

Strategic Environmental Assessment of the Myanmar Hydropower Sector: Discussion Brief



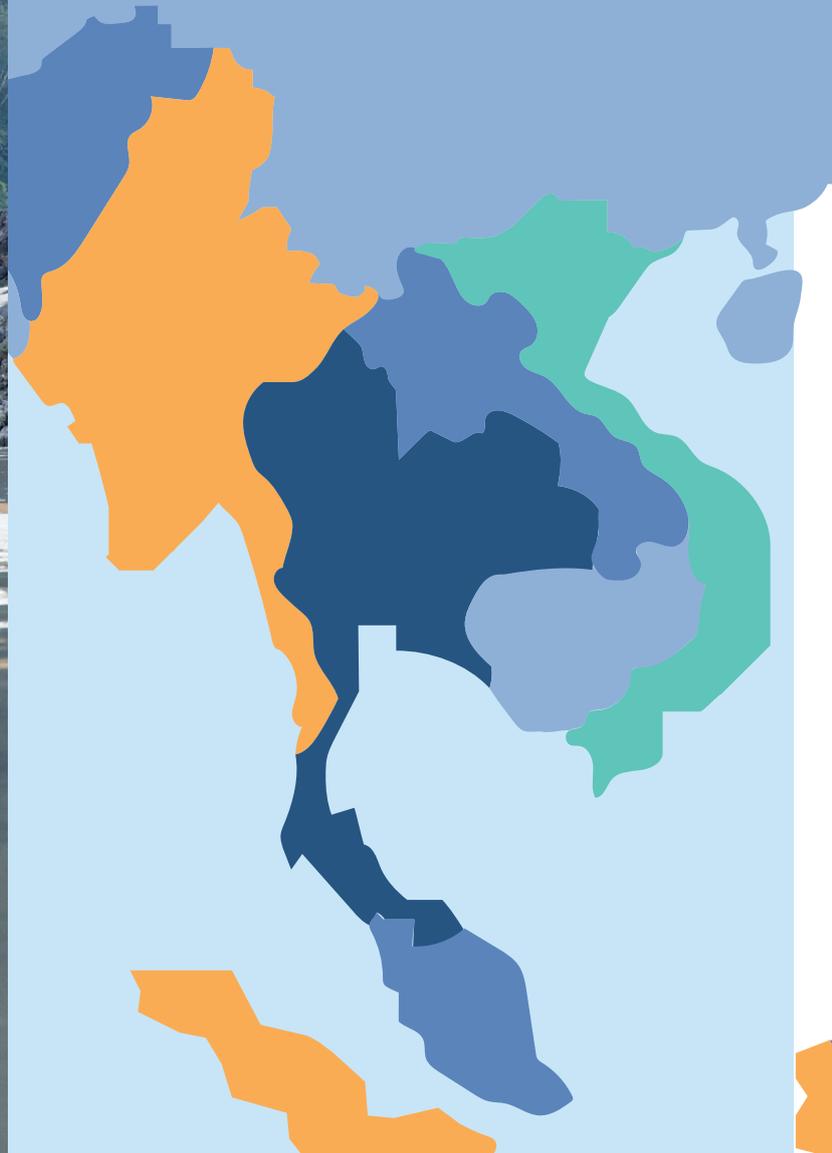
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Purpose of this Brief

This brief introduces the Strategic Environmental Assessment of the Myanmar Hydropower Sector and seeks to generate dialogue, including around the study's process, findings and recommendations.

The sections that follow offer perspectives on the assessment's outcomes—outlining the limitations of the assessment as well as ways its analysis and recommendations can be used to support a more equitable, inclusive, rights-based and environmentally sound future for Myanmar's rivers and energy systems.



The SEA: key facts

- **Recommends no hydropower dams on the mainstream of major river basins, including the Ayeyarwady, Thanlwin, Mekong, Chindwin, Sittaung. This reflects best practice in maintaining the ecosystem functions of healthy rivers.**
- **Proposes a “Sustainable Development Framework” for hydropower projects that includes a three-step approval process, and the establishment of new institutions and a policy framework for implementation.**
- **Contributes significant documentation to the knowledge base on rivers and hydropower projects in Myanmar.**

Introduction

In 2016, the International Finance Corporation (IFC)—the private-sector lending arm of the World Bank—began a Strategic Environmental Assessment (SEA or “the study”) of the Myanmar Hydropower Sector.¹ To conduct this study, it partnered with two Myanmar ministries: Electricity and Energy, and Natural Resources and Environmental Conservation.

The IFC intended to complete the study in one year but it took two, with the final report was released in December 2018. During this time, the SEA produced a large amount of documentation, including baseline reports, a database of proposed hydropower projects, analysis and recommendations on the hydropower sector, and proposals for further studies.²

The assessment process engaged national policymakers, ethnic armed organizations, development partners, private sector representatives, civil society and local communities—among others—and prompted discussions around the development of Myanmar’s energy and hydropower sectors.

Throughout the process, many people opposed the SEA. Several ethnic political groups, civil society organizations and communities—especially in ethnic areas—boycotted the study and the consultation meetings.

In November 2016, 422 organizations, representing the country’s diverse ethnic communities as well as national and international non-government organizations, issued a statement urging the government to abandon plans for coal and large hydropower projects in Myanmar.³ Civil society and community networks, such as the Burma Rivers Network, have consistently called for large hydropower development to be suspended, especially in areas suffering from past destructive projects and ongoing civil war.⁴

1 International Finance Corporation (IFC), *Strategic Environmental Assessment of the Myanmar Hydropower Sector*, (2018). <https://www.ifc.org/wps/wcm/connect/2f7c35f4-e509-48b2-9fd8-b7cbc0501171/SEA_Final_Report_English_web.pdf?MOD=AJPERES>.

2 See IFC, ‘SEA of the Hydropower Sector in Myanmar Resources Page’. <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>

3 Hannah Hindstrom, ‘Myanmar: Say ‘No’ to Coal and Big Hydropower’, EarthRights International, 22 December 2016. <<https://earthrights.org/blog/myanmar-say-no-to-coal-and-big-hydropower/>>

4 Nyein Nyein, ‘Environmental Advocates Push for More Renewable Energy in Burma’, The Irrawaddy, 14 December 2016. <www.irrawaddy.com/news/burma/environmental-advocates-push-renewable-energy-burma.html>

Some stakeholders have suggested that without progress in the peace process, it was the wrong time to conduct an assessment of medium- and large-scale hydropower in a way that meets the needs and hopes of local communities and the public. Therefore, some view the study as another step in a history of pushing forward controversial hydropower projects against the wishes and interests of local people.⁵

Stakeholders have raised concerns about the role of the IFC in leading the study. This includes the suitability of the IFC to take a lead role in the SEA when its agenda is to promote private sector investment—meaning it has potential bias towards a development model that favors investment in large-scale projects over less environmentally and socially destructive alternatives.

Part of the World Bank Group, the IFC is an international development finance institution that aims to promote private sector investment in developing countries by providing advice and services in investment, lending and asset management. The IFC's support for the SEA is connected to its broader efforts to strengthen private sector investment in the hydropower sector in Myanmar. These initiatives include promoting standards and guidelines for hydropower, providing business advisory services and supporting the hydropower industry through a hydropower developers' working group. These initiatives in Myanmar draw on the IFC's experience elsewhere within the region, particularly in Laos, where it has offered similar support to help develop the hydropower sector (see Box).⁶

The SEA of the Myanmar Hydropower Sector has contributed to deliberations in Myanmar around energy planning and generation options for the country by:

- offering an initial foundation for building understanding of the relationship between hydropower development and past and future conflict in the country;
- highlighting the importance of addressing the harmful legacy of hydropower projects in Myanmar in future planning processes;
- providing an impact assessment of planned hydropower developments in major rivers basins across the country;
- identifying steps towards developing a policy framework and further studies and assessments that are needed to make informed decisions on hydropower; and
- making important recommendations, including to reserve mainstream rivers and preserve high value sub-basins from hydropower development.

Nonetheless, some of the SEA's findings and recommendations are based on assumptions regarding Myanmar's energy needs and planning that are open to challenge and should be critically examined. The SEA study also fails to fully address several fundamental issues concerning hydropower development and its impacts relevant to the social and political context in Myanmar. The government should acknowledge and address these limitations before taking any decisions on hydropower policy.

Above all, it is critical that the SEA and its recommendations are used to uphold the rights of local people and affected communities to self-determination, participation in decision-making and the rights to use, preserve and protect their rivers, territories, food sources and livelihoods.

IFC support for the hydropower sector in Laos

In 2012, the IFC launched an Advisory Services program—Environmental and Social Standards in the Hydropower Sector in Lao PDR—to support the country in developing hydropower and to promote guidelines and standards for sustainability.⁷ The rationale is to improve environmental and social practice in the context of an influx of private investment in the sector. The rapid development and operation of projects in a weak regulatory environment poses threats to the environment and local people's livelihoods. However, the adequacy of the criteria used to define "sustainability" in the hydropower sector has been questioned,⁸ as has the capacity of the government to properly ensure compliance with improved standards. Further, improved standards for 'sustainability' do little to address major barriers to public participation and access to remedy for local communities affected by hydropower projects in Lao PDR. In the absence of accountability and oversight, a risk is that such measures can serve to obscure ongoing social and environmental harm.

5 Beth Walker, 'Myanmar's toxic legacy of large dams', The Third Pole, 14 March 2017. <www.thethirdpole.net/en/2017/03/14/myanmars-toxic-legacy-of-large-dams/>

6 International Finance Corporation, 'IFC Promotes Sustainability in Lao PDR's Hydropower Sector'. <www.ifc.org/wps/wcm/connect/c317b7804360fecfb762b7d3e9bda932/Lao+Hydropower+factsheet-Eng.pdf?MOD=AJPERES>

7 *Ibid.*

8 Carl Middleton and Mira Käkönen, "Sustainable Hydropower" Discourse in the Politics of Climate Change in Southeast Asia'. Paper Presented at the European Association for Southeast Asian Studies (EURO-SEA) conference, University of Oxford, 16-18 August, 2017. <https://static1.squarespace.com/static/575fb39762cd94c2d69dc556/t/599d3c26e45a7c3aede92b2f/1503476776705/Middleton+and+Kakonen_Conference+paper_17.8.17.pdf>

What is SEA?

Strategic Environmental Assessment (SEA) is a process to ensure that environmental and social concerns are fully addressed in a proposed policy or plan at the outset. As such, SEA should take place early and before decisions are made about whether to adopt a given policy or plan. Therefore, an SEA on hydropower policy examines socio-economic and environmental issues related to hydropower at a broad strategic level, rather than at the level of an individual hydropower project.⁹

It is important to recognize that **SEA is a process**, and not exclusively an output in the form of a final report or assessment. Conducted in the right way, SEA can promote dialogue among diverse stakeholders on the key environmental and social issues, assess overall costs and benefits and examine alternatives. This is especially important when considering the political context in Myanmar, the destructive legacy of large-scale hydropower projects and related history of conflict, displacement and human rights abuses, together with the ongoing peace process in the country and its role in addressing issues of natural resource governance and sovereignty.

Conducting a sector-wide SEA in an area such as hydropower—which carries significant social and environmental risks—is a very important aspect of policy development. In many or most cases, an SEA is not

conducted, which can mean that environmental and social concerns are not properly considered at policy level, but instead considered further down in the planning process when it is more difficult to address them.

At the same time, for an SEA to be effective, it is critical that necessary elements are in place to ensure a meaningful and inclusive process. **Best practice principles for SEA** include:

- broad consultation and participation;
- openness and transparency;
- high-quality and comprehensive information;
- a non-biased approach—designed to favor no one certain decision or outcome;
- meaningful examination of alternatives.

If an SEA is done following best practice principles, it can be:

- a tool to gather quality information and data to inform decision-making at policy level;
- a process for creating dialogue and getting input from a diverse range of stakeholders;
- a platform to develop shared understanding of environmental and social impacts and concerns.



9 For more information on Strategic Environmental Assessment, see International Rivers, 'Dam Standards: A Rights-Based Approach. A Guidebook for Civil Society.' (2014), pp. 43-45. <https://www.internationalrivers.org/sites/default/files/attached-files/intlivers_dam_standards_final.pdf>



Example from the region - SEA on Mekong Mainstream Dams

An example of an SEA on hydropower from within the region is the 'Strategic Environmental Assessment of Hydropower on the Mekong Mainstream' commissioned by the Mekong River Commission (MRC) and released in 2010.¹⁰ The study was also undertaken by the International Center for Environmental Management (ICEM), the same firm that conducted the SEA in Myanmar. The report covered a range of strategic themes and identified impacts of the proposed Mekong mainstream dams. These included: **major changes to flow regimes; destruction of fisheries; loss of sediment transport downstream; and loss of productive agricultural land.** The SEA's main recommendation was to defer decisions on Mekong mainstream dams for a period of 10 years in order to conduct further studies and build knowledge of Mekong riverine resources and dam impacts. Despite a strong study, not all of the lower Mekong governments accepted the SEA. Development of the Xayaburi dam on the Mekong mainstream in Laos commenced within months of the SEA release. Eight years later, two of 11 dams are close to completion.¹¹

10 International Center for Environmental Management (ICEM), 'Strategic Environmental Assessment of Hydropower on the Mekong Mainstream' (2010). <<http://icem.com.au/portfolio-items/strategic-environmental-assessment-of-hydropower-on-the-mekong-mainstream/>>

11 For more information on the Mekong SEA, see International Rivers, 'Foretelling the Mekong Rivers' fate: Key Findings of the MRC's Strategic Environmental Assessment on Mekong Mainstream Dams' (2011). <<https://www.internationalrivers.org/resources/foretelling-the-mekong-river-s-fate-2634>>

What is the relationship between the three types of assessment?

An Environmental Impact Assessment (EIA) studies environmental and social impacts of an individual project to inform decision-making on that project.

A Cumulative Impact Assessment (CIA) studies combined or cumulative impacts of multiple projects and how those impacts interact with each other. With respect to hydropower, this can inform decision-making at individual project level and at basin level.

A Strategic Environmental Assessment (SEA) studies environmental and social considerations in the process of developing an overall plan or policy to ensure they are fully integrated and considered before adopting the plan or policy.

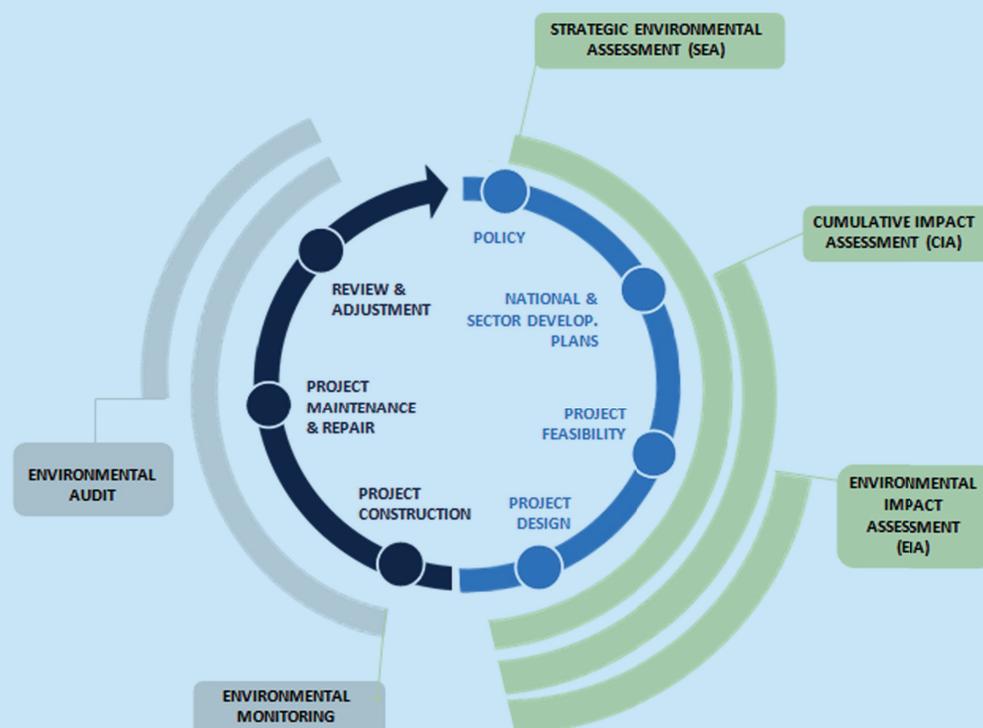


Figure 1: The relationship between strategic environmental, cumulative impact and environmental impact assessments within the policy and planning cycle.¹²

¹² International Centre for Environmental Management (ICEM), 'Strategic Environmental Assessment Process and Methods', Presentation to Strategic Environmental Assessment Workshop co-organized by USAid, Pact and the Lower Mekong Initiative, 24-27 May 2016.

The process

Who was involved?

The Strategic Environmental Assessment of the Myanmar Hydropower Sector was undertaken through a three-party agreement on hydropower advisory services between the International Finance Corporation (IFC), Myanmar's Ministry of Natural Resources and Environmental Conservation (MONREC) and Myanmar's Ministry of Electricity and Energy (MOEE). The Australian Department of Foreign Affairs and Trade (DFAT) also provided support to the SEA.

The SEA was informed by an Advisory Group, which was chaired by the IFC and consisted of 15 expert members to provide oversight and guidance on the process. Expert Groups, including representatives of government, civil society, academic institutions, the private sector and development partners, provided input on the thematic areas of the SEA.¹³

The SEA was carried out by the International Centre for Environmental Management (ICEM) as lead consultant and the Myanmar Institute for Integrated Development (MIID) to oversee the stakeholder engagement and consultation process.

What is the purpose?

The SEA's stated purpose is to **provide a Sustainable Development Framework** for hydropower in Myanmar. According to the report, this means identifying ways to balance river basin health and hydropower, ensuring "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."¹⁴

The SEA report states that it does not aim to present a plan for hydropower development, but rather, to provide **a tool to guide and inform policy and decision-making.**

The SEA report acknowledges significant limitations in the study's scope, available data and range of analysis. These include a lack of baseline data across all thematic areas; shifting national and regional energy markets, including falling costs for alternatives such as solar and wind; and complex trade-offs between social and environmental protection and hydropower construction, which need to be resolved through a political process.¹⁵

Emphasizing these limitations, the report regards itself as a "first edition" and recommends more studies and policy tools to address knowledge gaps and support informed and inclusive decision-making.¹⁶

What methodology was used?

The SEA covers all projects of 10-megawatt capacity or more in Myanmar, including existing, under construction and proposed projects.

The SEA was conducted in three main phases to include the following components:

- a **baseline assessment**—covering thematic areas of geomorphology (the study of landforms, their processes, form and sediments at the Earth's surface), aquatic ecology and fisheries, terrestrial biodiversity, social and livelihoods, and conflict;
- an **impact assessment**—based on the "business as usual" scenario;
- development of the **Sustainable Development Framework** analysis.

The SEA engaged stakeholders throughout the three phases through more than 55 consultation activities. These included regional river basin and multi-stakeholder workshops and direct consultations with local communities, political parties, ethnic armed organizations and the Myanmar Hydropower Developers' Working Group.¹⁷

The SEA developed a hydropower geographic information system database mapping all existing, under construction and proposed hydropower projects. It defined eight basins including six river basins—Ayeyarwady, Thanlwin, Mekong, Sittaung, Bago and Belin—and two coastal basins and watersheds—Tanintharyi and Rakhine. Within each basin, the study identified and analyzed two types of units with the following river-basin functions:

- **mainstem rivers**—providing basin connectivity;
- **sub-basins**—providing the primary land/water interface¹⁸

Across the eight river basins, the study defined and evaluated 58 sub-basins, covering the entire country. It evaluated each sub-basin across five themes—geomorphology; aquatic ecology; terrestrial biodiversity;

13 IFC, SEA Final Report (2018), p. x.

14 IFC, SEA Final Report (2018), p. 4.

15 IFC, SEA Final Report (2018), p. 7.

16 IFC, SEA Final Report (2018), p. x.

17 See International Finance Corporation (IFC), 'Stakeholder Engagement Plan: Strategic Environmental Assessment of the Hydropower Sector in Myanmar' (2017) <https://www.ifc.org/wps/wcm/connect/ecc527df-ec87-49e3-a131-04f41f88fa7a/SEA+Final_L+Stakeholder+Engagement+Plan+for+web.pdf?MOD=AJPERES>

18 IFC, SEA Final Report (2018), p. 49.

social and livelihoods; and conflict—to assess impacts and develop a “sustainability analysis” for each theme.

The study gave each sub-basin a **value rating** based on the three biophysical factors: geomorphology, aquatic ecology and terrestrial biodiversity. It excluded the social and livelihoods and conflict themes from the ratings. The study used the following value ratings:

- **high**—provides an important contribution to basin processes and/or has unique natural values for at least two biophysical factors;
- **medium**—no high conservation value features over a notable area for two biophysical factors (but may contain “pockets” of high value);
- **low**—no high conservation value features over notable area for any biophysical factor (but may contain “pockets” of high value)¹⁹

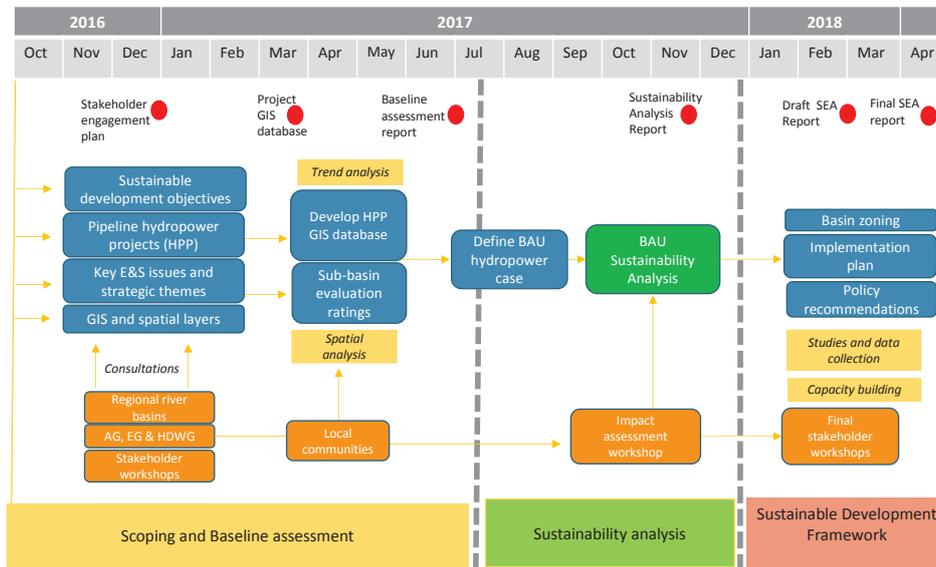


Figure 2: SEA Methodology and Outputs (this diagram is extracted from the SEA Final Report)²⁰

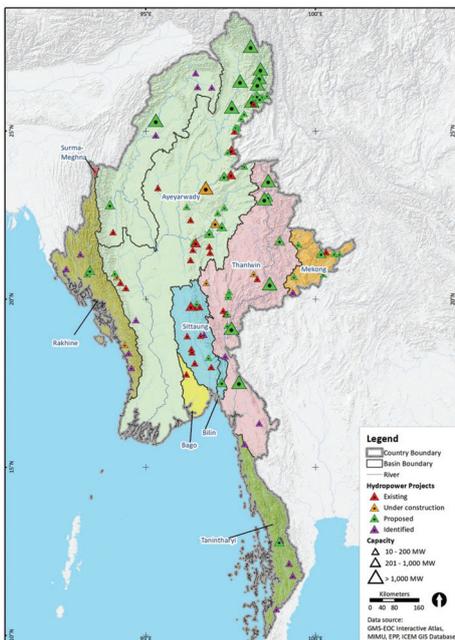


Figure 3: Business as usual scenario examines impacts of proposed hydropower projects across eight major river basins (extracted from the SEA Final Report and reproduced here as example only)²¹

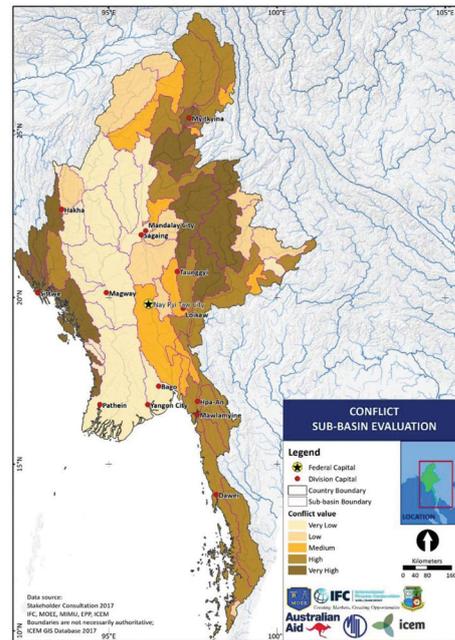


Figure 4: Example of mapping of sub-basins according to five factors—the map shows the conflict analysis (extracted from the SEA Final Report and reproduced here as example only)²²

19 IFC, SEA Final Report (2018), p. 57.

20 IFC, SEA Final Report (2018), p. 9.

21 IFC, SEA Final Report (2018) at p. 26.

22 International Finance Corporation (IFC), Sub-basin Evaluation: Strategic Environmental Assessment of the Hydropower Sector in Myanmar, (2017), p. 35. < https://www.ifc.org/wps/wcm/connect/f6aaa8d3-0954-4357-8648-bb5e5221d336/Final_Sub-basin+evaluation.14.02.18_Final+%281%29.pdf?MOD=AJPERES>

The key findings and recommendations

The SEA examined the impacts of the business as usual scenario, which includes all existing, planned and proposed dams across the country: a total of 69 planned projects (52,134 megawatts). It found that **if all these projects were to be built, it would cause major and irreversible changes to Myanmar's rivers**, including:

- altered seasonal and daily river flows
- fragmented river systems
- changes to water quality
- reduced downstream sediment load and erosion
- aquatic and terrestrial habitat fragmentation
- reduced biodiversity
- large-scale resettlement
- loss of riverine resources and livelihoods²³

Based on these findings and the severity of the predicted impacts, the SEA proposes that the business as usual scenario should be revised, and a **"Basin Zoning Plan"** used to inform future hydropower development under a **Sustainable Development Framework**.

The zoning plan includes both mainstem rivers and sub-basins. It divides these into areas for reservation that should be excluded from hydropower development and areas for *potential hydropower development*.

Mainstem reservation is recommended for five basins: Ayeyarwady, Thanlwin, Mekong, Chindwin and Sittaung.

Fifty-eight sub-basins are zoned according to high, medium and low values:

- **high:** unsuitable for hydropower except in limited circumstances with strict restrictions
- **medium:** suitable for hydropower
- **low:** suitable for hydropower

The following priority is proposed for hydropower development:

- low-zone sub-basins with existing hydropower projects
- medium-zone sub-basins with existing hydropower projects
- low-zone sub-basins without any existing hydropower projects
- medium-zone sub-basins without any existing hydropower projects

The SEA proposes a system of trading off sub-basins: prioritizing development of **hydropower cascades** in sub-basins where there are already existing projects. This means developing some areas as "workhorse" sub-basins with dam cascades while reserving others from dam development.²⁴

Based on the Basin Zoning Plan and value ratings, the SEA identifies the following **guide for the total future development of the hydropower sector**:²⁵

- **existing projects:** 3,300 megawatts
- **new hydropower generation:** 8,900 megawatts
 - under construction: 1,600 megawatts
 - potential medium- and low-zone development: 7,300 megawatts
 - lower impact hydropower projects in high-zone basins: not estimated
 - hydropower projects less than 10 megawatts: not estimated
- **total sector:** 12,200 megawatts or more

Sustainable Development Framework

In proposing a Sustainable Development Framework for hydropower, the SEA sets out the following objectives to guide the framework:

- maintain natural river-basin processes and functions;
- retain unique and important sites and values;
- avoid unacceptable impacts;
- share benefits;
- produce adequate, reliable and affordable hydropower for domestic and export;
- recognize and manage conflict risks.²⁶

The SEA recommends some key approaches to guide how the Sustainable Development Framework is implemented.

Firstly, it stresses the importance of **"whole-of-basin" rather than project-by-project planning**. This means looking at the entire river basin when planning projects and assessing impacts and trade-offs, not just at the level of an individual project. This is important as planning that takes place project-by-project tends to overlook the way

23 IFC, SEA Final Report (2018), p. 45.

24 IFC, SEA Final Report (2018), p. 64.

25 IFC, SEA Final Report (2018), p. 70.

26 IFC, SEA Final Report (2018), p. 5-6.

impacts of multiple projects interact with each other and affect the integrity of the ecosystem or place multiple pressures on local populations.

The concepts of “balanced natural resource utilization” and “capacity-based development” imply **limits on developing river basins** for hydropower. Development should be balanced with preservation and maintenance of critical ecosystem functions and should not exceed the capacity of ecosystem to maintain these functions. The approach also emphasizes the importance of retaining intact rivers and sub-basins to maintain ecosystem connectivity.²⁷

To implement the Sustainable Development Framework, the SEA recommends procedural requirements for approving hydropower projects and establishing new institutions and policy frameworks.

The **approval process** includes three steps:

- Project site screening against Basin Zoning Plan (all hydropower projects 10 megawatts or more) – “clearance” certificate needed before a memorandum of understanding (MOU) is agreed.
- A Cumulative Impact Assessment (CIA) for all sub-basins or watersheds where new or additional hydropower projects are planned as determined by the MOEE/MONREC Planning Committee.

- An Environmental Impact Assessment (EIA) or Initial Environmental Examination (IEE) for projects (EIA for hydropower projects 15 megawatts or more, or reservoir volume 20,000 Mm³ (cubic mega meters) or reservoir 400 hectares or more; IEE for hydropower projects between 1 and 15 megawatts).

To oversee implementation of the Sustainable Development Framework, the SEA proposes a Joint Planning Committee comprising representatives of the MOEE and MONREC.

The proposed policy framework will include:

- the Basin Zoning Plan
- Environmental and Social Impact Assessment (ESIA) & Cumulative Impact Assessment (CIA) procedures and standards
- a sustainable hydropower policy
- design guidance for sustainable hydropower
- conflict sensitivity analysis
- resettlement procedures
- a hydropower benefit-sharing framework
- watershed protection mechanisms
- a further policy framework for impact assessment and management
- additional data collection and research²⁸

Limitations and concerns

Stakeholder participation: informed and meaningful?

The SEA process publicized an extensive process of meetings and consultations in different parts of the country, citing a total of 55 stakeholder engagement activities. A stakeholder engagement report was published to capture the methodology and input used to inform the consultations.²⁹ The final report summarizes many of the environmental and social concerns raised by stakeholders.³⁰

Despite these efforts, there were clear limitations in the stakeholder engagement and consultation process, which meant that many stakeholders had inadequate information about the SEA or were effectively excluded from providing input.

For example, limited meetings were held with communities located outside of Myanmar, which prevented the study from meaningfully addressing issues of historic and ongoing displacement.³¹ In Thailand, thousands of displaced people from Myanmar, uprooted by the Burmese army during decades of forced relocations and conflict, remain in refugee camps and in areas along the Thai-Myanmar border. Many of these people have been unable to return due to ongoing conflict, yet their homelands are in areas targeted for hydropower development.³² While the SEA acknowledges displaced people as a potentially project-affected population, it recommends wider consultations with displaced people at individual project level (EIA) rather than at a higher, strategic level through the SEA.³³

27 IFC, SEA Final Report (2018), p. 6-7.

28 IFC, SEA Final Report (2018), p. 92-102.

29 IFC, SEA Stakeholder Engagement Plan (2017).

30 IFC, SEA Final Report (2018), p. 29-33. See also, IFC, 'Stakeholder Comments and Responses: SEA Baseline Report' (2018) <https://www.ifc.org/wps/wcm/connect/e55b6f0e-a254-4813-ac11-c9ca2bd25e75/SEA+Comment+Matrix_final.pdf?MOD=AJPERES> and IFC, 'Stakeholder Comments: SEA Final Report' (2018). <https://www.ifc.org/wps/wcm/connect/e27b2cd2-1657-46cc-a430-858f8682848c/SEA_Comments+Matrix_Responses_Final.pdf?MOD=AJPERES>

31 International Finance Corporation (IFC), SEA Baseline Assessment Report: Peace and Conflict' (2017), at p. 5. <https://www.ifc.org/wps/wcm/connect/e0d299b0-a141-44c5-84e3-7286f14bc28f/Chapter+8_SEA_Baseline+Assessment_Peace+and+Conflict+SEA+Baseline+Assessment.pdf?MOD=AJPERES>

32 *Ibid*, p. 14.

33 IFC, SEA Final Report (2018), p. 76.



Meaningful participation requires standards for information accessibility and transparency for stakeholders to understand the information that is presented and provide input, and to have this input transparently addressed in the outcomes and report. This faced challenges throughout the SEA process:³⁴

- Language was a major barrier, with a limited amount of the extensive documentation translated into local or ethnic languages.
- Documents were released with a short timeframe for input and comments. For example, just a few weeks were given to provide comments on the baseline report, which ran to some 500 pages.
- Draft reports and information on methodology shared at consultation meetings were not made available in advance to enable informed questions and comments. Presentations during meetings often featured a lot of technical information in a short timeframe, with limited opportunity for input.
- Information as to how comments and input informed the methodology and process was limited. For example, the comments matrix was finally released months after submissions were made and a number of the replies to comments included in the matrix were not reflected in the final report and recommendations.

Framing around “sustainable hydropower”

The SEA is framed around the concept of “sustainable hydropower” development, which carries with it several concerns and limitations.

Sustainable hydropower is a term that has been promoted by the hydropower industry, but there is no single definition of what it implies, and it remains **contested as a concept**. Therefore, it is problematic to frame the SEA around this concept, especially because of the lack of agreement among the stakeholders in the SEA about what the term means. The SEA report acknowledges that medium- and large-scale hydropower projects can have severe adverse impacts on both ecosystems and local populations, and that many of these impacts cannot be fully mitigated.³⁵

The Sustainable Development Framework for hydropower also **assumes a key role for large-scale hydropower development in the country**. As such, the report takes certain assumptions in the draft National Electricity Master Plan (NEMP) as a given, without a wider assessment of proposed projects in the context of Myanmar’s energy planning needs and options, including the availability of energy alternatives. For example, based on this plan, the report assumes that large-scale

³⁴ These issues were observed and documented by International Rivers and local partners.

³⁵ See IFC, SEA Final Report (2018), Section 6.

centralized energy projects, including coal, hydro, and gas, will make up an estimated 80 percent of the national energy mix by 2030 and renewables will contribute 10 percent.³⁶ These assumptions are open to challenge, as discussed below.

The Sustainable Development Framework sets out a proposed policy framework to govern hydropower decision-making, planning and development. While the framework represents a significant improvement on existing laws and policies, there are real concerns that relevant **government agencies lack the capacity and resources to review, monitor, implement, and enforce environmental and social procedures**, presenting a significant risk to the effectiveness of the proposed framework. In addition, the policy framework does not go far enough in acknowledging **significant gaps and inadequacies in related laws and policies**, for example, the national policy and legal framework governing land rights and tenure. If these gaps are not addressed, it will not be possible to properly implement aspects of the Sustainable Development Framework, such as the resettlement policy.

Limitations of the Basin Zoning Plan

The sub-basin values identified in the Basin Zoning Plan carry several major limitations.

The values are based only on assessment of the biophysical themes addressed in the report: hydrology and geomorphology, aquatic ecology, and terrestrial ecology. **Social and livelihoods and conflict issues are excluded from basin zoning assessments.**

The SEA report explains this as follows:

“Socio-economic conditions were also evaluated but not applied to determine sub-basin zoning as the level of detail obtainable on relevant features was considered inadequate and a poor indicator of the values impacted by hydropower. Unlike geomorphology and aquatic ecology whose intrinsic values are a function of cumulative river and stream attributes across the sub-basin, socio-economic features affected by hydropower development are highly site dependent. Therefore, a value for the entire sub-basin is a poor indicator of the specific features likely to be adversely affected.”³⁷

“Similarly, the status of armed conflict was also evaluated but not applied to determine sub-basin zoning as conflict is a dynamic situation subject to rapid change, and, in some instances, may be resolved and managed over time.”³⁸

This explanation contrasts with information produced in the baseline report’s chapter on conflict and other sections of the SEA report, which describe the entrenched and decades-long nature of internal conflict in Myanmar.³⁹ While the nature and level of data and information available for the social and livelihoods and conflict themes differs to that used for the biophysical themes, the findings for these themes could nonetheless be assessed separately and then integrated with the biophysical ratings to ensure their inclusion in the Basin Zoning Plan.

Exclusion of social and livelihoods and conflict themes from the Basin Zoning Plan leads to concerning results in the SEA findings and recommendations. For example, the Nam Teng and Nam Pawn sub-basins within the Thanlwin basin are both considered conflict-prone and score highly in terms of social and livelihoods vulnerability.⁴⁰ Nonetheless, both sub-basins are identified as “prime” or potential candidates for further hydropower development,⁴¹ while noting that additional conflict sensitivity assessments would be required before moving forward.

Therefore, **the SEA implies that social and livelihoods and conflict vulnerability factors can be effectively addressed at a site-specific or project level** through a combination of cumulative impact assessments, conflict sensitivity assessments and benefit-sharing mechanisms, rather than addressing these issues at the strategic level of hydropower planning. This raises significant questions as to how priority will be given in future hydropower planning to social and livelihoods vulnerability and conflict threats, including whether these criteria will be used to exclude projects from consideration.

The **Basin Zoning Plan lacks a clear distinction between the treatment of “low” and “medium” value sub-basins in the sub-basin zoning.** This means that sub-basins that score at the high end of “medium” in the zoning rating and high in both conflict and social and livelihoods factors may nonetheless be prioritized for hydropower development, particularly where they already have existing hydropower projects—despite the legacy issues of these projects.

A further concern is that the Sustainable Development Framework allows for “lower impact HPPs [hydropower projects] in high zone sub-basins”. While the report recommends that high value sub-basins are generally reserved from hydropower, it leaves open the possibility of development of smaller, low-impact projects with strict conditions, noting that these projects have potential to play an important role in supplying reliable and affordable off-grid and grid-connected energy to local communities.⁴² While the report recommends specific criteria and limitations for developing high value sub-basins, there is nonetheless a risk that this exception could be treated as

36 IFC, SEA Final Report (2018), p. 24.

37 IFC, SEA Final Report (2018), p. 56-57.

38 IFC, SEA Final Report (2018), p. 57.

39 See IFC, SEA Final Report (2018), p. 73-74; IFC, ‘SEA Baseline Assessment Report: Peace and Conflict’ (2017).

40 IFC, SEA Sub-basin Evaluation (2017), p. 36.

41 IFC, SEA Final Report (2018), p. 66-67.

42 IFC, SEA Final Report (2018), p. 62.

Run-of-river projects

The Sustainable Development Framework includes among its criteria “a preference for run-of-river over storage projects”.⁴³ While run-of-river hydropower projects may avoid some of the impacts of large storage dams, such as massive reservoirs, the term is sometimes used to imply that impacts will be comparatively limited, which can be misleading. There is no agreed definition for the term run-of-river, which means it is often applied to projects that in fact have large reservoirs or retain water for long periods. So-called run-of-river projects can also have serious impacts, especially where they disrupt seasonal flooding patterns or are operated for peaking power. Run-of-river projects are often built in cascades and have cumulative impacts on fish migrations and sediment trapping.

For more information read our *Run-of-River Hydro Factsheet*,⁴⁴ available at www.internationalrivers.org/resources/swindling-the-mekong-run-of-river-hydro-16836.

a “loophole” for the development of sub-basins with important ecological and social functions, without clear requirements limiting the types or combination of projects that could be developed.

The Sustainable Development Framework is based on an approach of “trading off” sub-basins. This means that some sub-basins with high ecological values that are undeveloped would be reserved from development in exchange for lower value sub-basins with existing hydropower potential to be further developed as “workhorse” sub-basins “in order to meet power-generation targets” for hydropower.⁴⁵ While providing relative benefits from a conservation perspective, this approach raises questions as to the process that will be used to select sub-basins that are prioritized for further development and the ability of affected communities in these sub-basins to have a say in decision-making. The exclusion of social and livelihoods and conflict ratings from the sub-basin zoning raises particular concern.

Conflict, legacy issues and human rights

Several important issues surrounding hydropower development in Myanmar, including the legacy issues of past projects, historic and ongoing conflict, and protection and human rights, are discussed in the baseline assessment and report. However, they are not sufficiently addressed in the report’s overall analysis and recommendations.

The legacy of hydropower development in Myanmar includes a history of human rights and environmental abuses and mass displacement. The ongoing impacts of these projects continue to be felt by communities within and outside of Myanmar. Although the importance of considering legacy issues is raised in the report, the SEA and Sustainable Development Framework do little to

explain how past and ongoing abuses, and the potential of hydropower to contribute to and even exacerbate conflict, should be addressed.

The Sustainable Development Framework’s focus on these issues is at project or sub-basin level, through proposed tools and mechanisms that include conflict sensitivity assessments and benefit-sharing arrangements. While these tools and mechanisms are important, **more is needed to ensure that conflict, human rights and legacy issues are effectively integrated in planning processes from the outset**, including at strategic policy level.

Doing so also requires that planning of large infrastructure such as hydropower is linked to the ongoing peace process and to questions of natural resource sovereignty and governance arrangements. For example, a much greater role for decentralized electrification than assumed in the SEA may be more suitable in the context of a federalist political system, as well as being favored by many ethnic communities and civil society organizations and better able to support democratic and equitable energy systems.

Hydropower in Myanmar’s energy mix

The SEA report suggests a “target” for estimated large-scale hydropower capacity that may be developed within the parameters of the Sustainable Development Framework.⁴⁶ This figure references the estimates used by the Japan International Cooperation Agency (JICA) in the revised National Electricity Master Plan.⁴⁷ The SEA report recommends that about 12,200 megawatts of medium- to large-scale hydropower would be permitted under the Sustainable Development Framework. It also notes an “impossible to estimate” amount of hydropower projects less than 10 megawatts and “lower impact” hydropower projects in high value sub-basins.⁴⁸

43 IFC, SEA Final Report (2018), p. 63.

44 International Rivers, ‘Swindling the Mekong: Run-of-River Hydro’ (2018).

45 IFC, SEA Final Report (2018), p. 64.

46 IFC, SEA Final Report (2018), p. 20.

47 According to the SEA report, the mix of generation capacity planned for 2030 in the National Electricity Master Plan includes 13,194 megawatts of hydropower, representing 53 percent of total capacity. IFC, SEA Final Report (2018), p. 24.

48 IFC, SEA Final Report (2018), p. 70.



Karen ethnic internally displaced person in their temporary shelter along the Salween River

The energy estimates in the revised National Electricity Master Plan have not been developed transparently, and they prioritize large-scale centralized power projects to meet the country's energy needs over other options, including de-centralized and off-grid alternatives. While the SEA has stressed having an extensive and participatory stakeholder engagement process, the **recommended projections for hydropower in the SEA are linked to a broader energy planning process** in the draft National Electricity Master Plan that has not been transparent, consultative or participatory.

The SEA report includes a brief section addressing hydropower within broader energy planning.⁴⁹ While referring to different energy options, the report overall **understates the potential role of energy alternatives** to large-scale centralized projects connected to the national grid. These alternatives include renewable energy, such as solar and wind, and distribution options such as off-grid and distributed sources. The SEA report also **understates the potential role of energy efficiency and demand-side management energy planning.**⁵⁰ While noting the potential for retrofitting existing irrigation dams with hydropower capability to generate electricity, further analysis is needed. There are hundreds of irrigation dams across the country, and compared to building new dams, retrofitting existing irrigation dams has much lower impacts.

The SEA also assumes that a key objective for hydropower in Myanmar is to **generate electricity for export.**⁵¹ This assumption needs further scrutiny. Further assessment should be undertaken to weigh up the costs, benefits and alternatives to developing large hydropower for export. Experience from other countries in the region shows that hydropower export projects appear to be economically worthwhile for the importing countries and foreign firms involved but are more questionable when assessing whether relatively small benefits to local people are worth the impacts and irreversible ecological damage.⁵²

Several uncertainties and risks related to the viability of medium- to large-scale hydropower projects are alluded to but not addressed in any detail in the SEA or its recommendations. These include **economic risks**, including the risk of stranded assets—of energy produced by large hydropower projects being priced out of the market in the future with a continuing trend of falling market prices of alternatives such as wind and solar power. There are also risks for medium and large hydropower projects related to changing weather and hydrological patterns due to **climate change.**⁵³ Each of these risks needs to be studied further and considered before decisions are taken.

49 IFC, SEA Final Report (2018), p. 22-24.

50 The Asian Development Bank's 2015 study *National Energy Efficiency & Conservation Policy, Strategy and Roadmap for Myanmar* has identified a total average electricity savings potential at 8,253 GWh—a significant amount. Asian Development Bank (ADB), TA 8356-MYA, *Final Report: National Energy Efficiency and Conservation Policy, Strategy and Roadmap for Myanmar*, December 2015, <<https://www.adb.org/projects/documents/mya-46389-001-tacr>>

51 IFC, SEA Final Report (2018), p. 5.

52 See, for example, Apisom Intralawan, David Wood and Richard Frankel, *Economic Evaluation of Hydropower Projects in the Lower Mekong Basin*, Mae Fah Luang University, Thailand, March 2017. <<https://www.mrcmekong.org/assets/Uploads/Final-report-Mekong-Study-March-2017-8.pdf>>

53 IFC, SEA Final Report (2018), p. 21.

Looking forward

Despite significant limitations, the SEA contributes some valuable knowledge and recommendations to the dialogue around hydropower development in the country.

Firstly, because the study is proposed only as an initial step in the policy planning process, it could be useful in generating wider discussion on important issues related to hydropower. For example, while inadequately addressed in the final report, the SEA's baseline chapter on conflict has established a foundation for understanding the relationship between hydropower, legacy issues and conflict in the policy process. This can be used to support further dialogue, and even to counter contested development models that understate conflict risks, such as a "business for peace" model.

Secondly, in creating a platform for knowledge production, the SEA can help promote additional studies and strengthened policy frameworks for decision-making. This includes a broader analysis of the role of hydropower in Myanmar's energy mix, alongside other energy options and alternative pathways, considering different stakeholder priorities and values with respect to energy planning. This analysis should be linked to issues of governance and decision-making over natural resources in the context of the ongoing peace process, including the potential for a greater role for decentralized electrification within a federal system.

Finally, the recommendation for reservation of mainstem rivers and sub-basins high in biodiversity values provides an important foundation for maintaining Myanmar's riverine ecosystems and the rights of local communities dependent on them.

Further efforts are needed to secure this recommendation for the longer term. This presents an opportunity to connect advocacy within Myanmar to a growing global movement for securing permanent protections for rivers and the rights of communities who depend on them.⁵⁴

54 Efforts to build a movement in Myanmar to secure permanent protection of its rivers could draw on models advanced in other countries in various forms, for example, treaties, local and national legislative frameworks, judicial decisions and securing community resource and tenure rights. For more information, see International Rivers, 'The Global River Protection Movement'. <<https://www.internationalrivers.org/campaigns/the-global-river-protection-movement>>