

SUSTAINABLE INFRASTRUCTURE: PUTTING PRINCIPLE INTO PRACTICE

GUIDING PRINCIPLE 1: STRATEGIC PLANNING

Infrastructure development decisions should be based on strategic planning that is aligned with global sustainable development agendas and supported by enabling policies, regulations and institutions that facilitate coordination across departments and both national and sub-national levels of government and public administration.

CASE STUDY: STRATEGIC ENVIRONMENTAL ASSESSMENT OF HYDROPOWER DEVELOPMENT IN AZAD JAMMU AND KASHMIR

Name: Dr. David Annandale

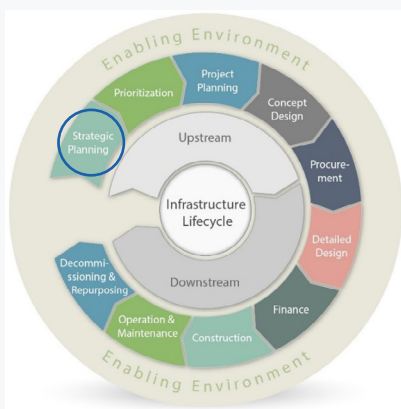
Location: Azad Jammu and Kashmir, Pakistan

Organization: DDA International Consulting Ltd

Partners: Embassy of the Netherlands, Netherlands National Commission for Environmental Assessment, International Union for Conservation of Nature (IUCN) Pakistan, Hagler Bailly Pakistan



Photo source: Jim Sung on Unsplash



Need for Infrastructure Project/System:

Pakistan has experienced chronic power outages, associated with political turmoil including widespread protests. The mountainous and disputed region of Azad Jammu and Kashmir is also susceptible to earthquakes and floods, and represents a significant corner of the Himalayas in terms of biodiversity. Delivery of sustainable infrastructure services in the region therefore presents a persistent challenge. To address the energy needs of the population, a set of many disparate hydropower projects were initially proposed by four different levels of proponent. Some hydropower infrastructure was already in place, while contracts for more than 60 different projects are now in the various stages of development. Rationalizing these diverse proposals called for a Strategic Environmental Assessment (SEA) process to coordinate projects and actors, and to improve environmental and social sustainability at an aggregate level.

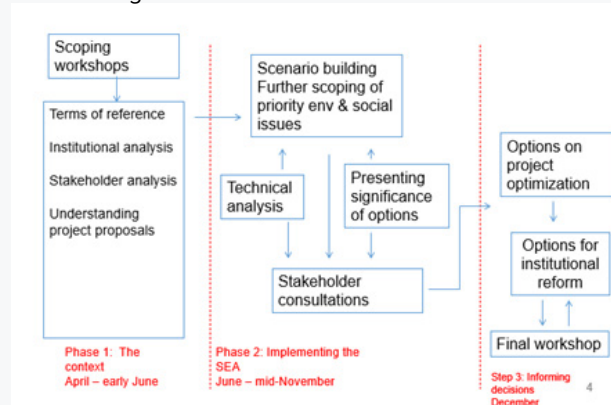
STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

SEA is a tool for integrating sustainability considerations into proposed policies, plans, and programmes. It is applied much earlier in the planning process than a project-level Environmental Impact Assessment (EIA), at a time when more strategic options are available.



Project Description:

The SEA process in Azad Jammu and Kashmir was funded by the Embassy of the Netherlands in Pakistan, managed by IUCN Pakistan and undertaken by Hagler Bailly Pakistan, in conjunction with Dr David Annandale. It was carefully designed with three phases (Figure 1). Scenarios were generated to predict the cumulative impacts of different levels of hydropower development on the environment and local communities (for example by mapping rivers and streams to understand environmental and socio-economic sensitivity). This provided a basis for recommendations on how a suite of hydropower projects could be optimized and most appropriately located to avoid negative impacts, and how relevant institutions might be reformed.



Three phases of the SEA process in Azad Jammu and Kashmir (source: presenter's slides for webinar presentation)

Challenges to Making Infrastructure Sustainable:

Technical and/or Programmatic Challenges – Initially, no provincial hydropower plan was in place in Azad Jammu and Kashmir. The four levels of proponent had limited interaction with one another. The SEA provided a means of bringing the proponents together to formulate an integrated plan.

Governance and/or Political Challenges – Control over, and access to, water is also a critical issue in the wider region; water resources flow through India, bringing uncertainty for planning in Pakistan. Thorough public consultation was a major challenge, due to the ongoing conflict in the region. However, local actors were able to draw on previous consultations carried out when the conflict was less acute, which provided baseline bio-physical and social data.

Financial and/or Economic Challenges – While investors had already been secured for some of the dams, attracting investment into projects remains a significant challenge due to political risk. Additionally, the SEA focused exclusively on hydropower. Pakistan has other energy options that may have been cheaper and potentially more sustainable overall, but which were not assessed in this process.

Outcomes and Lessons Learned:

- Despite the challenges and limitations, the SEA successfully resulted in a provincial hydropower plan and the creation of a multi-proponent hydropower planning committee.
- The SEA produced a set of easy-to-interpret maps that enabled decision-makers to understand the relative environmental and socioeconomic sensitivity of different river and tributary stretches.
- The overall process highlighted the importance of engagement, coordination and commitment with key stakeholders throughout, including decision-makers, industry, financiers and local communities.

For Further Information:

- [Netherlands Commission for Environmental Assessment \(ed. A.J. Kolhoff and R. Slootweg\). \(2021\). Strategic Environmental Assessment for Sustainable Development of the Hydropower Sector. Five influential cases: India, Myanmar, Pakistan, Rwanda, Viet Nam. Utrecht](#)
- [Sustainable Infrastructure: Putting Principle into Practice webinar session on Strategic Planning \(Minute 29:02 is beginning of Strategic Environmental Assessment of Hydropower Development in Azad Jammu and Kashmir case presentation\)](#)
- [United Nations Environment Programme. \(2021\). International Good Practice Principles for Sustainable Infrastructure. Nairobi](#)