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Issue Brief

Implications of Kishenganga Hydro-Power Project for Pakistan's Environment

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Introduction:

The Permanent Court of Arbitration (PCA), which was instituted in 2010 to decide on the Kishenganga Hydro-Electric Project (KHEP) between Pakistan and India, gave its final verdict on 20th December 2013.¹ According to the award India could continue its construction of the dam, based on the Neelum-Jhelum River as long as minimum down flow of water ($9 \text{ m}^3/\text{s}$) is maintained to the lower riparian, Pakistan. The latter had approached the PCA, under the Article IX (which deals with dispute settlement mechanisms) of the Indus Water Treaty (IWT) of 1960, as it felt the Treaty did not allow for diversion of waters from rivers accorded to it. Secondly, it would hamper the flow of water for the Pakistani planned Neelum-Jhelum Hydro-Electric Project (NJHEP), and thirdly it would have adverse environmental effects on Pakistan being the lower riparian country. Pakistan moved for neutral arbitration on the matter and approached the PCA in May 2010, to give its verdict on the matter.² But the Court upheld the Indian position that it could divert water from Pakistani rivers for non-consumptive uses and build run-of-the-river projects on them. The Court however in its ruling discussed the environmental aspects of such big projects and gave some clarity on the International Watercourse Convention of 1997 which is not clear on future environmental impacts of such projects.³ Both India and Pakistan claimed victory over the Court's decision.

Pakistan's View:

Pakistan is faced with many challenges in its quest towards development and economic growth, with water insecurity emerging as one of its main concerns towards future prosperity. Pakistan, being a lower riparian country to India, is dependent upon the upstream ecosystems to provide water supply for irrigation, drinking and generating hydro-power. Water, energy and food are inextricably linked.⁴ Pakistan's major concern with KHEP is regarding the diversion of water by India before it is discharged into the Wullar Lake before reaching the Jhelum River. It is very hard to estimate the amount of discharged water in the disputed region of Jammu and Kashmir. This diversion of water by India will affect the workings of the under construction NJHEP, as it would not have the necessary water flow for generation of sufficient electricity originally envisioned when the project was inaugurated. NJHEP is downstream to KHEP, therefore the requisite flow of water in the Jhelum River is very important for it to operate. India maintains that only 10% of water will be diverted, but some experts believe it could be as much as 33%.⁵

The water flow below the NJHEP, in Azad Kashmir's Neelum valley, is expected to be minimal. But as both projects are diverting water from the Jhelum River, it has the potential to have adverse environmental impact in the Neelum valley. Over the last few decades, there is a growing concern across the globe to protect environment, as well as maintain the development processes. As there is a trade-off between economic growth and environment, it creates challenges for the Pakistani policy makers to adopt a strategy to continue economic growth while simultaneously protecting the environment. The final award of the PCA, however, ruled that certain amount of downstream water be maintained so that downstream environment is protected as is provided for by the United Nations (UN) Watercourse Convention. Before its final award, the PCA asked Indian to provide it with Environmental Impact Assessment report (EIA) in 2013, which led to the deferring of the award. India so far has not shared with Pakistan a comprehensive transboundary EIA report to evaluate hydrological and environmental consequences of its projects for the lower riparian, Pakistan.⁶ According to a United States Institute for Peace (USIP) report, there is a lack of transparency in data sharing between India and Pakistan, and this trust deficit between them has the potential to heighten tensions in the South Asian region.⁷

Environmental Effects on Pakistan:

Pakistan is faced with a situation of food insecurity stemming out of water scarcity and environmental degradation issues, making the country into a water-stressed nation. The extent of water diversion by the upper riparian through dam construction adversely effects groundwater basins and downstream ecosystems. This could ultimately lead to drying up of the Neelum River. There is also a loss of habitat that can lead to extinction of some wildlife species due to changes in water course. The reduced water flowing downstream also causes the water to be more saline, making it less suitable for certain fish nurseries.⁸ According to UN World Water Development Report 2012,⁹ due to climate change and global warming the Himalayan glaciers are melting at an alarming rate, creating more uncertainty in the quantity and quality of water supply over the long-term. While climate change will cause the Himalayan glaciers to reduce in size, the runoff from glacier catchments will increase leading to more flooding. This will directly affect water resources for domestic supply, irrigated agriculture, hydropower generation and other water-dependent activities inside Pakistan.

Lack of sedimentation flowing downstream is another major consequence of a large dam and can have sustained environmental impact. The sediments that are held back naturally replenish the downstream

ecosystems in the Neelum valley, and can lead to erosion of the downstream river bed and banks, ultimately effecting river-bank structures like bridges and other infrastructure in the Valley.¹⁰ There is also a build-up of degraded water quality behind the dam walls due to increased algae and sucking out of oxygen from the water (a situation known as dead zones), which when released also affects the quality of water going downstream.¹¹ With the diversion of Jhelum River water by KHEP, a drought like situation will be created in the Neelum Valley, due to loss of agriculture land because of soil erosion, deforestation, loss of vegetation cover, and polluted water coming downstream, generating negative socio-economic impact on the livelihood of the people living there.

Pakistan is an agrarian country which is predominantly dependent upon the waters of the western rivers, and monsoon rains. Any diversion of waters from the western rivers by India will severely hamper Pakistan's agricultural output. Furthermore, the geography of partition was done in such a way that head-works of the rivers entering Pakistan fell within the Indian terrain, and according to former World Bank Senior Water Advisor John Briscoe, Pakistan does have a legitimate cause for concern, and according to his estimates if India is able to construct all its planned projects in Jammu and Kashmir, it could have the capacity of holding up nearly a month's worth of river flow during Pakistan's critical dry season which would be enough to ruin Pakistan's entire planting season.¹² Pakistan being a semi-arid country is facing severe water shortages and loses significant amounts of water due to the lack of storage facilities. According to the study *Mountains of Concrete: Dam Building in the Himalayas*¹³, Pakistan is on the brink of water disaster and its availability would plunge to 800 m³ per capita annually by 2020 from the current 1,200 m³, as India is building major dams on all rivers in the disputed Jammu and Kashmir region.

Recommendations:

According to the UN Watercourse Convention, it is the upper riparian state's responsibility that is building a reservoir to adopt suitable measures to preserve the catchment areas of the lower riparian state. However, conventions are rarely followed by India. It is Pakistan's obligation to protect its own rights and to ensure both equitable and reasonable utilisation of shared water resources. Also, it is Pakistan's responsibility to be fully prepared when going into international arbitration which was not the case in 2013, where Pakistan failed to sufficiently produce evidence regarding the water data based on agricultural productivity to the PCA, which ultimately hindered its case in the final award.¹⁴ India has continuously neglected the workings of the IWT, and more than once both sides have had to go for

neutral settlements instead of using the dispute resolution mechanism provided in the treaty. In each case the Indian Indus Water Commission has shown little flexibility, and has shared minimal data with its Pakistani counterparts regarding dam designs and water flow data. India being the upper riparian state is showing high-handedness while dealing with Pakistan, and is continuously building dams on the western rivers which Pakistan feels gives India the power to store or blockade its waters.

Both sides should work to modernise the IWT's dispute resolution mechanism according to the changing environmental and demographic realities on both sides of the border and bring it more in line with contemporary international watercourse law, which pertains to the use and conservation of all waters that cross international boundaries, including both surface and groundwater. Pakistan should ask India for exchange of data regarding the hydrology of the current and planned projects on the shared rivers, especially the flow data to ensure equitable sharing of water. Although some general principles can be set for dam designing, its environmental impact are site specific and must be taken into account accordingly and therefore environmental recommendations be made in view of that, which was not the case in KHEP.

The policy makers of Pakistan may take a fresh initiative for an equitable solution of the thorny issue of water sharing and environment protection in South Asia along the following lines:

- For its part, Pakistan should give social impact of hydro-power projects same weightage as economic and environmental impacts, when taking ecosystem protection into account to make the project more sustainable.
- Pakistan can use the platform of South Asian Association for Regional Cooperation (SAARC) on issues like water management and agricultural growth; through emphasis on greater interaction and cooperation between member countries and encouraging water management solutions through joint hydro-power projects and energy swaps between member countries.
- Detailed study should be carried out by Pakistan to provide a broad impact analysis on both the upper and lower riparian states, as there are localised variations in climate change and sedimentation count which cannot be generalised.
- Understanding of water availability, sharing mechanisms, and demand is critical to accepting the national management challenges and security threats by Pakistan and needs to be looked into by the policy makers.

- Completion of NJHEP before KHEP so that Pakistan can start production of power which will positively affect Pakistan's energy generation capacity.

Finally, it is the equal responsibility of a lower riparian state like Pakistan to optimally manage its water resources through building of storage facilities and dams, and putting in place disaster management mechanisms. This will allow Pakistan to better manage its territorial water resources in order to secure the right to water for its citizens. The KHEP award therefore must be assessed objectively, and in future Pakistani state should be better informed and take well planned decisions, in order to get a more favourable recognition of its position in the international forums.

Notes and References:

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