Mekong Agreement is basis for cooperation mechanism. In terms of quality control, it would typically be carried out by the independent panels that recommended in the TRR.	The JAP process for the PLHPP may allow ongoing engagement on the final design and construction.
Design related	The operation rules of other dams should be considered for the operation of Pak Lay.	Proposed operational rules for Pak Lay HPP was submitted. We noted the issue of cascade dam and also plan to have a recommendation in this regard. These may also be taken up in a post PC JAP.	For the dam site at Pak Lay HPP, the effect of regulation by the HPPs at the upper cascades like Xiaowan HPP and Nuozhadu HPP has been taken into consideration. Due to the lack of detailed information about the HPPs that have been already built or under construction or planning on the tributaries upstream of Pak Lay HPP on the Mekong River, we are unable to make a quantitative assessment on the impact of the operation mode of these HPPs on Pak Lay HPP. However, generally speaking, after the HPPs on the tributaries have been built, the flow at Pak Lay HPP in the rainy season will decrease and the flow in the dry season will increase, which is favorable to increase the power generation efficiency for the project. Besides, as Pak Beng HPP and Xayaburi HPP at the upstream of Pak Lay HPP are both run-of-the-river type HPPs, their operation rule has basically no impact on the reservoir inflow at Pak Lay HPP.

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Design related	What are the different between Chinese and International Standards?	For this issue, the MRC has asked for the Chinese standards to be translated in English. As responded by the Chinese developer, since the ICOLD has more flood parameters that Chinese standard, they follow the flood parameters of ICOLD. But for the calculation methodologies, using Chinese standard. It's a common concern, and the TRR has recommended that a more stringent of the standards should be used.	The developer of the Pak Lay HPP has already sent two Chinese standards with translation into English: DL5108-1999 Design Specification for Concrete Gravity Dam, and SL319-2005 Design Standard for Concrete Gravity Dams. According to 125-2003 Guidance for Dam and Flood and Cases issued by ICOLD andFlood Design issued by the French Branch of ICOLD (CFBR in Jun. 2013), structures such as concrete water retaining structures, water releasing structure, riverbed type powerhouse, upper gate head of ship lock shall have a design flood standard of 2,000-year flood (500-year flood in Chinese standard) and a check flood standard of 10,000-year flood (2,000-year flood in Chinese standard). For the energy dissipation and anti-scouring structures, their design flood standard shall be 100-year flood (50-year flood in Chinese standard). The flood standard of the downstream guide wall and retaining wall shall be in consistency with the energy dissipation and anti-scouring structures. Regarding PDG, it is suggested to use the PDG 2009 as the standard for the design of Pak Lay HPP considering that the new PDG is still in process of discussing.
Review method related	Suggestion to take real time data from Xayaburi project into consideration of Pak Lay design.	The comment is noted for further consideration.	According to the data-sharing plan, the real-time data of Xayaburi HPP will be adopted.
Review method related	Given the expressed interested in a good and sustainable project and the	Acknowledge the long process of studies and reports that started in	All the data will be checked and updated in the detailed design.

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	fact that a lot of outdated data is referenced in the project documents, please clarify whether there is any strategy or plan to update, e.g. with MRC Council study and other updated information?	2007 and the documents were submitted to MoNRE in 2016. The TRR recommends that special emphasis will be given to the use of the MRCS data, studies and tools for the Pak Lay impacts assessments.	
Review method related	Consider methodologies on hydraulic, hydrology and sediments assessments (tools, hydraulic model, flood peak).	MRCS will work closely with the international team in order to get this detailed information from the developer.	Detailed information will be provided in the next stage.
Design related	Earthquake impact is considered in the design or not?	Yes. The seismic hazard management, structure stability and flood standards are taken into consideration, but more information is need.	The basic seismic intensity at the project site was recommended to be degree VI at the initial stage. In Oct. 2015, GEOTER SAS, a French company, was entrusted by our company to carry out the seismic hazard assessment for the project site according to ICOLD Bulletin 148 (2010). In Jan. 2016, GEOTER SAS finished the assessment and submitted the Laos Pak Lay HPP Project Site Seismic Hazard Assessment Report, in which the recommended peak ground acceleration with an exceedance probability of 10% in 50 years (with a return period of 475 years) at the dam site is 0.133g, that with an exceedance probability of 4% in 100 years (with a return period of 2475 years) at the dam site is 0.290g and that with an exceedance probability of 2% in 100 years (with a return period of 5000 years) at the dam site is 0.384g. According to this report, the recommended basic seismic intensity at the dam site is degree VII.

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			In the dam design, the impact of earthquakes is considered. According to ICOLD148-2010 "Selecting seismic parameters for large dams - Guidelines", the OBE is considered as per a return period of 475 years (with an exceedance probability of 10% in 50 years); the SEE is considered as per a return period of 5,000 years (with an exceedance probability of 2% in 100 years). The impact of earthquake on the hydraulic structures for the shiplock has been considered and the basic seismic intensity at the project site is degree VI. According to DL5180Classification and Design Safety Standard of Hydropower Projects and DL5073-2000Code for Seismic Design of Hydraulic Structures of Hydropower Project, the upper head of shiplock in this project is Class I water retaining structure and its design seismic intensity is considered as degree VII. This has been calculated according to Chinese standards.
Design related	What type of the model used for the dam safety?	No information of the failure modes provided by the developer. More information is needed for further assessment. The TRR includes clear recommendations in this regard. These may be taken up in a post PC JAP.	The developer will provide a dam safety report in the detailed design procedure.
Design related	What are the impacts to the downstream in case the Pak Lay dam break? Is there any simulation?	MRCS is asking developer more information about dam break and consequence analysis.	

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Review method related	Dam safety: What are the Chinese Standards? What are key differences? What was used for other mainstream dams?	Similar objectives for both Chinese and other standards; MRC has asked for the Chinese standards to be translated to English for understanding better. In short, Flood Return Period uses ICOLD standard, because it is higher, while Calculation follows Chinese Method.	In the Chinese standard, different design criteria are adopted according to the scale of the dam and the impact of the consequence on the lower reaches. The developer of the Pak Lay HPP has already sent two Chinese standards with translation into English: DL5108-1999 Design Specification for Concrete Gravity Dam, and SL319-2005 Design Standard for Concrete Gravity Dams. Regarding PDG, it is suggested to use the PDG 2009 as the standard for the design of Pak Lay HPP considering that the new PDG is still in process of discussing.
Review method related	Concern of the impact of Pak Lay to Lao communities in the lower area → flood happened in Thailand. Sometimes there has not good coordination between the countries and the region on mainstream management → How can we fill the gap? How can we adapt the water management from upstream to downstream to mitigate negative impacts? How can we suggest prolonging the prior	This is a common concern. The TRR will include recommendations in this regard.	The project has identified the villages in the downstream area. In the future we will discuss the policy to manage, mitigate and monitor downstream villages in Lao territory. We believe that the environmental and social management committees will set out the upstream and downstream communication and provide information in term of using the modern technology to avoid potential impact.

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	consultation to address all of the issues?		
Review method related	Lao Government ppt indicates 240 masl as operating water level; what is the backwater effect under normal flow conditions?	This is a common concern that will be addressed in the TRR.	In the backwater calculation, we have calculated the schemes with floods of various frequencies and the corresponding water levels upstream of the dam. We have also calculated the scheme with a water level upstream of the dam of 240m and a reservoir inflow of 16700m3/s. The calculation process and results are presented in the feasibility study report.
Review method related	How can we carry out the Tb-social impacts and link to the technical areas?	The draft DG 2018 will be used for further reviewing and link among different sectors that might affect the livelihood of local communities. If the DG2018 has been used by the developers with the maximum mitigation measures, MRCS believes that all impacts will be reduced into the residual impacts.	In the report we have divided the study area by zoning. The information in the project area like upstream has been identified. In the future the environmental and social management committee of GoL will plan for details by using new technology.
Review method related	Will be Energy assessment done? Is that a component in the socio-economic impacts?	MRCS is undertaking a comprehensive review and update of the Basin-wide hydropower development strategy. This issue will be addressed in the strategy that planned to be completed early 2019	We will consider all of the cumulative assessments
Review method related	Who will be responsible for community resettlement and what is the strategy?	Project's Developer and GoL will take the responsibility of resettlement action plan including in the provincial, district and community levels.	The Resettlement Action Plan (RAP) has set out the preliminary livelihood restoration plan, the project will ask GOL for set up the Committees to work with the project developer and we will follow the Decree 84. Since the developer has experiences on Nam Ou 1-

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	Where are the resettled areas for this Project? How can we assure to restore the same livelihood before the commencement of the Project?	These issues have been addressed in SIA and SMMP reports. MRC will be responsible for transboundary issues. The draft TbEIA includes the responsibility and financial support for transboundary issues.	7 dams and the Nam Ngum 5 dam, we are sure that the potential impact will be mitigated. Further that the CA will require the project developer to make the livelihood better off and also the Government will be monitored the livelihood of the villagers in the resettlement sites. Meanwhile, the stakeholders should be work together when should be started to updated and implement as if project delay the developer will need to resurvey again and again.

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