Netherlands Commission for
Environmental Assessment
Dutch Sustainability Unit

Advice on the Potential for Sustainable Development of the Sounda Gorge Hydropower Project

REPUBLIC OF CONGO

19 February 2015

Netherlands Commission for Environmental Assessment
Dutch Sustainability Unit

Advisory Report by the Dutch Sustainability Unit

Subject: Advice on the Potential for Sustainable Development of the Sounda Gorge Hydropower Project in the Republic of Congo

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To: Mr Frank van der Vleuten
Ministry of Foreign Affairs –
Netherlands Enterprise Agency (RVO.nl)
Department for International Development, Global Public Goods Team

From: The Netherlands Commission for Environmental Assessment, the Dutch Sustainability Unit

Technical Secretary: Mr Reinoud Post
Quality Control: Mr Rob Verheem, Mr Sibout Nooteboom

Expert (s) consulted: n.a.

Reference: SU15-64

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ADVICE ON THE POTENTIAL FOR SUSTAINABLE DEVELOPMENT OF THE SOUNDA GORGE HYDROPOWER PROJECT IN THE REPUBLIC OF CONGO

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1. Introduction

1.1 The project development proposal

The idea to realize the Sounda Gorge hydro-electric power project on the Koulikou river in the republic of Congo dates back from colonial times. In 1962 Electricity de France has done a feasibility study and construction work had started in that same year but stopped due to political turmoil. Since then, at regular intervals, presidents have tried to revive the project.
The objective of this proposal is to secure funding for the development, on a greenfield PPP / IPP basis, of the Sounda Gorge hydroelectric power project (with an installed capacity of between 100 mW and 1000 mW). For World Bank Group purposes, the Project is classified both as an FCS (Fragile and Conflict Situation) and as an IDA (International Development Association) project.
IFC signed a binding Project Services Agreement for the development of the Project at the Annual Meetings in Washington DC in October 2014. Work on development of the project is expected to start in the first quarter of 2015.
The Government of the Republic of Congo is keen to proceed with the Project and has agreed to cover the initial exploratory phase of the Project itself, to enable IFC to commence work promptly. Both the government of Congo and IFC hope that this demonstration of commitment will attract an anchor donor to commit to support the Project at the outset and that this will in turn encourage other donors to participate on a 'syndicate' basis (recognising that the anticipated budget to take the Project to financial close, at around $8.8 million, is likely to be too much for any one donor). This project development proposal serves as an invitation to the Netherlands to be the anchor donor to a transformational project in a significant underserved region of the world.

1.2 The request

The Directorate for International Cooperation of the Netherlands Ministry of Foreign Affairs has asked the Netherlands Sustainability Unit (DSU) to provide an answer to the question to what extent and under which conditions the proposed project can contribute to sustainable development in Congo Brazzaville, indicating herewith the most relevant factors determining this sustainability.
In addition, in view of its intention to contribute to the 'greening' of the IFC portfolio on energy, the DGIS asked the DSU to express itself on the possible replicability of the approach to assess the potential sustainability of the project.

1.3 The approach

In a first step, the DSU has collected information available on the Sounda Gorge Hydropower project (history, technical information, location and surroundings).
Subsequently the DSU has made a shortlist of factors determining sustainability of hydropower projects and requested IFC to provide more information on the proposed project alternatives. This shortlist is based on internationally accepted factors determining sustainability of hydro-electric dams, primarily the International Commission on Dams, IFC itself. However, there is no international agreement about threshold levels of these factors. An alternative approach would be to use benchmarks: comparing with other dams, or with other energy sources. Even then, any threshold is subjective.

Some risk factors depend on location, other risk factors depend on management. Also, to be able to score the Sounda gorge hydro-electric project on the shortlisted sustainability criteria, the DSU has asked the DGIS to request IFC to provide additional information on the project to which IFC refers in the proposal.

1.3.1 Information requested

The information the DSU has asked the IFC to provide are (see appendix 1):

1. the feasibility study that Electricité the France has prepared in the sixties of the last century;
2. a description of the 7 alternatives mentioned in the proposal and the information on the basis of which the IFC has judged the potential sustainability of these alternatives (the information underlying IFC's desktop analysis that the proposal refers to).

1.3.2 Information received

In its message of 5 February (see appendix 2) the IFC has answered the request for information. The answer did not include the information asked for.

2. Answers to the questions

2.1 Factors determining sustainability of the Sounda Hydropower project

Based on the information contained in the project development proposal, on information collected from the internet and assessments of the sustainability of hydropower projects done in the past[1], the DSU considers the following factors potentially relevant for the assessment of the sustainability of each of the seven alternatives that the project development proposal suggests for the Sounda Hydropower project:

Environmental sustainability factors

1. Number of hectares of flooded area per megawatt installed capacity.
   In its alternative that generates the most power (1000-1200 mW), the reservoir probably has the size of 180 hectares per megawatt installed, comparable to the Aswan dam in Egypt and the Cahora Bassa dam in Mozambique. For Inga III BC this figure is 0,7 hectares. (The value of submerged area is treated in other factors below).

2. Number of persons to be relocated and reinstalled per megawatt installed capacity.
   The factor is relevant for judgement of any hydro-power project. The information available to the DSU is insufficient to judge the importance of this factor, which will differ for the various alternatives.

[1] Ao. 'Good Dams, bad dams'

3. Greenhouse Gaz emission balance.

   Kiloton emission of greenhouse gases prevented by using hydropower instead of fossil fuels minus kT emission caused by decomposition of organic matter over the lifetime of the project). This factor is probably relevant because the alternatives create a reservoir in the Mayombe forest which might contain substantial quantities of organic matter. Decaying organic matter will not only increase greenhouse gas emissions but will also deteriorate water quality. In relation to this aspect, the retention time of the water in the reservoir (which will probably be different for each of alternatives) is another indicator for sustainability.

4. Loss or gain of natural habitat.

   This factor is probably relevant and will differ for the various alternatives:

   - *as some of the alternatives that create a reservoir might do that close to, or even within the borders of, the Réserve de Biosphere de Dimonica, a Gorilla Sanctuary;*
   - *as the dam might block migration of aquatic species that, as a consequence, loose the Koulikou as habitat;*
   - *floating aquatic vegetation may be given a chance to proliferate, potentially causing health problems and problems with the electro-mechanical equipment.*

5. Loss of cultural property.

   This factor is might be relevant and might differ for the various alternatives. The information available to the DSU is insufficient to judge the relevance.

6. Sedimentation of the reservoir and interruption of sediment transport impacting on marine life.

   The information available to the DSU is insufficient to judge the level of relevance and importance of this factor.

7. Change in downstream river hydrology with effects on fishery, ecosystems, flooding, etc.

   This factor is relevant and will differ for the various alternatives. The information available to the DSU is insufficient to judge the importance of this factor for the various alternatives.

Social sustainability factors

8. The credibility of the mechanisms and guarantees to be put in place to secure that the population will, indeed, reap the benefits of the project.

   As the proposal states that the population will benefit from the project, this factor is relevant. Sounda Gorge Hydropower Project development has not reached the stage in which this factor can be judged.

9. The quality of the public participation process: the extent to which interested and affected parties are informed and can express their opinions in the project preparation and decision making stages.

   The factor is relevant in any major investment project. The information available to the DSU is insufficient to judge the actual state of affairs of this factor.

10. The risk of induced impacts: Hydro-electric projects can set in motion the development of many other activities and the linked influx of people causing environmental and social impact.

    In this aspect Sounda Gorge Hydropower Project development will probably not differ from other Hydro-electric project. This factor is thus probably relevant and must be addressed in the Environmental Impact Assessment.

11. The quality of mitigation, compensation, relocation and reinstallation programmes

    This factor is most probably relevant. The Sounda Gorge Hydropower Project development has not reached the stage in which this factor can be judged.

Economic sustainability factors

12. Price of the environmentally and socially sustainably produced KWh produced by the Sounda Gorge Hydro-electric project as compared to the kWh prices of available equally sustainably produced alternative kWh that can be made locally available in a reasonable time-frame in equal quantities (opportunity costs of sustainably produced power).

    Sounda Gorge Hydropower Project development has not reached the stage in which this factor can be judged. Inga lll BC project in DRC is now under development and might become a very relevant competitor.

13. the balance of overall societal costs and benefits. A societal cos-benefit analysis of the alternatives (which takes into account all coast and benefits, including social and environmental costs and benefits) will rank them and make them mutually comparable and comparable to other energy options for which a societal cost-benefit analysis has been done).

    The factor is relevant. The analysis must be done in the stage of the development of the project.

Institutional sustainability factor

14. The capacity of the government to regulate the Sounda Gorge Hydro-electric project in its construction and operational stages and to effectively enforce the regulations imposed.

    This factor is relevant for any Hydro-electric project. Sounda Gorge Hydropower Project development has not reached the stage in which this factor can be judged. The EIA for the project should bring more clarity on this aspect.

2.2 Replicability of the assessment

The proposed approach for assessment of the sustainability of Hydropower developments is fully replicable. The approach covers all major aspects of the sustainability of hydropower development. It depends however, on available information. If the approach were to be repeated for several possible dam locations, it may be worthwhile to determine benchmark threshold levels for indicators - a political choice.

3. Discussion

3.1 DSU position

The IFC has read the request for information that the DSU addressed to the DGIS and that the DGIS has forwarded to the IFC, as a message that the DSU is worried about the environmental and social impacts of the Sounda Gorge Hydropower project and that, without DSU support the Netherlands are not going to act as anchor donor for the project development phase.
In response to the request, IFC did not make available the information on the basis of which it decided itself sustainable development of the Sounda Gorge hydro-electric project is possible but, instead, indicated it will apply its excellent environmental and social safeguard systems and underlined the excellence of its consultants in environmental and social matters and standards.

The DGIS knows that the DSU has no stake in decision-making, that it has no opinion about the acceptability of proposals and focusses on answering the questions the DGIS submits to her.

3.2 Can Sounda contribute to sustainable development in Congo?

Possibly, yes, but there are risks as indicated above, that the location, design or its management compare badly with alternatives. In this respect the NCEA recommends that for determining its approach to energy provision in a country, the DGIS takes a look at the holistic picture of the energy option of that country, by looking at the national energy plan and the national hydropower plan before looking at a specific hydro-electric project (as suggested in the draft key sheet attached). Doing so might hint to better/more sustainable options than the project under consideration.

The most sustainable form of hydropower development is run-off-river development: a hydropower facility without a reservoir or with a very small reservoir and fish ladders. Whether a run-of-river scheme is possible at the Sounda Gorge depends on the available sufficient 'head' at a reasonable distance from the Gorge. The information available to DSU does not allow to verify the feasibility of such an alternative, but the answer is probably that such an alternative cannot be excluded. A run-off-river alternative will generate a limited amount of power though.
Alternatives with higher dams and increasing sizes of reservoirs, producing more power will increasingly be less sustainable and need more capital investment, not only for technical structures but specifically also for effective and up-to-standard mitigation and compensation of negative environmental and social impacts.
The DSU would have liked to have been in a position to give the DGIS more tangible clues about the potential sustainability of the various alternatives that the project development proposal mentions.

3.3 How could DGIS secure sustainability of Sounda?

This could be done in the following way:

- Set benchmarks on each of the sustainability factors mentioned above.
- Obtain a reasonable level of security that a project alternative is developed and approved that meets these benchmarks.

There is a risk, however, that setting these benchmarks is not acceptable for the government of the Republic of Congo, or leads to a design that is financially not attractive for private parties.

APPENDICES

with the advice on the potential for sustainable development of the Sounda Gorge Hydropower project in the Republic of Congo

(Appendices 1 to 4)

APPENDIX 1

Mail to IFC requesting for information

Van: Reinoud Post <postbart@online.nl>
Verzonden: vrijdag 30 januari 2015 14:34
Aan: avanruiten@ifc.org
CC: gsrinivasan2@ifc.org; 'Vanda Fortes'; Frank.vanderVleuten@rvo.nl; Rob Verheem; Reinoud Post; Sibout Nooteboom
Onderwerp: FW: Sounda Dam

Dear Anton van Ruiten,

Last Tuesday Mr. Frank van der Vleuten of RVO sent you the message below.
Could you give us a timeframe in which IFC could send the information?
Please send your answer to rpost@@eia.nl

Thanks beforehand,

Reinoud Post
Netherlands Commission for Environmental Assessment

Van: Vleuten, F.P. van der (Frank) [mailto:Frank.vanderVleuten@rvo.nl]
Verzonden: dinsdag 27 januari 2015 12:38
Aan: 'Anton Van Ruiten'
CC: 'Reinoud Post'; Reinoud Post; Sibout Nooteboom
Onderwerp: RE: Sounda Dam

Beste Anton,

De vraag mbt de Sounda dam in Congo hebben we voorgelegd ter advisering aan de Commissie MER. Zou jij Reinoud de onderliggende stukken kunnen sturen?

Alvast bedankt, Frank

Frank van der Vleuten

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Department for International Development, Global Public Goods Team

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NL Global Issues | Fvleuten | Frank van der Vleuten |

Van: Reinoud Post [mailto:postbart@online.nl]
Verzonden: maandag 26 januari 2015 17:25
Aan: Vleuten, F.P. van der (Frank)
Onderwerp: Sounda Dam

Beste Frank,

Zowel Sibout als ik liggen ziek op bed. Heb me wel ingewerkt in Sounda Gorge. Wat is er naast het IFC proposal nog meer voor informatie?

EDF een in de 50er jaren van de vorige eeuw de Sounda dam al eens ontworpen en is in 1960 met de bouw begonnen. Het zou mooi zijn als we de feasibility study van EDF zouden kunnen inzien (er was toen nog geen m.e.r.). Gegevens over debieten van de rivier heb ik al gevonden maar gegevens over het beschikbare verval ontbreken nog.

Om de duurzaamheid van de 7 verschillende alternatieven waar het proposal over spreekt te kunnen beoordelen moeten we weten welke alternatieven dat zijn. We zouden graag weten op welke gegevens de desktop estimates van IFC gebaseerd zijn.

Graag je bericht welke informatie beschikbaar is.

H.gr.
Reinoud Post

APPENDIX 2

Mail of IFC with answers to the questions

Dear Reinoud,

My colleague Giridhar met with the team earlier this week and received the following feed-back:

1. We do have some historic analysis of generation options at Sounda Gorge, though we do not have the original EDF feasibility study. However any historic consideration of E&S issues is generally either non-existent or insufficiently in-depth to provide much comfort. As you can imagine, back in the 1950s people were less concerned about E&S impacts … and equally there were fewer impacts (less urbanisation and hard infrastructure). Certainly, nothing we have seen in the historic studies comes close to the rigour that IFC will impose to ensure that any development is consistent with best E&S practice (i.e. IFC's Performance Standards and the WB Safeguards). In other words, the only basis that we are going to engage on this project is if we commission our own E&S study.

2. This concern is actually the reason that we have structured the project as we have, specifically as regards the scenario analysis approach that we are proposing for Phase 1a. It is pretty clear that, from an engineering perspective, Sounda Gorge has a potential capacity of up to 1000 MW – and possibly up to 1200 MW. It all depends on the height of the dam (higher dam = more head / pressure = more capacity). The problem, of course, is that a higher dam = a higher reservoir level = more inundation = more E&S impact. The Government naturally wants to maximize the exploitation of this excellent natural resource. However it also understands that, in practice, the development of the site will be constrained by two things: (1) E&S impact and (2) firm demand for power. We have explained – and the Government has accepted – that if we cross the line of what is commercially acceptable on either of these variables, the project will not be bankable and will never get done.

3. So, during Phase 1a we will do two things:

   a. Model the water level at seven different generation scenarios (400 MW to 1000 MW in 100 MW increments), to work out the maximum capacity from an E&S perspective (i.e. the point beyond which the E&S impacts will become publicly unacceptable and/or uneconomic to mitigate).

b. Assess the demand – within both Congo itself and neighboring countries – to work out the maximum likely commitment for firm power (it is not enough to say "build it and they will come" – we have to see firm commitments from genuine customers).

Whichever number is lower will be the project capacity that we recommend to the Government at the end of Phase 1a and take forward for detailed investigation during Phase 1b.

4. Our initial desktop analysis is that the E&S impacts are negligible at 400 MW. At 600 MW they are manageable … at a cost. Above 600 MW things start to get fairly challenging … and it is far from clear that there is bankable demand for this much power (even 400 MW is a lot of power to be bringing onto the system in one go). For this reason the team believes that we are unlikely to recommend anything more than 600 MW. However we cannot rely on gut instinct. We owe it to our client to commission the expert analysis that makes the case convincingly. This is why we are including scenarios that go above 600 MW.

5. If you are worried about E&S, we would argue that, far from being a reason not to support Sounda Gorge, IFC's insistence on best practice on E&S is exactly the reason you should support it. (Certainly it is the reason that the Government ultimately decided to hire IFC as its transaction advisor.) We have procured a world class Technical, Environmental and Social consultant (AECOM, now incorporating several market-leading Canadian hydro consultancies) on the basis of extremely detailed terms of reference, with the E&S section prepared by our in-house E&S team on the basis of IFC's Performance Standards. If you are willing to support this, you will know that they are directly contributing to ensuring that Sounda Gorge is developed in accordance with E&S best practice. You are indirectly contributing to the development of new models for the sustainable development of private hydro in Africa. The importance of this cannot be overstated.

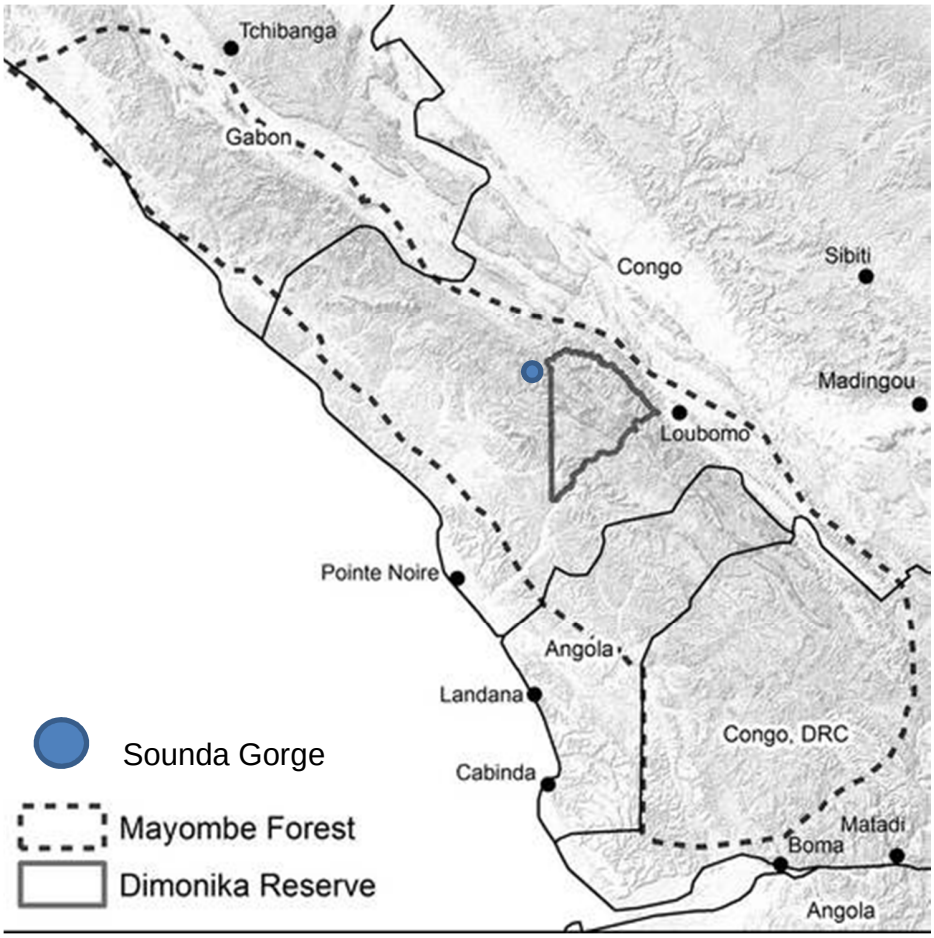
I hope this is sufficient information. If you would like further information, please let us know.

Best regards,

Anton

APPENDIX 3

Map of the Mayombe forest and the Réserve de Biosphere de Dimonika



case

Netherlands Commission for Environmental Assessment

January 2015

Towards a more sustainable hydropower development

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

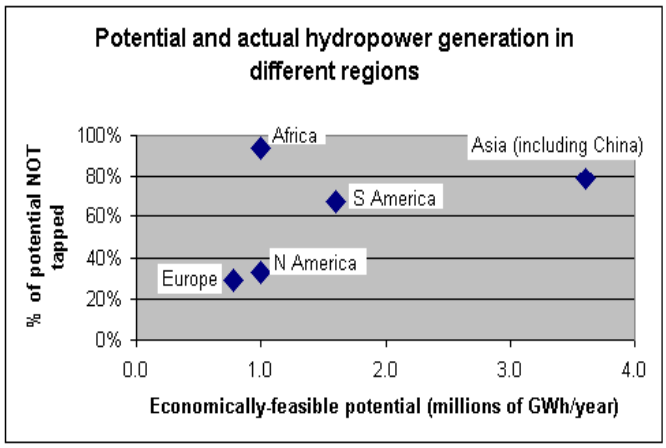
Purpose and target groups

The purpose of this key sheet is to provide information about (i) the added value of EIA and SEA in supporting sustainable hydropower development at (inter)national and local levels and (ii) 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 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 ten to fifteen 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.

Step1: 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 advice 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
National energy plan • Energy demand and supply • Composition of the combination of energy resources • Import and export of energy resources • Social cost benefit analysis (CBA) • Priority setting of investments	**SEA** • Scenarios • Alternatives for composition of the combination • Alternatives for import and export • Social cost benefit analysis of alternatives
National hydropower plan • Capacity to be developed for each river basin • Composition of the capacity divided in micro, small, meso and macro HPP. • Preliminary selection of sites for hydropower development	**SEA** • Alternatives for capacity (macro to micro) location, size and type for each river basin • Comparison of the selected main alternatives between the river basins • Social cost benefit analysis for the main alternatives
Hydropower project • Capacity, location, type • Environmental and social impacts • Social CBA	**EIA** • Alternatives • Mitigation and compensation measures

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.

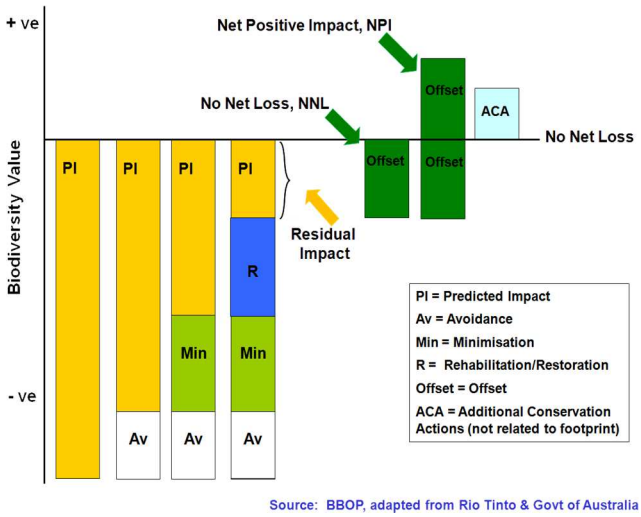
To improve the credibility, acceptability and representativeness of stakeholders affected, an independent panel of experts can be established to advice on the quality of the process and project documents.

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



Source: BBOP, adapted from Rio Tinto & Govt of Australia

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 develop-ment options in The Nile Equatorial Lkes 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 trans-boundary 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.

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.

Advantages of this new approach

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

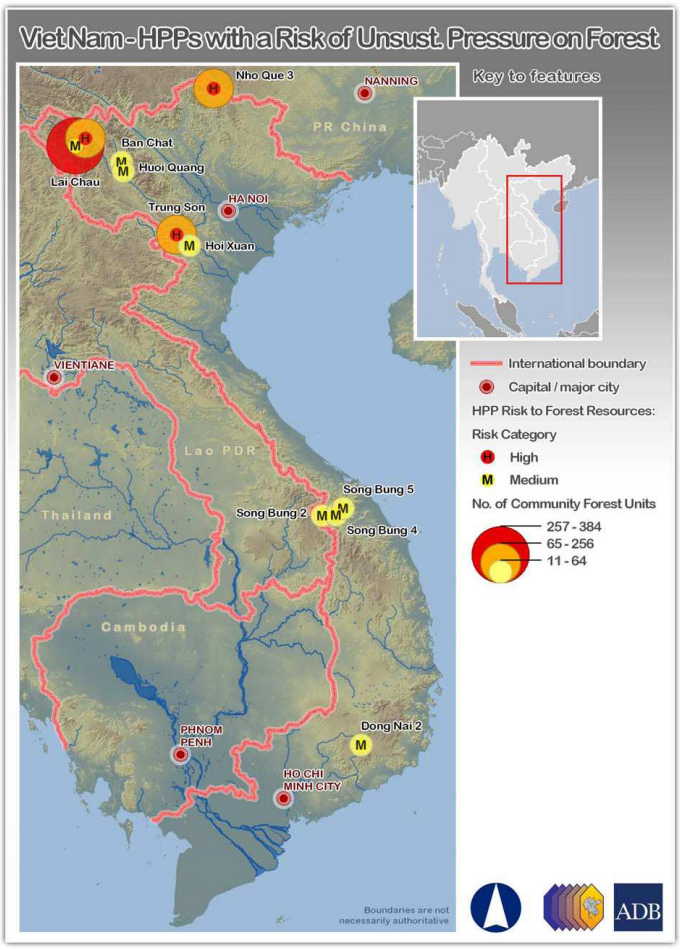
- SEA: Better understanding of the cumulative impact of a series of individual hydropower projects, and preventing costly and unnecessary mistakes;
- SEA: Better insight in the trade-offs between environmental, economic and social issues, enhancing the chance of finding win-win options;
- SEA: Easier 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.

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 show that these reports are highly valued and influential. The NCEA employs 40 permanent members of staff, including support staff, of which 12 work internationally.

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.



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.

  NGOs can be instrumental in asking for NCEA 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.

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 were 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 WB.

More information

Please contact the NCEA for tailor-made support and advice on EIA in your country. For more information, visit our website at www.eia.nl

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