

Chapter 18

Strategic Environmental Assessment as a Tool to Develop Power in Transboundary Water Basin Settings

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ABSTRACT

This paper proposes a generic consultative process for undertaking Strategic Environmental Assessments (SEA) in a transboundary river basin context to bring up front environmental and social issues of major development programs into the transboundary planning, project development and investment finance processes. The paper demonstrates through an analysis of two case studies from the Nile Basin in East and North Africa how an SEA approach with a focus on hydropower development is a transparent pre-investment tool that allows for consensus building in support of transboundary and regional strategic decision making and integration. Further, it demonstrates how an SEA can guide public and private sector investors seeking to develop the power sector in general and hydropower options in particular by allowing for a first level understanding of challenges and opportunities of power development and the development scenarios preferred by riparian governments.

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INTRODUCTION

Transboundary Waters and Power Development

Globally there are many transboundary river basins with potential for additional water storage for productive use and to mitigate against climate change induced floods and droughts. There are an estimated 261 river basins globally that cross international boundaries. These international river basins cover about 45% of the earth's surface (Wolf et al., 1999). Several basins, in particular in developing regions, have significant hydropower generation potential. In Africa only 7% of the technical and economic hydropower potential is exploited compared to 22% in Asia, 69% in North America and 75% in Europe (International Hydropower Association, 2009).

With water resources and hydropower generation site assets unevenly distributed between states that share a transboundary water resources system cooperation becomes a necessity (Granit & Löfgren, 2009). Co-management of water resources and electricity networks would in the Middle East increase the possibilities for each individual country to get access to a larger set of cost-effective energy sources through an integrated and regional approach (Granit & Löfgren, 2009). The World Bank (2009) supports this argument and claims that challenges to integration posed by long distances, small economies and geography can be overcome by connective infrastructure and market integration reducing barriers to cooperation. Hydraulic infrastructure such as multipurpose water storage, water transfer schemes and electricity transmission networks are examples of connecting frameworks that to be realized demand a strong level of cooperation (Granit, 2010). Sharing benefits from water use such as electricity generated from hydropower can therefore promote regional integration bringing stability and providing opportunities for economic growth for both small and larger economies (Granit, 2011).

Strategic Environmental Assessments (SEA) in Water and Power Development

Different forms of Strategic Environmental Assessments (SEA) are gaining increasing attention globally as instruments to analyze impacts of development programs early in the development planning process (Ahmed et al., 2005; EC, 2008; EU, 2001; Hirji & Davis, 2009). An SEA is defined as “the formalized, systematic, and comprehensive process of evaluating the environmental effects of a policy, plan, or programme and its alternatives, including the preparation of a written report on the findings of that evaluation, and using the findings in publicly accountable decision-making” (Thérivel et al., 1992).

The EU directive on Environmental Impact Assessment (EIA), requires that projects likely to have significant effects on the environment by virtue inter alia of their nature, size or location are made subject to an assessment of their environmental effects (European Community, 2008). The SEA, on the contrary, strives to bring upfront environmental and social issues of major development programs early on in the planning, project development and investment finance process (Ahmed et al., 2005).

The EU stress that the adoption of environmental assessment procedures at the planning and programming level should provide the inclusion of the relevant environmental information into decision-making contributing to more sustainable and effective solutions (European Union, 2001).

Development of hydropower generation projects is complex with governance, social, environmental, technical, economic financial and competing use challenges to consider. When preparing regional power development scenarios all energy development options need to be compared to allow for cost efficiency taking multiple issues into account.

The approach to identification and assessment of new water storage and hydropower options has been extensively modified since the issue of

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