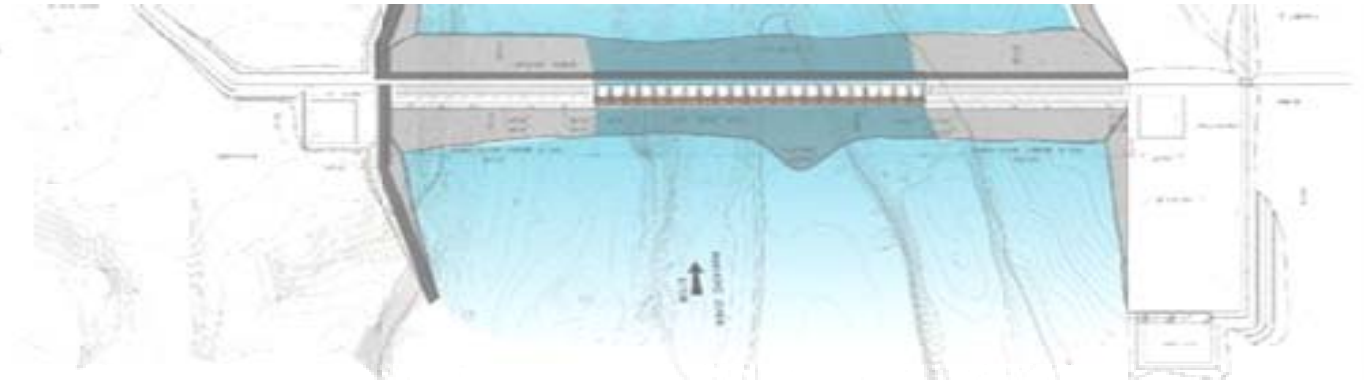




**icem**



VUSTA SEMINAR

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**ICEM – International Centre for Environmental Management**

## ***XAYABURI HPP***

***Gains and losses for the LMB***

**COMMENTS ON THE XAYABURI HPP  
COMPLIANCE REPORT: WITH A FOCUS ON  
THE MEKONG DELTA**

## Presentation overview

### *scope of this presentation*

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Does the Poyry report:

1. Address the issues raised by Vietnamese stakeholders?
2. Address the impacts predicted for the Mekong Delta by independent technical assessments?

## Presentation contents

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- Overview of the Compliance Report
- Key issues for the Mekong Delta & Vietnamese stakeholders
- Main findings
- Key conclusions

# Overview of the compliance report

## *purpose*

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Poyry Energy AG commissioned to address compliance with:

- i. **MRC guidelines:** Has the developer complied with and satisfied the MRC Design Guidelines?
- ii. **LMB concerns:** Has the Government of Lao and the developer taken into consideration the comments submitted by each of the MRC member countries?
- iii. **PNPCA process:** Has the GOL and the developer complied with and satisfied the requirements of the PNPCA?

# Overview of the compliance report *documents reviewed*

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- Developer EIA, ESIA, and Resettlement Action Plan
- MRC Preliminary Design Guidance
- MRC Prior Consultation Review Report , Including annexes on Sediment and fishery assessments
- Forms of Reply from Prior Consultation in Vietnam, Thailand and Cambodia
- MRC SEA of Mekong mainstream hydropower
- Comments from Lao PDR on the MRCS Technical Review of the Xayaburi project

# Overview of compliance report

## *key concerns of Vietnamese stakeholders*

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1. There are a too many critical gaps in information to properly quantify the magnitude and timing of impacts on the Mekong Delta, including:
  - changes in sediments and nutrients
  - associated reductions in fisheries and agricultural productivity
  - degradation of biodiversity
  - issues of saline intrusion
  - cumulative impacts of hydropower cascades and other development pressures
2. There is insufficient evidence that the mitigation measures proposed can in reality mitigate the impacts, especially in relation to fish passage and sediment flushing.
3. A decision to proceed with Xayaburi will pave the way for the other 11 LMB mainstream projects, amplifying the risks

# *Main findings*

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## Main findings

### *addressing the knowledge gap*

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1. The Poyry report does identify a number of critical limitations in Xayaburi HPP Design documentation which remain unresolved, including those with transboundary implications:

- Scope and detail of developer documents
- Baseline monitoring & system understanding
- Technical description of key project components
- Verification of effectiveness of key project components



# Main findings

## *Limitations in scope & detail of developer's documents*

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**Poyry report confirms that the developer documents do not adequately deal with a number of key issues:**

- 1. Sediment and erosion issues** and downstream impacts especially on the Delta are not considered in adequate detail (for example, relating to erosion, soil fertility, aquatic productivity, coastal fisheries and aquaculture).
2. minimal consideration of **water quality issues** arising from slower velocities and elevated water levels in the reservoir.
3. lack of **fisheries impact analysis**.
4. insufficient treatment of **dam safety and emergency management** including dam break analysis and contingency plans.
5. Incomplete description of some key project components which are critical in determining the magnitude of impacts

**All of these are central to the concerns expressed by Vietnamese stakeholders**

# Main findings

## *Limitations in baseline monitoring data & system understanding*

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- 1. *appropriateness of fish passage facilities to the Mekong region***  
*(Sections 2.2.2.1; 2.2.4.2)*
- 2. *fisheries baseline data: fish species, migration behaviour, swimming ability, biomass, economic value, habitat characterisation, spawning areas, feeding areas and larval drift***  
*(Sections 2.2.4.1; 2.2.4.3)*
- 3. *sediment baseline data: suspended load and bed load data (annual distribution and load), sieve analysis, grain size distribution, transport functions, annual sediment hydrographs***  
*(Sections 2.3.2.1; 2.3.5.1; 2.3.5.2)*
- 4. *Numerical modelling of reservoir sedimentation, including verification of effectiveness of suggested technical adaptations***  
*(Section 2.3.5.2)*
- 5. *Numerical and physical modelling of spillway flushing/routing***  
*(Section 2.3.5.2)*
- 6. *Verification of location of the active Dien Bien Phu fault line in relation to the Xayaburi HPP footprint*** *(Section 2.5.4)*
- 7. *impact of sediment flushing and routing drawdown on power production*** *(Section 2.3.4.6)*

# Main findings

*Limitations in technical description & verification of project components*

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1. *Design of the fish ladder* (Section 2.2.2.1)
2. *Design of downstream fish passage facility* (Section 2.2.2.2)
3. *venting of turbidity currents and pass-through routing*  
(Sections 2.3.2.1; 2.3.2.2; 2.3.4.3)
4. *free flow flushing* (Section 2.3.2.4; 2.3.4.4)

**All critical for the key issues affecting the Mekong Delta**

# Main findings

## *Limitations in design recommendations made by the Poyry report*

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- Poyry report does acknowledge some of the major gaps in understanding
- Major weakness of the report is how it treats these information gaps, specifically:
  - The design recommendations it builds on top of these knowledge gaps
  - The report's philosophy for decision-making, i.e. "build now, adapt later"

# Main findings

## *Limitations in design recommendations made by the Poyry report*

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- Poyry report is a review not a study
- Poyry report makes recommendations on future actions to address these concerns and gaps which are novel and unproven for the Mekong context and in some cases for hydropower projects of this type.
- Those recommendations represent a serious escalation of risk
- relies heavily on the MRC Rapid Expert group assessments for its recommended improvements to the Developer designs and consideration of compliance
  - objective of the MRC rapid sediment (SEG) and fisheries (FEG) assessments was as a “stop-gap” measure to provide a minimal level of information to inform further detailed studies for mainstream hydropower,
  - They were not intended to replace *necessary additional* technical studies and assessments - so cannot be used to demonstrate compliance for a particular HPP.

# Main findings

## *Limitations in design recommendations made by the Poyry report*

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1. Fish passage facilities
  - Poyry recommendation is an improvement on the original design by the developer
  - However, the design remains unproven for handling the diversity of Mekong species and the volume of biomass engaged in migrations.
2. Dam break analysis
  - None has been undertaken, but Poyry report recommends moving ahead with approval
  - International best-practice and experience requires that dam safety issues are fully understood prior to making a decision on a project, because of potential catastrophic downstream impacts
3. Sediment routing:
  - Poyry report acknowledges limitations of sediment flushing proposed by developers
  - Recommends sediment routing
  - there is no precedence internationally to show that sediment routing can work at the scale required by the Mekong system;
  - there is insufficient understanding of ramping and routing times, given the size of the Mekong sediment load, this is likely to require a significant proportion of the flood season.
  - the cost in terms of reductions in power production associated with routing must be factored into the economic analysis for the project
4. Fish stocking
  - Poyry report recommends re-stocking of reservoirs
  - Best available information show that reservoir fisheries are severely limited in terms of both productivity and species diversity

# Main findings

## *addressing the knowledge gap*

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**Poyry report acknowledges significant knowledge gaps but recommends a “build now, adapt later” approach.**

1. The “build now, adapt later” approach is not appropriate for hydropower development on a shared international river of global significance
2. Issues identified by the Poyry report (and those expressed by stakeholders) need to be resolved **prior** to a decision on the Xayaburi HPP because of:
  - Impacts to downstream areas
  - Potential for one project to accelerate development of the full cascade
3. Developer documentation needs to be improved, including greater design detail, assessment of effectiveness of mitigating measures and improved baseline monitoring data and analysis

# Main findings

## *inconsistencies in understanding of the Mekong system*

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- **The Poyry Report presents a number of inconsistencies regarding the understanding of the Mekong River system which can significantly influence the scale and timing of impacts:**
  - Status of the PNPCA process
  - Estimation of the Mekong sediment load and impacts of Xayaburi sediment trapping



# Main findings

## *status of the PNPCA process*

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- The Poyry Report incorrectly concludes that the PNPCA process has been completed:  
*“...in the Joint Committee meeting on 19, April 2011 it was considered that the Prior Consultation Process had been ended as no extension was agreed between the member countries and that any further topics related to the Xayaburi project would be tabled for consideration at the ministerial level.”*
- According to the MRC, the outcome of the Joint Committee meeting of April 19 was that no agreement could be reached between representatives of MRC member states and that:  
*“... a decision on the prior consultation process for the proposed Xayaburi hydropower project to be tabled for consideration at the ministerial level, as they could not come to a common conclusion on how to proceed with the project.”*
- Xayaburi will also be discussed at the December meeting of the MRC Council

# Main findings

## *estimation of Mekong sediment loads & trapping*

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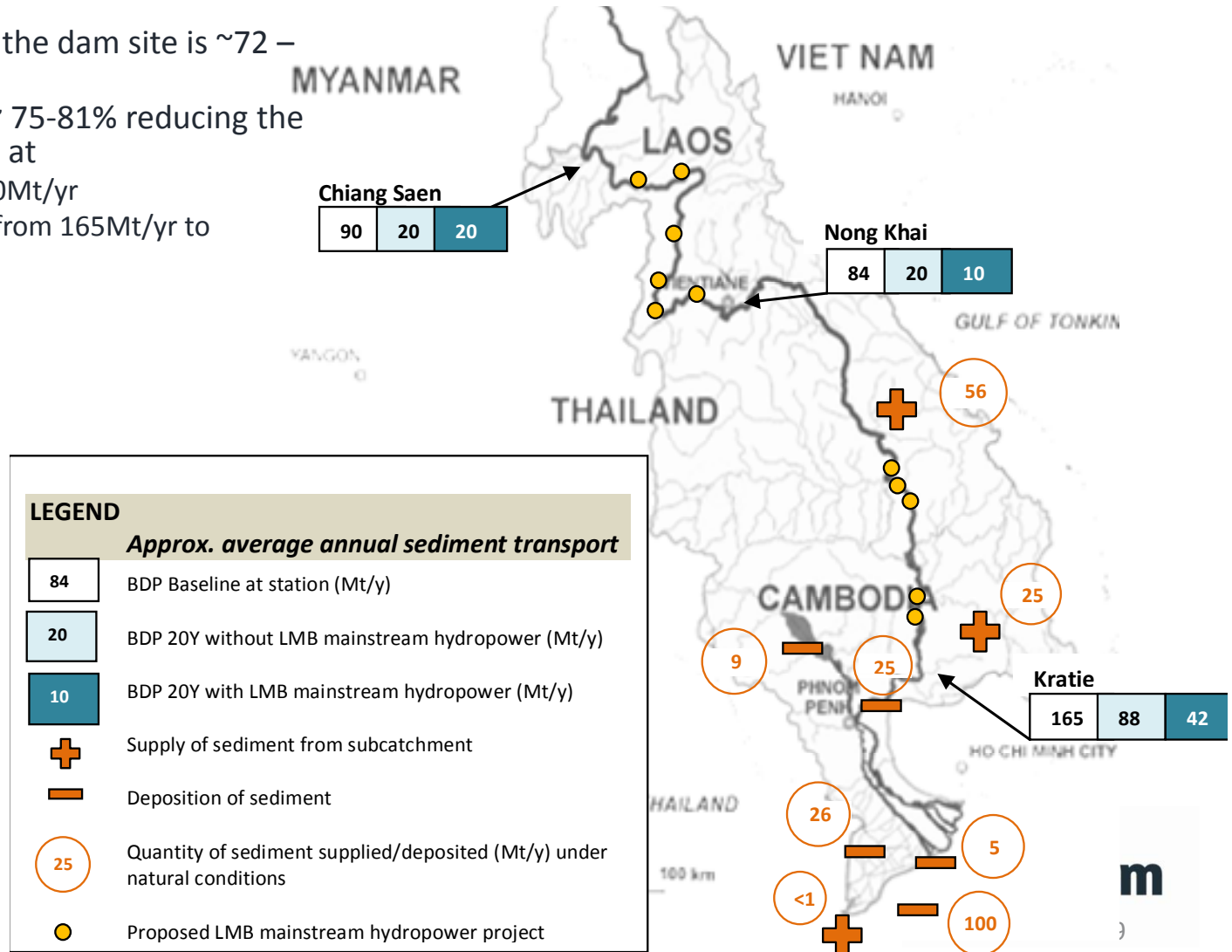
- The Poyry Report incorrectly states:  
*“The total sediment load between Manwan Dam at the Chinese Border and Pak Chom is around 5% of the total sediment load arriving at the Mekong Delta. Therefore in the theoretical case if 100% of the incoming sediments at Xayaburi are trapped, the total sediment loads at the Mekong Delta would be reduced by a maximum of 5%.”*
- The Xayaburi project would have an impact on the total sediment load arriving at the dam, not just the sediment originating downstream of the Chinese cascade.

# Overview of the compliance report

## *estimation of Mekong sediment loads & trapping*

- total sediment load at the dam site is ~72 – 90 Mt/yr.
- TE (Chinese cascade) ~ 75-81% reducing the sediment load arriving at
  - Xayaburi HPP to ~20Mt/yr
  - Mekong River load from 165Mt/yr to 88Mt/yr.

- Therefore, if the Xayaburi HPP was to block 100% of this remaining load, this would amount to a further 25-30% reduction of the remnant sediment load of the Mekong River, which is more than 5 times higher than the estimate in the Poyry report.



# *conclusions*

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# Key conclusions

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1. **The Poyry Report is not an adequate basis for drawing conclusions on the impacts of The Xayaburi project on the Mekong Delta.** It does not contribute more to understanding those impacts or to providing convincing advice on how to avoid or reduce them.
2. The **existing documentation** available from the developer, the Government of Lao PDR and the MRC rapid assessments **do not yet provide sufficient understanding of the scale and timing of impacts** from the mainstream dams on the Mekong Delta.

# Key conclusions

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3. The “build now, adapt later” approach to mainstream hydropower is not appropriate. As stated in the MRC SEA of mainstream hydropower development, the **Mekong River should not be used as a “test site” for unproven and unverified designs** in a data poor environment.
4. **Cascade effect:** A decision to proceed with one mainstream projects in an unproven and data poor environment will increase the likelihood of advancement of the other 11 projects compounding the magnitude and accelerating the timing of risk on downstream riparian communities – in particular on the Mekong Delta.

*Thank you!*

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