



Netherlands Commission for Environmental Assessment

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# Towards a more sustainable hydropower development

## EIA, SEA and the role of the Netherlands Commission for Environmental Assessment

### Purpose and target groups

The purpose of this case is to provide information about

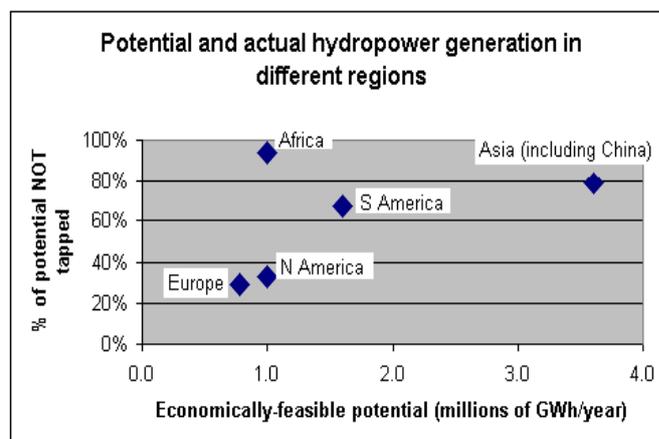
- the added value of EIA and SEA in supporting sustainable hydropower development at (inter)national and local levels; and
- the role and experience of the Netherlands Commission for Environmental Assessment (NCEA) to support the quality and credibility of the governmental decision-making process.

Target groups of this key sheet are: government authorities responsible for energy and hydropower development (and other large infrastructure) environmental protection or social justice, civil society organisations representing stakeholders affected by hydropower development, international finance institutes (IFIs) and bilateral donors supporting hydropower development.

### Importance of hydropower

Hydropower is the most widely used form of renewable

energy, accounting for 16% of global electricity generation and is expected to increase by approximately 3% each year for the next 25 years. Over the last two decades the global hydropower generation has increased by 50%. This includes all types and sizes of hydropower, micro-hydro as well as large dams.



Source: WB-Hydropower and growth -ASD

## Growth potential

Globally, around 20% of the technically exploitable hydropower potential has been developed. Although climate change may affect water resources and may lead to significant variations of the potential for hydropower at country level, these variations are expected to level out on the global scale, leaving the overall potential virtually unaffected. However, how much of this untapped technical potential is economically, environmentally and socially feasible is subject to time-dependent economic conditions. Actual development will also be impacted by sustainability concerns and related policies.

## Projects; public acceptance & safeguards

Over the last two decades, decisions on many hydropower projects have been affected by controversies around environmental and social effects. For instance, World Bank (WB) lending for hydropower bottomed out in 1999 due to growing opposition from non-governmental organisations (NGOs) and donor responses to inadequate dealing with social and environmental risks. In response to controversies the following mechanisms have been adopted by international finance institutions (IFIs), the private sector and countries in order to avoid, mitigate and compensate those effects:

- Environmental (and Social) Impact Assessment (EIA or ESIA, including social aspects) is conditional for environmental permitting of hydropower projects in nearly all countries.
- SEA is adopted by a growing number of countries to support more sustainable planning, including hydropower planning;
- International safeguards such as EIA are conditional for funding by international finance institutes. SEA is increasingly adopted by those institutes such as the World Bank, Asian Development Bank and Inter-American Development Bank;
- Equator Principles, comparable to the IFI requirements, including EIA, are applied voluntarily by commercial banks who are signatory to these principles;
- The International Hydropower Association, a private sector branch organisation, has developed a protocol that aims to measure and improve performance in the hydropower sector;
- To increase the environmental and social acceptability of hydropower projects, the payment for ecosystem services (PES) mechanisms and complex

communication moods are increasingly adopted by countries and recommended by IFIs.

- Social development, resettlement and environmental offsets are increasingly pivotal pillars in hydropower development.

## Safeguards in practice

Application of safeguard mechanisms has resulted in better handling of environmental and social effects in a growing number of hydropower projects. Currently, affected people and (inter)national NGOs hold the investors, IFIs, donors and the government accountable for the impacts of hydropower projects. An evaluation of the application of the safeguard policies of the World Bank group by the Independent Evaluation Group (2010) concluded that in practice the safeguard mechanisms are not always fully applied due to the following interlinked main factors:

- Within the World Bank group there is no full support application of the safeguards as they are perceived as costly and time consuming.
- The rule of law is weak due to governance that is characterised by corruption, lack of transparency and accountability.
- At project level the opportunity to study alternative sites and capacities are limited because often the site and capacity of the hydropower project have been decided before the safeguard policies are applied. A fundamental problem remains that the capacity to conduct sound EIA and SEA is low.

### A new approach

In the last 10 to 15 years a new approach has gradually evolved by IFIs and the private hydropower sector, supported by NGOs and some countries. This approach aims to develop and implement hydropower in a country on an environmentally sound, socially acceptable and economically viable way. However, this approach is not yet widely adopted and applied in low and middle income countries. This approach, consisting of three steps, is characterised by a hierarchy of subsequent decision-making processes, resulting in the following plans and projects. Application of SEA and EIA can secure the quality and credibility of those plans and projects.

#### Step 1: National energy plan, supported by SEA

In a national energy plan the energy demand and supply of a country is respectively estimated and decided upon for the long term. This plan nearly always has an international component as most countries import and/or export energy. This plan will provide information on the possible combination of energy resources, including the estimated contribution of hydropower, based for example on a general assessment of the technical hydropower potential.

#### Step 2: (Inter)national hydropower plan, supported by SEA

A hydropower plan can be developed on a (i) national scale for all the river basin(s) that are located within the jurisdiction of one country or on an (ii) international scale (transboundary) for those countries that share a river basin. In a(n) (inter)national hydropower plan, decisions are made on the basis of potential for hydropower development for the short, medium and long term.

In general, this plan will be revised every 5 to 10 years. In this (inter)national plan all values of the basin(s) are taken into consideration and based upon technical exploitable potential. Potential sites and capacities are selected and compared in a participative process with all relevant stakeholders. Ideally, the hydropower potential for each basin is developed as part of a basin plan. Depending on the existing planning framework in a country, a basin plan can be developed as part of an integrated water resources management (IWRM) plan or as part of a land use plan.

For a growing number of transboundary river basins, river basin authorities have been established representing the

national authorities. They often have a mandate to advise or decide on the allocation and use of water. In addition, they ideally have a key role in decision-making with regard to hydropower development. It is also their responsibility to take stakeholder needs seriously.

An SEA can support the development of national as well as international hydropower plans (see box 1 for examples). If an SEA process is executed in a participatory and transparent way, the tendency of the involved and affected stakeholder groups to accept the decisions taken will increase significantly. The tendency can be strengthened even more by the involvement of an independent advisory panel such as the NCEA.

#### BOX 1

Main decisions	Main issues
<b>National energy plan</b> <ul style="list-style-type: none"> <li>• Energy demand and supply</li> <li>• Composition of the combination of energy resources</li> <li>• Import and export of energy resources</li> <li>• Social cost benefit analysis (CBA)</li> <li>• Priority setting of investments</li> </ul>	<b>SEA</b> <ul style="list-style-type: none"> <li>• Scenarios</li> <li>• Alternatives for composition of the combination</li> <li>• Alternatives for import and export</li> <li>• Social cost benefit analysis of alternatives</li> </ul>
<b>National hydropower plan</b> <ul style="list-style-type: none"> <li>• Capacity to be developed for each river basin</li> <li>• Composition of the capacity divided in micro, small, meso and macro HPP.</li> <li>• Preliminary selection of sites for hydropower development</li> </ul>	<b>SEA</b> <ul style="list-style-type: none"> <li>• Alternatives for capacity (macro to micro) location, size and type for each river basin</li> <li>• Comparison of the selected main alternatives between the river basins</li> <li>• Social cost benefit analysis for the main alternatives</li> </ul>
<b>Hydropower project</b> <ul style="list-style-type: none"> <li>• Capacity, location, type</li> <li>• Environmental and social impacts</li> <li>• Social CBA</li> </ul>	<b>EIA</b> <ul style="list-style-type: none"> <li>• Alternatives</li> <li>• Mitigation and compensation measures</li> </ul>

### Step 3: (Inter)national hydropower projects, supported by EIA

At project level, EIA during the decision-making process and EMP during implementation, can be used to ensure application of international best practice standards e.g.:

- compensation of affected persons and communities for example through payment for ecosystem services lost, establishing management by affected people and tenure;
- compensation of biodiversity loss, for example through strengthening or extension of the existing protected areas and enhancing conservation offset measures;
- enhancement of environmental stability through soil and slope conservation measures.

To improve the credibility, acceptability and representativeness of stakeholders affected, an independent panel of experts can be established to advise on the quality of the process and project documents.

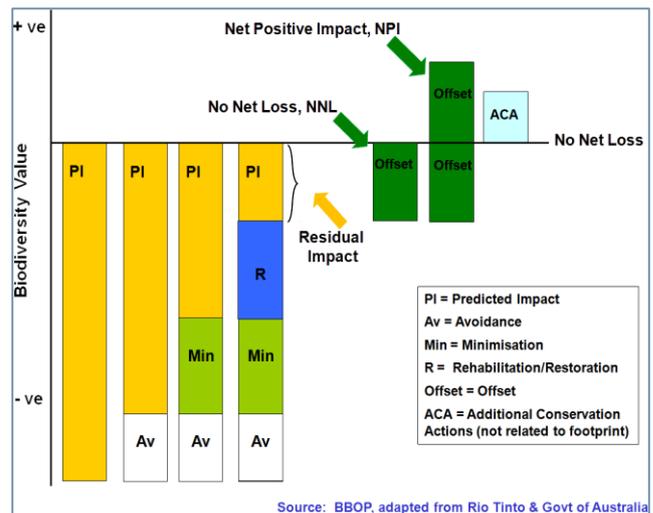
#### Compensation of impacts

Not all adverse environmental and social impacts can always be avoided nor mitigated and therefore it has become good practice to compensate for those impacts. In a growing number of countries policies are adopted giving rights to stakeholders who need to be compensated and rules that need to be followed, including a compliance mechanism. International best practice is to compensate households and communities.

For the loss of biodiversity, the 'no net loss principle' has been adopted as best practice. In case this loss is affecting protected areas the adoption of additional conservation actions resulting in a net positive impact has become best practice. Compensation for biodiversity loss is illustrated by the following figure.

The latest development related to compensation is the use of the Payment for Ecosystem Services mechanism, known as PES. Through this mechanism, sustainable management of natural resources in the basin is for example secured by paying the people who are responsible for this management. As a result the lifespan of the reservoir will be extended.

The owner of the hydropower plant contributes towards a fund that is often managed by a local institution in charge



the payments. This is considered a win-win mechanism to a more sustainable hydropower development, currently tested in many countries.

#### Independent expert panel

In response to weak governance, independent expert panels have been established to advise the government, IFIs or donors about the quality of EIAs or SEAs and other safeguards, such as (i) independent assessors that apply the sustainable hydropower protocol at the request of the investor or (ii) the WB Inspection Panel or the IFC ombudsman that responds to complaints of people affected by projects funded by the WB group.

Essential for the credibility of those panels is that civil society perceives those panels as absolutely independent. This implies that a panel has no interest in the project, is not funded by the project initiator and works in a transparent and accountable way. The sustainable hydropower protocol for instance is – at the request of the investor – applied by independent certified assessors. They are however not perceived as independent by the NGOs as they are paid by the proponent. Independent institutions are rare and should not have any payment or other conflict of interest with the proponent who takes the lead in the project development.

## Experiences with SEA and EIA 2000 – 2014

### International hydropower plans – SEA

- SEA Hydropower plan, Mekong River
- SEA Sino–Russian hydropower development in the Amur basin
- SEA Nile Basin Initiative, SESA of power development options in The Nile Equatorial Lakes Region
- SESA for Eastern Nile joint multipurpose programme
- *(SEA Omo–Gibe, Ethiopia – Kenya) NOT YET*

### International hydropower projects – EIA

- *EIA Choru–Chorokhi, Turkey – Georgia*
- *EIA transboundary multi–purpose dam, Benin – Togo*

### National plans hydropower plans – SEA

- *SEA National hydropower plan, Vietnam*
- SEA Quang Nam province hydropower plan, Vietnam
- SEA Uttarakhand basin plan, India
- SEA National hydropower plan, Lao PDR
- *SEA Rio Madera, Bolivia*
- SEA N.W. province hydropower plan, Pakistan
- SEA National hydropower plan, Georgia

### National hydropower projects – EIA

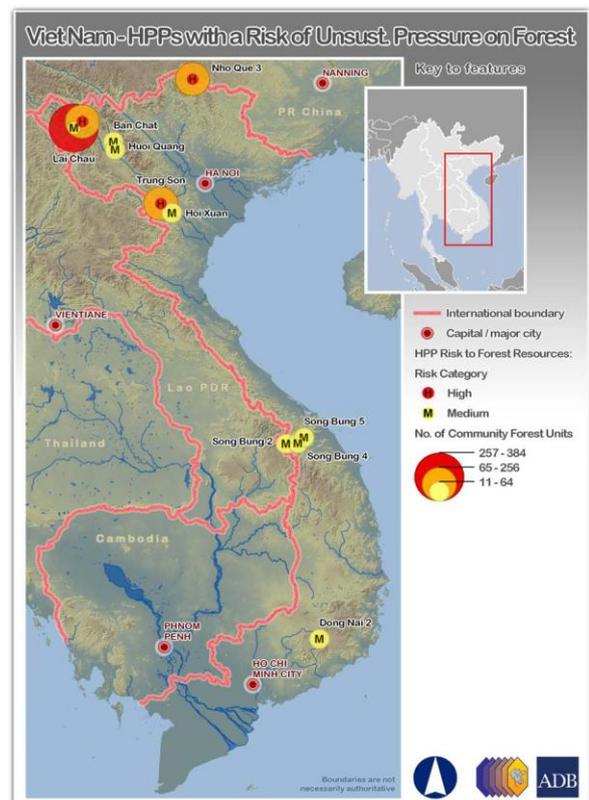
- *EIA Nam Theun II, Lao PDR*
- *EIA Bujagali, Uganda*
- *EIA Mem'vele, Cameroun*
- *EIA Khudoni, Georgia*
- *EIA Inga III, Democratic Republic of Congo*

In *italics* the SEAs and EIAs in which the NCEA was involved.

- SEA: Better insight in the trade–offs between environmental, economic and social issues, enhancing the chance of finding win–win options;
- SEA: Easier assessment of EIAs for hydropower projects because strategic discussions, for instance about locations, have already been decided upon;
- SEA & EIA: More efficient assessments due to better alignment of decisions and specific information required;
- SEA & EIA: Enhanced credibility of the decisions in the eyes of affected stakeholders, leading to swifter implementation;
- SEA & EIA: Easier access by the government to IFI funding as they require SEA/EIA.

## Example – National hydropower and SEA in Vietnam

This map, taken from the SEA, presents the risk of unsustainable pressure on the forest due to hydropower development.



## Advantages of this new approach

Advantages of this new approach are applicable for the proposed SEAs as well as for best practice EIA:

- SEA: Better understanding of the cumulative impact of a series of individual hydropower projects, and preventing costly and unnecessary mistakes;

## Hydropower development in Georgia

In the first half of 2013, the NCEA was asked by the Georgian Minister of Environment, to review the quality of the EIA report for the 700 MW Khudoni hydropower project located in the Enguri Basin, bordering Abchazia in Western Georgia. The NCEA's advisory report was publicly discussed and has impacted decision making of the Khudoni project. The project still causes a lot of discussion, especially in the area where people are planned to be resettled. In its advisory report the NCEA recommends to develop a national hydropower plan to start a more strategic discussion with all stakeholders about hydropower development at national instead of local level. In the second half of 2013, the Ministries of Energy and Environment jointly started the development of such a plan supported by an SEA and funded by the World Bank.

- NGOs can be instrumental in asking for the NCEAs involvement and establish first contacts.
- A working group consists preferably of a mixture of international and local experts, a chair and a technical secretary.
- In principle, the working group visits the country requesting the advice and meets with relevant (representatives of) stakeholders who have an interest in the project and those that might be affected by the project. These people provide important project and site-specific information.
- In general, the NCEA takes technical, environmental, social and health issues into consideration in its advisory reports. At the request of an authority, the NCEA will consider economic issues as well.
- The content of NCEA advisory reports is non-negotiable and will be published on the NCEA's website.
- Funding of the NCEA is secured by the Dutch government. A selection of low and middle income countries are entitled to make use of this free service. All other countries have to pay.

## The NCEA: An independent advisory body

The NCEA is an independent advisory body, established in the Netherlands in 1987. It has a regulatory role in the Dutch environmental assessment system. The international department of the NCEA was founded in 1993. Since then, it has issued around 115 independent advisory reports, including 10 about hydropower development. Evaluation shows that these reports are highly valued and influential. The NCEA employs 40 permanent members of staff, including support staff, of which 12 work internationally.

## Our approach

Our approach is based on lessons learned from a variety of projects and plans in different countries. The most important characteristics of this approach are:

- The NCEA only advises on complex, political sensitive hydropower projects and plans.
- At the request of a government authority the NCEA can provide three types of advisory services:
  - Terms of Reference for EIA or SEA;
  - Review of the quality of the EIA or SEA report;
  - Review of the monitoring plan during implementation of the project.

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