

## EXECUTIVE SUMMARY

Hydropower is expected to remain a dominant worldwide player in the energy sector, given the rapidly growing energy demand of low- and middle-income countries (LMCs). The need for a transition towards climate neutral energy production, and the necessity for pumped storage and grid stability when highly fluctuating wind and solar power generation become prominent, further influence the choice for hydropower.

Negative impacts of individual hydropower projects can (partly) be avoided, mitigated and compensated, and positive impacts can be enhanced, by applying ESIA. However, most impacts are the result of the location of a hydropower project, for example tributaries located in a national park are more sensitive to the effects of a hydropower project than tributaries outside such a park. In addition, the cumulative impacts of a number of these projects in a river basin can be considerable. Cumulative and negative impacts can (partly) be avoided or mitigated by applying SEA to support strategic planning of hydropower projects.

Strategic Environmental Assessment (SEA) is a decision support tool aiming to integrate environmental and social considerations into government policies, plans and programmes. Since 2019, SEA has been legally adopted in 106 countries and this number is expected to grow.

Since 1995, globally, 37 SEAs have been conducted to support strategic planning and decision-making in the hydropower sector, mainly in LMCs and predominantly in Asia.

Theoretically, SEA may save time and money, create broader public acceptance of decisions, avoid costly mistakes, can address dilemmas and conflicts in a neutral manner, create transparency on trade-offs between conservation and development, is able to address risks associated to climate change, put plans in the wider perspective of the sustainable development goals, create transparency in negotiations between states in transboundary river basins, etc.

This report is a first attempt to determine whether SEA lives up to its promises with respect to hydropower development. It aims to answer two main questions:

- How many SEAs have been conducted to support the development of the hydropower sector?
- What lessons can be learnt from a selection of five influential SEAs?

### Inventory of cases

A global inventory of SEA studies supporting hydropower-related development of policies, plans and programmes resulted in a list of 37 SEAs that have been implemented. These SEAs are mainly applied for the following sectors:

- Energy sector, including hydropower (N = 16)
- Multi-sector (N = 5)
- Hydropower sector (N = 16)

Information regarding the influence of these 37 cases has been gathered through desk review and by approaching members of the International Association for Impact Assessment (IAIA) who were involved in many of these SEAs. This resulted in a list of 15 SEAs of moderate to high influence. Out of this list, five cases in Pakistan, India, Myanmar, Viet Nam and Rwanda, have been selected and further elaborated.

### Influence of SEAs evaluated

The evaluation showed that the five SEA cases have proven to be influential in the following areas:

- The SEAs contributed to more awareness of the environmental and social impacts of hydropower plans for all stakeholders: the general public as well as investors and planners of hydropower projects.
- The SEAs contributed to cooperation and exchange between different ministries, in particular those concerned with environment and energy.
- The SEAs provided clarity to project developers concerning go and no-go areas and the environmental and social issues associated with certain sites.

- The SEAs influenced decision-making profoundly and also had other important spin-off impacts such as new legislation or easing of social tensions. A few examples are the exclusion of sensitive areas from hydropower development and avoidance of investments in hydropower projects at sites of high social and environmental risk.

In conclusion, SEA is an effective and efficient tool to support more sustainable development of hydropower.

### **Lessons for future SEAs supporting hydropower development**

The following lessons have been learnt and can be applied in future SEAs supporting sustainable development of especially, the hydropower sector.

#### Lesson 1 - Regulatory framework

SEA can be applied in regulated and unregulated situations; sufficient international guidance and expertise is available.

#### Lesson 2 - Plan or SEA in the lead

SEA is in general applied to support formal decision-making as part of a predefined policy, plan or programme, but can also be used to inform governments of potential development pathways in situations where no government policy, plan or programme is in place.

#### Lesson 3 – Alternatives

Developing and comparing alternatives is best practice in SEA but the kind of alternatives to examine cannot be prescribed; they are case and context specific.

#### Lesson 4 - Stakeholder involvement

Stakeholder involvement is essential in SEA and application is highly case and context specific. Scope and geographic range of the plan, issues at stake and legacy of earlier experiences determine the way stakeholders are involved.

#### Lesson 5 – Limited availability of data is no bottleneck

Limited availability of data does not seem to be a bottleneck for strategic assessments. Methodologies

can be adapted to available data, stakeholders can assist in filling gaps, access to former planning and assessment studies greatly facilitates new studies. Of course, it remains important to be transparent on gaps in information in the assessment.

#### Lesson 6 – Government commitment and funding required.

Government commitment is a condition for influential SEA. In low-income countries external / international budget is required to implement good practice SEA.

#### Lesson 7 – More evaluation of hydropower planning

An overall observation is that it takes many years to be able to see the actual impacts of planning, assessment and decision-making processes. In this respect it is a pity that so little ex-post evaluative studies are being carried out for the hydropower sector. There is little information on the effectiveness of SEAs, CIAs and ESIA's to address sustainability of the sector.

### **Agenda for the future**

#### All actors:

- develop guidelines for strategic planning of the hydropower sector, including SEA. To secure application, these guidelines should be adopted by platform organisations such as IHA, ICOLD, IAIA and governments.

#### Government authorities:

- provide river basin authorities with the necessary knowledge to use SEA jointly with IWRM to support balancing of different interests in a river basin plan;
- collect and share examples of how SEA can lead to economically efficient outcomes, and reductions in environmental and social risks;
- emphasise the importance of SEA to stakeholders as an effective tool for conflict resolution;
- spend more time on the evaluation of earlier planning, assessment and decision-making as well as whether this has resulted in the expected impacts.

#### Dam owners and investors in hydropower projects:

- require adhering to an SEA and/or request an SEA or CIA to be conducted.

- refer to SEAs where available, when the need for ESIA project is determined during the screening phase.
- request government to do SEA for its energy policy to define the optimal energy mix.
- request government to do SEA for its river basin management planning to provide clarity on water allocation and cumulative social and environmental issues.

Multilateral Development Banks:

- ask governments for SEAs on energy policy, hydropower plans, river basin plans and programmes for cascades of projects in a sub-catchment of a river basin;
- avoid confusion between application of SEA and CIA, and apply CIA to assess the cumulative impacts of one or more projects in a sub-catchment;
- should study cumulative impacts needs, to be studied as part of ESIA's;
- provide means for additional studies if required and support governments in developing SEA capacity.

SEA practitioners and scientists:

- present the outcomes of an SEA in an (visually) attractive summary. Decision-makers do not always need to read long SEA documents to be able to make informed decisions.
- evaluate methodologies and the incorporation of tools such as Hydropower by Design, Rapid Basin-wide Assessment tool, and the Cumulative Impact Assessment and Management Good Practice Handbook to improve effectiveness and efficiency of SEA.

**From the publication:**

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**Contact:**

Arend Kolhoff, PhD  
[akolhoff@eia.nl](mailto:akolhoff@eia.nl)  
[www.eia.nl](http://www.eia.nl)



Netherlands Commission for  
Environmental Assessment



Village meeting on the Vishnuprayag hydropower project India