INSTITUTE OF
STRATEGIC STUDIES

web: www.issi.org.pk
phone: +92-920-4423, 24
fax: +92-920-4658

Issue Brief

Effects of Environmental Degradation on the Food, Energy and Water Nexus in Pakistan

Mian Ahmad Naeem Salik, Research Fellow, ISSI

July 07, 2015

Introduction:

Pakistan faces many challenges in its quest towards development and economic growth. Issues like limited land resources, energy shortfalls and depleting water resources pose a serious threat to the country's economy. Shortfall of energy and water, coupled with environmental degradation is leading to a situation of food insecurity in the country. Pakistan, being a lower riparian country, is dependent upon the upstream ecosystems to provide water supply for irrigation, drinking and generating hydropower.

Water, energy and food are inextricably linked. Water is an input for producing agricultural goods in the fields and along the entire agro-food supply chain. Energy is required to produce and distribute water and food: to pump water from groundwater or surface water sources, to power tractors and irrigation machinery, and to process and transport agricultural goods. Using water to irrigate crops might promote food production but it can also reduce river flows and hydropower potential. Over the last few decades there is a growing concern across the globe to protect the environment as well as to maintain the development processes. As there is a trade-off relationship between economic growth and environment it creates challenges for the policy makers to adopt policy to continue the economic growth while simultaneously protecting the environment. This is only possible if the nature of environmental problems related to development can be identified and the necessary measures are taken to account for them.

Pakistan and the Nexus:

Increasing population, stagnating food production and environmental degradation are major catalysts for rising food insecurity in Pakistan. The water-related environmental challenges arising out of shrinking glaciers, soil erosion, ground water degradation, pollution and trans-boundary issues causing water scarcity are of major concern for policy makers. The reduction of water flow also causes a reduction in the power generation capacity of the hydropower projects in the country, crippling the already inefficient energy sector. Another challenge arising out of this nexus is the rising food price inflation due to hindrances in the food production capacity. There are many synergies and trade-offs between water and energy use and food production. Using water to irrigate crops might promote food production, but it can also reduce river flows and hydropower potential. Converting surface irrigation into high efficiency pressurised irrigation may save water, but may also result in higher energy use.

Recognising these synergies and balancing these trade-offs is central to jointly ensuring water, energy, and food security.

Sustainable development requires that economic activity in the country only uses natural resources at a rate at which they can be restored by environmental friendly methods. The government has realised that it is of utmost importance to develop and implement ways to use natural resources more efficiently and effectively in order to maintain the current level of economic growth. A more green economy would improve human social equity and well-being, while significantly reducing ecological scarcities and environmental risks.

Steps taken by the Government of Pakistan:

Pakistan, being a developing country, is faced with fragile environmental conditions and has limited financial means and inadequate managerial and political resources to address the environmental degradation challenges. This threatens long-term development of the country, leading to a decrease in the quality of life and living standards. A focus on development from a water-energy-food nexus perspective is the government's main priority, as it is central to achieving a green economy according to Vision 2025 and sustainable socio-economic development in the country.

Over the last few decades, there has been a growing concern inside the Pakistan government to protect environment as well as to maintain the development. The federal government, to offset the adverse effects of environmental degradation of recent years, has increased the allocation for the environment by 12.7% from PKR 936 million for 2014-15 to PKR 1,055 billion for 2015-16, in its recently announced budget for the fiscal year 2015-16. Under Vision 2025, Pakistan Environmental Protection Agency (Pak-EPA) which was established in 1997 has been provided with an enhanced agenda of environmental protection inside the country to sustain the green economy vision of the government. As there is a trade-off relationship between economic growth and environment, it creates challenges for the economists as well as policy makers to adopt policy to continue the economic growth by protecting the environment.

Recommendations:

If water, energy, and food security are to be simultaneously achieved in Pakistan, decision-makers, including those responsible for only a single sector, need to consider broader influences and cross-

sectoral impacts. A nexus approach to sectoral management, through enhanced dialogue, collaboration and coordination, is needed to ensure that co-benefits and trade-offs are considered and that appropriate safeguards are put in place. To adequately address the nexus challenges, improved management of the upstream ecosystem is required both at intra- and inter- level in the region, by harmonising policies taking into account the interdependence of all three factors. Another solution could be regulating the demand for water and energy for efficient food production. Thirdly, by the efficient use of information technology to raise awareness among the people related to environmental degradation issues, and increase efficiency in farming techniques. As merely taking some policy options will not contribute much to the environmental protection; it is very important to establish clear property rights and resource ownership. Emphasis should be given to empowering poor and marginalised groups, and creating a link between conservation and livelihood. The government needs to involve local communities as well as private sector in protection of the environment. The government should also invest in Research and Development (R&D), to protect the environment by bringing in innovations in water management, especially to relieve strain on the ground water resources in the country which are depleting at an increasing rate due to rapid urbanisation. This is a critical juncture, where formation and adherence to environmental protection policies could avert food insecurity in the country.