Strategic Environmental Assessment and Hydropower Development with a focus on the Greater Mekong Region

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Strategic Environmental Assessment (SEA) has emerged as a decision-making support tool that goes beyond the project specific environmental and social impact assessment and seeks to apply the assessment lens to programmes, policies and plans. SEA is best understood by reference to the Protocol on SEA (Protocol on SEA) of the 1991 Convention on Environmental Impact Assessment in a Transboundary Context (the Espoo Convention). Both of these international agreements were developed by the UN Economic Commission for Europe (UNECE). The Protocol on SEA is open to all member states of the UN and was negotiated under the 1991 Espoo Convention. The extensive public participation provisions also recall the provisions of the Aarhus Convention 1988.

The Convention of Environmental Impact Assessment in a Transboundary Context (Espoo Convention)

As a consequence of the adoption of EIA in most member states in Europe and the 1985 EU EIA Directive, in 1987 a Group of Experts from the UNECE elaborated on EIA in a transboundary context. The Convention was negotiated from 1988 to 1990 and the Convention was opened for ratification from 3 September 1991.[2]

It is important to note that the Espoo Convention is a process-oriented convention. Under the Espoo Convention the Parties shall take "all appropriate and effective measures to prevent, reduce and control significant adverse transboundary environmental impact from proposed activities."[3]

The obligations under the Espoo Convention extend to an obligation to require project level EIA, notify potentially affected countries, provide access to information to potentially affected parties and to allow comments and be informed on the final decision with respect to the project[4]. The Espoo Convention provides a list of activities in Appendix I that are covered by the Convention and a minimum list of information that should be included in the EIA in Appendix II. (See Annexure IV). The list of activities is all projects that are likely to have some transboundary impact and are potentially applicable in the ASEAN Context.

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[1] The views expressed in this article are the authors and do not represent any organisation. The author would also like to acknowledge the work of Dr Richard Frankel, a friend and colleague who died last November 2019. He was a passionate advocate for the Mekong River and the people and the environment of the region.

[2] The Convention entered into force on 10 September 1997. At present there are 44 parties to the Espoo Convention, including the EU, USA and the Russian Federation

[3] Espoo Convention, Article 2

[4] These are contained in Articles 3 to 6 of the Espoo Convention.

Protocol on Strategic Environmental Assessment (the Protocol on SEA).

In addition to the Convention on EIA in a Transboundary Context, the Parties negotiated the SEA Protocol. This SEA Protocol was adopted in Kyiv, Ukraine in 2003 and entered into force on 11 July 2010. The SEA covers the environmental assessment of policies or programmes by member governments which are likely to have significant environmental, including health, effects.[5]

Under the SEA Convention, Strategic Environmental Assessment is defined to mean:

> The evaluation of the likely environmental, including health, effects, which comprises the determination of the scope of an environmental report and its preparation, the carrying out of public participation and consultations, and the taking into account of the environmental report and the results of the public participation and consultations in a plan or programme.[6]

The SEA Convention requires the preparation of a SEA for plans and policies within their jurisdiction. Public participation and consultation are required by the member Parties.[7] There is also a requirement for transboundary consultation, if it is likely that the implementation of the plan or policy will have a transboundary impact.[8]

Mekong River Commission Strategic Environmental Assessment

One of the earliest Hydropower SEA for the Mekong Region was conducted by the Mekong River Commission (MRC) in 2009-2010. This Mekong River SEA was a critical appraisal of the eleven large dams planned for the Mekong River's mainstream. It was an examination of the potential threat to the ecology of the Mekong River of the mainstream dams including an analysis of the potential risk to the livelihoods and food security of millions of people who depend upon the river's resources. The main recommendation of the SEA report was that decisions on whether to proceed with the mainstream dams should be deferred for a period of ten years until further studies can be conducted to ensure that decision-makers are fully informed of the risks.[9] The SEA was conducted at the same time as the EIA for the Xayabury HPP was being reviewed and assessed by the Government of Laos PDR.

The MRC was established under the Agreement on Cooperation for the Sustainable Development of the Mekong River Basin was signed in Chiang Mai, Thailand on 5 April 1995 (The Mekong River Agreement). The MRC includes the Council, the Joint Committee and the Secretariat.[10] Since its establishment, the work of the MRC has expanded to included significant programs to assess and research on activities along the Mekong Basin. From the outset the Mekong Agreement was focussed on sustainable development, utilization, conservation and management of the Mekong Basin.[11]

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[5] Protocol on SEA, Article 4.
[6] SEA Protocol, Article 2.
[7] SEA Protocol, Article 8
[8] SEA Protocol, Article 10.
[9] https://www.internationalrivers.org/resources/foretelling-the-mekong-river-s-fate-2634
[10] Chapter IV
[11] Preamble, Mekong Agreement.

The Mekong River Agreement has the following objective:

> **Article 3. Protection of the Environment and Ecological Balance**
> To protect the environment, natural resources, aquatic life and conditions, and ecological balance of the Mekong River Basin from pollution or other harmful effects resulting from any development plans and uses of water and related resources in the Basin.

As a clear operational requirement, the MRC operates on the basis of a clear cooperative basis as mandated in Article 4:

> **Article 4. Sovereign Equality and Territorial Integrity**
> To cooperate on the basis of sovereign equality and territorial integrity in the utilization and protection of the water resources of the Mekong River Basin.

All parties must act cooperatively in matters that impinge on the right of each member state to utilize the Mekong River resources. A key feature of the Mekong Agreement from a transboundary EIA perspective is the requirement for prior consultation. Prior consultation is defined in the Mekong Agreement:

> **Prior consultation:** Timely notification plus additional data and information to the Joint Committee as provided in the Rules for Water Utilization and Inter-Basin Diversion under Article 26, that would allow the other member riparians to discuss and evaluate the impact of the Proposed use upon their uses of water and any other affects, which is the basis for arriving at an agreement. Prior consultation is neither a right to veto the use nor unilateral right to use water by any riparian without taking into account other riparians' rights. [12]

One of the key features of the Mekong Agreement, as mentioned above, is the requirement of prior consultation. This was further enhanced by the Procedures for Notification, Prior Consultation and Agreement (PNPCA) that were adopted in 2003. The PNCPA were adopted to promote better understanding and cooperation amongst the MRC member countries. The guiding principles of the PNPCA were:

- Sovereign equality and territorial integrity;
- Equitable and reasonable utilization;
- Respect for rights and legitimate interests;
- Good faith;
- Transparency.[13]

The aim of PNPCA, similar in substance to the notification requirements under the Espoo Convention, was to provide other member countries with prior notification of development that would likely have a transboundary impact. The PNPCA would also allow the impact party an opportunity to consider the information contained in the Notification and to request further information or clarification. The time for Prior Consultation was set at six

[12] The Mekong Agreement, Chapter 2
[13] PNPCA, Article 3.

months with the possibility of extension.[14] Approval was to be considered on a case-by-case basis.[15]

There was a role for both the MRC and the MRC Joint Committee to assist in the transmittal process and also to assist with the consultation process.[16] The PNPCA process made good use of the exiting institutional arrangements, including the National Mekong Committees established under the Mekong Agreement.

The value of the PNPCA process cannot be underestimated, even if it only applies for a limited range of projects and has been the subject of criticism.[17] What is clear from the PNPCA and the Mekong Agreement is that member countries have agreed to allow prior notification and prior consultation for activities and projects that may have transboundary impacts. It also recognised that a secretariat body was necessary to assist in the process of notification and consultation.

Attempts have been made by the MRC to advance the idea of a SEA framework. In 1998 the MRC agreed to formulate and adopt a system for environmental assessment, SEA, including in a transboundary context.[18] Following a report prepared by Environmental Resources Management in April 2002 guideline report was presented to the MRC.[19] The ERM Report consisted of a Background Report and a Proposed System Report (the Proposed System Report).

The Proposed System Report noted that the policy documents were "not intended to supersede or replace existing EIA requirements in each country" but were proposed as a complementary framework applicable to those projects that had the potential to cause transboundary impacts.[20]

The Proposed System Report was broken into three parts:

1. A sub-system for SEA;
2. A Policy of EIA in a Transboundary Context for the MRC;
3. A sub-system for EIA.

The Proposed System also had a number of elements:

1. Proposed Policy on EIA in a transboundary context;
2. Guidelines on SEA;
3. Guidelines on Cumulative Impact Assessment;

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[14] See PNPCA, Art 5.5
[15] PNPCA, Art 6.
[16] PNPCA, Article 5.3.3
[17] PNPCA, Article 4.
[18] P. King, Transboundary EIA and Climate Change in the Greater Mekong Subregion (GMS), presented at the Stimson Centre Conference, Finding Solution to Equitable Hydropower Development Planning in the Lower Mekong Basin, Chiang Rai, 2014
[19] Environmental Resources Management, Development of an EIA/SEA System for the Lower Mekong Basin, April 2002 (ERM Report)
[20] Environmental Resources Management, Development of an EIA/SEA System for the Lower Mekong Basin Proposed System, April 2002 (the Proposed System Report)

4. Guidelines on Public Participation in Environmental Assessment;
5. Environmental Impact Statement Review Criteria;
6. Sector Guidelines;
7. Training Program to support the implementation of the EIA/SEA System

In 2007 the Thai National Mekong Committee raised a number of concerns with the EIA framework.[21] In 2009 the Environmental Law Institute conducted a further review[22] and assessed the EIA/SEA Proposed Framework in the context of global best practice and provided a revised draft framework.[23] The MRC remained committed to the implementation of a broader EIA framework, including SEA and transboundary EIA in the 2006-2010 Strategic Plan and the 2011 – 2015 Strategic Plan.

Conclusions on SEA in the Mekong

Although the SEA conducted by the MRC was relatively comprehensive and made clear recommendations for a moratorium it ultimately failed to influence the decision by the Laos PDR government to approve the Xayaburi HPP which was the first mainstream dam on the Lower Mekong River in 2011. The SEA identified that the proposed Laos PDR cascade of six HPP from Pak Beng to Pak Chom, including the Xayaburi HPP, had not been coordinated. The original dam heights and maximum water levels for each project were set by individual project proponents with no coordination. The SEA found the designs were incompatible, where downstream projects would drown out the power houses of upstream projects.

The SEA stakeholder consultation included 17 experts and 2 field missions and met with various government agencies in a number of civil society groups in four countries. It examined nine themes across Laos PDR, Thailand, Vietnam and Cambodia: hydrology and sediment, aquatic ecosystems, terrestrial ecosystems and agriculture, economic systems, fisheries, social systems, navigation, and climate change.

All groups consulted recognised that benefits would be focused on power & economic themes while risks would focus on natural & social systems, particularly fisheries and hydrology & sediment and all groups were concerned over potential for increased poverty from mainstream development despite recognition of high returns from power sales.

The SEA examined also the strategic options of proceeding with all 12 proposed projects to a halt to all proposed mainstream HPP, with a number of alternatives within those options. The SEWA recommended the decisions on mainstream dams should be deferred for a period of ten years with reviews every three years to ensure that essential deferment-period activities are being conducted effectively. Whilst this recommendation was endorsed by Cambodia and Vietnam it was not followed.

Laos PDR approved the Xayaburi Dam which became the first mainstem HPP on the lower Mekong. This HPP was financed by Thai banks and built by Thai companies with the power

[21] King, p.2
[22] Establishing a Transboundary Environmental Impact Assessment Framework for the Mekong River Basin, an Assessment of the Draft Mekong River Commission TbEIA Framework, Environmental Law Institute, April 2009.
[23] King, p.1.

being approved under a power purchase agreement with EGAT to go to Thailand. Construction of the Xayaburi HPP is currently being finalised and already significant negative impacts are being experienced in the Tongle Sap in Cambodia and the Mekong Delta in Vietnam.

Myanmar SEA on Hydropower

A more successfully SEA in HPP can perhaps be found in Myanmar. Over the period of 2015-2018, the Ministry of Natural Resources and Environmental Conservation (MONREC)and the Ministry of Electricity and Energy (MOEE) supported by the International Financial Commission (IFC) undertook a nationwide SEA on Hydropower development. The Ministries sets a joint vision for the sector of:

> *Sustainable hydropower development based on integrated water, land and ecosystem planning, balancing a range of natural resource uses and priorities to achieve economic development, environmental sustainability and social equity*

The SEA study adopted three main planning principles

1. **Whole-of-basin planning**: focusing on system health at a hydrological scale to guide project site identification;
2. **Balanced natural resource utilization**: retaining the full functions and values of a number of intact rivers and sub-basins to offset hydropower development impacts in other rivers/sub-basins, thereby maintaining basin health; and
3. **Natural resource capacity-based development:** hydropower developed within the capacity of the natural system (or, carrying capacity) without unduly degrading natural values or creating significant impacts on the communities who use these resources.

The SEA was conducted by ICEM and the IFC based on open and broad consultation and included a number of activities:

- 55 multi-stakeholder activities
- an Advisory Group
- 6 Expert Groups
- Government technical focal points on SEA team
- River basin consultations, workshops, deep dives

The SEA included significant technical studies, including baselines assessments on - hydrology & geomorphology, aquatic ecology/fish, terrestrial ecology, social, conflict, hydropower and energy, economics. The final report[24] also included a Hydropower database, mainstem and sub-basin evaluations (including mapping) and a Business as Usual development impact (sustainability) analysis.

24 https://www.ifc.org/wps/wcm/connect/industry_ext_content/ifc_external_corporate_site/hydro+advisory/resources/sea+of+the+hydropower+sector+in+myanmar+resources+page

The recommendations of the Hydropower SEA included the adoption of eight Basin Zoning Plans, which include restrictions on the siting of Hydropower Projects (HPPs) within the Basin Zoning Plans. The purpose of the Basin Zoning Plans was to provide clear guidance at an early stage to Project Proponents on the suitability of sites for hydropower developments. The proposed Basin Zoning Plans also provided for the reservation of main stem rivers from all hydropower activities and to screen all other projects in the High zone sub-basins to determine if smaller scale and lower impact projects are suitable in the High zone. Projects sited in a Low or Medium zone sub-basin would be screened in accordance with the *EIA Procedure 2015* to determine the level of environmental assessment.

- 'High' zone
    - High conservation value
        - important contribution to basin processes (e.g. high flows, large sediment load) and/or unique natural values for at least two biophysical factors
- 'Medium' zone
    - Medium conservation value
        - no high conservation value features over a notable area for two biophysical factors, but may contain notable values for a single factor or pockets of such values
- 'Low' zone
    - Low conservation value
        - no high conservation value features over a notable area for any biophysical factor, although may contain pockets of high value

Five Mainstem Rivers were recommended for reservation in four river basins: Ayeyarwady, Chindwin, Thanlwin, Mekong and Sittaung Rivers. Some of these were subject to existing (although suspended) hydropower projects. The Basin Zoning Plans also recommended that the development of HPPs be restricted to smaller scale, low impact projects in the High Value areas. Ten High Zone sub-basins were identified in the Hydropower SEA. The Medium and Low Zone sub-basins identified were suitable for HPP development in accordance with the EIA Procedure and technical assessment.

The Basin Zoning Plans were to provide an initial planning tool for project siting, supported by the hydropower GIS database, sub-basin evaluations and a three-year framework implementation plan that included:

- Establishing of a Joint Planning Committee with the Government of Myanmar (MOEE and MONREC);
- Developing a national Sustainable Hydropower Policy
- Developing a Basin Zoning procedure
- Recommending sustainable project design criteria
- Recommending improvements to environmental and social impact assessment and management planning; and
- Collecting baseline data and conducting research

The comprehensive nature of the SEA recommendations flowed from the approach taken by the Ministries and the partner organisations. The SEA provided significant underlying information and provided substantial evidence for the recommendations. This was especially valid in the categorisation of the basin zones – high, medium and low. The overall available resource for hydropower is still estimated at 13,000 MW as against the BAU estimates of 44,000 MW. The SEA acknowledged that the BAU case would affect most major rivers, resulting in the fragmentation of mainstem rivers and major tributaries, creating substantial changes to river processes and functions, and the loss of unique environmental and social values.

The recommendations of the SEA have yet to be formally implemented into the HPP planning process. One of the limitations of the Myanmar *EIA Procedure 2015* it that there are no clear processed for implementation the recommendations of SEA. The first important next step will be the incorporation of the Basin Zoning Plans into a mandatory legal framework that will guide future developments of HP in Myanmar.

Conclusion

SEA is an important tool to provide recommendations and guidance for the hydropower sector. In the Mekong River example, the recommendations of the MRC SEA were not adopted and the approval of the Xayaburi HPP overtook the SEA. In Myanmar, the recommendations about prohibiting HPP on the mainstem of the major rivers is still possible as the existing legal projects on the Ayeyarwady and Chindwin Rivers are currently suspended and no EIAs have been approved for HPP on the Thanlwin and Sittaung Rivers.

The value of the SEA process is that the recommendations must be able to influence the planning and development process.