

Energy issues in Strategic Environmental Assessment in South Central Asia

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Introduction

Use and supply of energy is of utmost importance to society and, with the possible exclusion of forestry and agriculture, has made the deep impact on the environment of any human activity – a result of the large scale and pervasive nature of energy related activities. Importance of energy production and saving in the framework of the concept of environmental assessment is rationalized.

Strategic environmental assessment (SEA) is a promising instrument to implement the idea of sustainable development (Therivel 2004). SEA is internationally regarded as a systematic and a continuous process for estimating, at the earliest proper stage of general (publicly) accountable decision making, the environmental quality and development intentions incorporated in policy, planning or program initiatives, and ensuring full integration of relevant biophysical, economic and social consideration. SEA is deemed to have distinct advantages compared to project-based Environment Impact Assessment (EIA), which does not always completely account for cumulative environmental impacts of multiple developments, and sometime fails to adequately evaluate alternative development scenarios and development related energy sources.

As the world is going towards the use of renewable energy the SEA proposes specific recommendations and measures in order to mitigate the potential adverse environmental impacts when they are being implemented. Short-term control of land construction, scale of petrochemical base, distance between steel bases, other ecological sensitive plots, environmental impact of un-strategic development or construction of hydro-power plants along a river, allocation of land for construction of wind-turbines etc. are some of the issues addressed by SEA.

The structure of SEA

Structure of Strategic Environmental Assessment is based on the following phases:

- Screening: Investigation of whether the plan or program falls under the legislation;
- Scoping: Defining the boundaries of investigation, assessment and assumptions required;
- Documentation of the state of the environment: Effective baseline on which judgments are based;
- Determination of the likely (non-marginal) environmental impacts: Usually interims old direction of change rather than firm figures;
- Informing and consulting the public;
- Influencing “Decision taking” based on the assessment; and
- Monitoring of the effects of plans and programs after their implementation.

This is a general structure for any plan or program undetermined.

Because of the civil war, political unrest and destruction in different sectors in the recent years, South Central Asia is considered a post-conflict region. Development and security are intimately related and one cannot be achieved without the other. Many factors contribute to conflicts which include political, religious, ethnic, tribal and clan divisions, economic factors, land tenure deficiencies and historical feuds. Environment and nature resources, though important, are considered as contributing factors and not the sole cause for tension.

However, conflicts often have environmental impacts, direct or indirect, that affect human health and livelihoods as well as ecosystem services. If due consideration is not given to these impacts, they can lead to further population displacement and socio-economic instability that will undermine recovery and reconstruction in post-conflict states triggering a vicious cycle.

Good practice guidance on strategic environmental assessment (SEA) shows how SEA can help identify environmental risks and opportunities in the formulation and appraisal of development policy, plans and programs (PPPs) and to address the issues related to energy (both non-renewable and renewable). It explicitly recognizes that conflict can undermine sustainable development opportunities and that SEA in fragile state will need to address their special circumstances.

In post-conflict settings there is usually a transitional period, of variable durations, from peace and post-conflict stabilization to democracy and development. The deferent transitional stages provide different entry points for applying SEA.

Benefits of applying SEA to post-conflict reconstruction Policies, Plan and Programs (PPPs)

The immediate (fast) disbursement of financial resources on a large scale to alleviate urgent humanitarian needs, including safer and cleaner energy needs, and to help post-conflict recovery and reconstruction often generates environmental risks as well as opportunities. Cycle of post conflict rehabilitation is usually characterized by “hyper development” resulting in severe environmental impacts.

The key focus of a post-conflict SEA should therefore be to support and identify such environmental risks and opportunities and ensure that they are taken in to account as early as possible in those developing post-conflict PPPs.

SEA should promote wise and proper management of natural resources in ways such as, foundation for useful and sustained recovery, growth, poverty reduction, the equitable sharing of benefits from the proper exploitation of the resources, strategic construction (in terms of location and effectiveness) of dams for hydro-power, wind-turbines, nuclear power-plants etc.

For developing appropriate frameworks for managing resources or, in certain situations, where natural resources are controlled by conflicting parties, SEA can help to identify these parties and provide opportunities and also minimize the potential for

renewed conflict. Strategic environmental assessment presents an opportunity to improve and strengthen governance and management of natural resources and energy and also prevent conflict over them.

One of the primary and important steps of a SEA in post conflict societies with fragile governmental institutions will be to clarify the ownership of decision making process. By integrating different stakeholders in a process of democratic decision finding, SEA can thereby support long-term political stabilization.

Challenging Circumstances for SEA application in post-conflict situations

Full SEA will only be effective where an institution exists in the region that has the mandate, the capacity and the willingness to follow up on the main results of the actions agreed in the SEA. Pressing needs for humanitarian relief and reconstruction as well as insecurity concerns may cause resistance to the comprehensive and extensive approach of SEA. Transitional and elected governments may not necessarily see the relevance of mainstreaming environment in planning and decision making in the early stages of reconstruction of the region and adaptation of means of alternate forms of energy.

Another significant constraint to implementing SEA in the early stages of post-conflict development is that institutional mandates and capacity of post-conflict authorities are always weak. Capacity development should combine top-down and bottom-up approaches.

In 2005, the UN countries team prepared its development assistance framework which provided a commitment to enhancing environment and natural resources as one of four priority areas between 2006 and 2008 the commitment stated: In line with Afghanistan MDGs, environmental regulatory from works and management services will be established for the protection of air and water quality, waste management and pollution control, energy and natural resource polices will be developed and implementation started at all levels in neighbouring countries such as Pakistan, Turkmenistan etc., by the end of 2007. The mentioned commitments later included as a benchmark in the Afghanistan impacted the donor's agreement stabilized at the London Donor conference in 2006. Afghanistan committed to prepare its national development strategy (ANDS) to reflect the London compact and the principles embodied in the agreement between donor and partners. The ANDS process commenced with the establishment of the seven sector working groups representing the major development sectors to be targeted in the ANDS. Capacity building efforts were undertaken with the National Environmental Agency to establish the cross-cutting. Thematic working group on environment, its task was to:

- Provide advice to assist ministries to incorporate environment and energy into their benchmarks and annual work plans.
- Undertake quarterly reporting on types of interventions delivered to support environmental mainstreaming within sector development plans, analyze, progress and short falls in integration of environment and development of renewable energy and to make recommendations on strengthen the strategic

review of sector plans and work of the consultative groups. These activities required a high resource input and it was not possible to address all relevant issue due to resource constraints.

All existing and proposed projects in the region in 2005 / 2006 years (1384 lunar oleander) were assessed:

- 193 projects had the potential to have some impact on the environment:
21% transport sector;
26% energy, mining and telecommunications;
12% urban development; and
33% natural resources management.
- Further breakdown of sub sectors indentified were major project activities were undertaken in the transport sector, 88% of projectors were for road works.

Main Steps in SEA

Strategic environmental assessment can be undertaken across the hierarchy of strategic decision making levels from the policy to the plan and program level, and accordingly the approach required at these different levels will vary.

I. SEA at the policy level

Typical steps are difficult to codify as the processer of policy making vary considerably and therefore, ultimately are politically compared to project level ETA and so SEA undertaken at the policy level demands a thorough understanding of political economy factors and institutional settings. In practice there are relatively few examples of SEAs being undertaken at this level.

II. SEA at the plan/ program level

1. Establish context

Screen the need for the SEA, set objectives, indentify stakeholders and develop a communication plan.

2. Implement the SEA

Collect baseline data and scope in dialogue with stake holders, identify alternatives to current energy usage and their impacts, identify options for mitigation and compensation, and arrange quality assurance of the assessment.

3. Inform/influence decision-making

Make recommendations during dialogue with stakeholders.

4. Monitoring

Monitoring implementation and evaluate.

Addressing the institutional dimension of SEA

1. Institutional and governance assessment

- Review the countries' environmental management and governance systems and energy demands.
- Review analytical capacity (in government, research and academic institutions, civil society organizations and private sectors).
- Gain access to decision making, exploit opportunity to mainstream environment and energy issues in policy for mitigation.

2. Institutional and Governance strengthening

- Support mechanisms that increase social accountability and improve governance.

Approaching Urban Vulnerability in South Central Asia

Vulnerability has become a catchword for the international donor and assistance communities in the region. The term probably entered in the late 1980s, after researchers and practitioners expressed discomfort in defining marginality and poverty solely through economic terms. Since then *vulnerability* has become a recognized conceptual framework and analytical approach in research and applications dealing with uncertainty and risks, especially in terms of livelihood security, and environment and energy issues.

As a complex and relational phenomenon, the reality of vulnerability is not easy to grasp, and the classical definition of Chambers, 1989, in many ways still provides the most comprehensive approach to it. Chambers defines vulnerability as exposure to contingencies and stress, and difficulties coping with them. Vulnerability therefore has two sides: an external side of risks, shocks and stress, and internal side of defenselessness – meaning a lack of means to cope without damaging loss.

Criteria for identifying the vulnerable may well reflect different agency mandates and may not become stable. The problem is that the concept of vulnerability addresses complex realities, which can hardly be classified within a few operational variables without loss of accuracy. It is important to take into account the dynamic and multi-dimensional nature of vulnerability as an ecological, socio-cultural and political-economical concept.

The definition emphasizes that vulnerability has a “double structure,” that it is subject to external and internal factors, and that it is relational in nature. Four interrelated factors inform this approach to vulnerability in the urban areas of South Central Asia:

First, there is reorganization that the mechanisms and processes through which vulnerability actually occurs in the region are not fully understood yet.

Second, the study aims to move beyond the broad categories usually used to identify the urban vulnerability in the regions groups such as widows, people with disabilities or refugees are far too heterogeneous, though in situations of emergency assistance, where it is often not possible to gain diversified data, this approach it is seen as the only one feasible.

Third, not many studies have tried to assess vulnerability in urban areas of the region's settings yet. This is a definite short coming, given the fact that issues affecting urban livelihoods are very different from those impacting on rural areas.

Fourth, the study aims to inform a long-term research project envisaged by the Afghanistan research and evaluation unit (AREU) in Afghanistan on urban livelihoods in the three large cities mentioned.

Urban and Energy Challenges in South Central Asia

Urbanization in the region has accelerated due to the changes in the recent years. The urban centers in the region are keys to its reconstruction. Cities are acknowledged to be the center of economic growth and urban centers generate energy requirements in the service sectors and they provide opportunities for private sector investment. Cities are basic points for social and cultural development. To help maximize energy potential, various pressing issues must be addressed and managed from the capitals of the region's greatest urban challenge including:

Rapid population growth

The urgent urban planning issues are tied to its rapid growth in population. This is partly due to the influx of returning refugees following the end of the Taliban regime and the establishment of the interim government in Afghanistan at the end of 2001. Immigrants from other regions have also moved into the big cities of Afghanistan, Pakistan, Turkmenistan etc., seeking employment and public services from agencies because of the opportunities offered by the new governments and many international organization.

Security and reconstruction activities have been established in Kabul city of Afghanistan since December 2001. But, the energy and urban development demands keeps increasing as the people keep pouring into this region.

Lack of drinking water

One of the big problems with the availability of drinking waters for the urban areas of the region's population is as a consequence of the drought which has prevailed in Afghanistan since 1999. The second reason is the increase in urban areas' population and also the shortage of water and sanitation infrastructure. Consequently waterborne diseases are common and spreading quickly.

As a land locked region, South Central Asia encounters with a scarcity of water resource. This scarcity is mainly due to the unequal spatial and timely distribution of precipitation. In Afghanistan, 80% of winter precipitation happens in the form of snow at places at elevation higher than 2000m above sea level (asl). This prompts

usage of heaters, coal, wood and other forms of energy sources. This amount is estimated to be about 150 billion m³ and the remaining 20% of annual precipitation (30 billion m³) takes place in areas lower than 2000m asl.

Destruction of Physical Infrastructure including energy potential

South Central Asia's physical infrastructure was destroyed following conflict, political unrest and civil war in the region. Lack of maintenance and proper management were the main issues facing the region. This situation has created a housing shortage, higher energy demands and a shortage of services resulting in a lack of clean water and resulting in urban traffic congestion.

As a result of the shortage of low income housing, the spread of service or squatter settlements throughout the region have grown. We can estimate that nearly half of the population in the urban areas of the region lives in squatter settlements without electricity. Squatters' households are usually required to pay some amount to remain on the current property. Families squatting in an area climbed by a ministry may be required to pay someone from the ministry, which may be under the table so that it is not removed from the premises and that the electricity lines are provided. From the other side there are commercial military and international organizations that have set up offices and moved in big cities of the region, while this is the focal point and cause of increase demand for sustainable energy development.

Land speculation has led to the proliferation of high-rise and high rent buildings owned by merchants and power brokers. Many of these new buildings are not in compliance with municipal zoning or building codes and electricity is used illegally. There are no effective mechanisms for the enforcement of these regulations.

There are many significant land tenure issue including property disputes that have arisen from the war and regime changes. Some of the disputes have resulting in evictions and land seizures and disruption of gas lines and electricity poles.

The ministry of energy board and urban development and housing of these countries are responsible for the energy and urban management, which includes facilitating access to electric power and housing for all the people in the regions. The ministries have a mandate from the governments to formulate appropriate policies and programs and develop the urban management sector.

Funding for these projects comes from the national development budget. The municipality claims responsibility for housing, land assessment and ownership records as well as for the urban roads, electricity supplies, gas station development and water supply; and the municipality claims the revenue collection for all the services too.

Sustainable Energy Supply Management

Industry extracts fresh natural resources like coal, wood etc and returns products and wastes to the environment. Beside the diffusion of toxic wastes, industries and power

stations discharges considerable amount of gaseous, liquid and solid pollutions in to the air, water and soil, respectively. In the rapidly growing population in the region, the increasing industrial activities imply considerable pressure on the energy and natural resource and result in source depletion and industrial waste introduction in to the environment and even cause accidents.

With regard to renewable energy in the region it must be mentioned that at present the region is in a post-war era and no major plant is in operation. Therefore, industry cannot be counted for sometime as a major energy consumer here. In a nut-shell, the energy consumers in the region are the urban, small scale industrial and rural areas.

Strategies toward Sustainable Industrial Water Management

A sustainable industrial water management could be achieved by observing the following strategies:

- Desalination of water
- Control of water wastage
- Efficient water usage
- Recycling of treat waste water
- Water pollution control.

Sustainable industrial water management can be examined through the following indicators:

- Ratio of discharge of treated industrial wastewater released to the environment to the total amount of water extracted from water source.
- Ratio of water extraction from non-environmental water source to the amount extracted from conventional sources.
- Temporal changes in biochemical oxygen demand (BOD), pH and temperature of natural water bodies where the industrial effluents are discharged.
- Percentage of water loss in the industrial plants.
- Living condition of fishes and other living species in open water bodies, where the industrial effluents are added.

Sustainable Ecosystem Water Supply management

The goal of ecological sustainable water management is to protect first, the ecological integrity of the fresh water ecosystem, and the second to meet the intergenerational human needs for fresh water ecosystems. Ecological integrity is protected when the compositional and structural diversity and natural functioning of the ecosystem is maintained.

For achievement of a sustainable ecosystem water supply among others, the following approaches can be taken in mind:

- Controlling causes of environmental durations, e.g., soil erosion;
- Ecological heritage conservation;
- Maintaining ecosystem flow requirement; and
- Control of intrusion of pollution into the ecosystem.

The long lasting war in Afghanistan and neighbouring areas has enforced a human resource shortage in the region. This shortage is observed in all aspects, from the academic institutions to office and field.

Conclusion

Integrated modern SEA process in urban planning and sustainable energy development is necessary for a correct technical approach and vision. It is absolutely possible to design a methodological process of SEA for urban planning with the integration of all the experience and knowledge, and this is only a technical work. Very difficult issue is to resolve the management problems.

The society seriously needs the services of renewable energy and nature resources for their activities but the land market is inefficient for establishing a correct use of land. In fact of the price of land for energy development and hence urban development always is very big when compared to what the price of some land for natural resource use is.

For implementing a properly and good SEA we need to:

- Enhance administrative capacity of planning authorities.
- Enhance administrative capacity, cooperation and efficiency planning.
- Raise the profile of key issues for urban planning and energy development, by means of promoting better understanding of the interrelationship between land use measures and other specific plans like transport of waste management and their environmental, economical and social impacts.
- Encourage public participation.