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The Case Against Weaponising Water

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ABSTRACT With growing water scarcity across many parts of the world, competition over access to this vital resource has been known to spark conflict. Following the September 2016 Uri attack in India, the government made plans to retaliate against its neighbour by exercising its right to use water of the western rivers—allocated to Pakistan under the Indus Waters Treaty—by building dams, canals and reservoirs. This paper aims to address the legal, economic and social implications of this policy decision. It concludes with an observation that any project India decides to conduct on the transboundary rivers must not only be economically and environmentally feasible, but also comply with India's obligations under customary international law.

INTRODUCTION

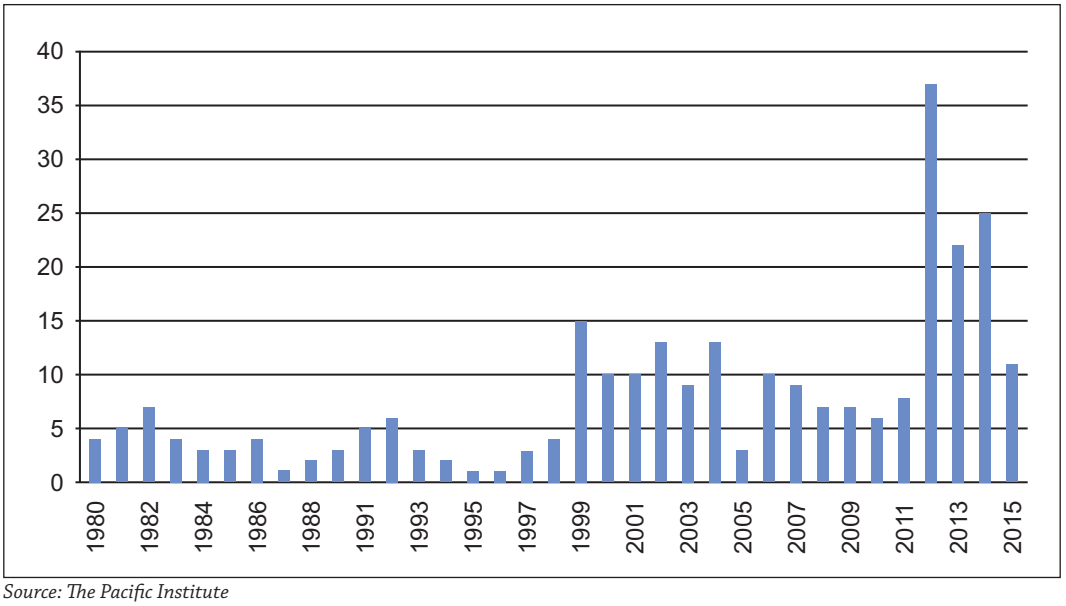
'Whisky is for drinking; water is for fighting over'. This maxim, popularly attributed to Mark Twain, can be rightly put into context of the current discussions around water resources. The scarcity of water around the world has resulted in competition among its users, and the history of conflicts over freshwaters is long and distressing. The US-based Pacific Institute has documented various incidents of tensions emerging over water from across the globe. These cases include those where water had been used for political goals or as a weapon during military actions. Water reservoirs have been made targets of terrorist attacks, and have become the subject of disputes in the context of economic and social development projects. The Institute's Water Conflict Chronology List includes nearly 400 known water conflicts[1] from the 3rd century BC till 2015.[2] Table 1 shows the growth in reported water conflicts between 1980 and 2015.

According to UN-Water (the UN inter-agency mechanism for water-related issues), various factors contribute to tensions over

transboundary waters—among them, water scarcity, dam construction, water abstraction (or the removal of water from its natural environment, like rivers, lakes, groundwater reservoirs), pollution by industry, and violations of existing legal obligations. There is no end yet in sight for these tensions, as growing populations, urbanisation, economic development, and climate change all exert tremendous pressure on the world's water resources.[3] Yet at the same time, the vital nature of water and the need to safeguard this common resource has also served as an important incentive for co-riparian countries to cooperate. This is best indicated by the impressive number of approximately 300 international water-sharing treaties negotiated and signed since the end of the second World War.[4] Also, according to the BAR Intensity Scale for positive and negative water-related events from 1948 to 2008 as provided by the International Water Events Database, the number of documented incidents of cooperation over water (77 percent of all cases), including the signing of water-sharing treaties, is far greater than that of water conflicts (19 percent).[5] The database is compiled by the Oregon State University. This indicates that water also unites diverging interests of stakeholders, rather than only dividing them.

The complex relationship between water and conflict has raised concerns among policymakers around the globe, particularly in Asia and Africa. Out of over 80 cases of water conflicts reported in Asia by the Pacific Institute, 58 involved some degree of violence.[6] One of these was the 2012 militants' attack on the Tulbul Navigation Lock/Wullar Dam construction site in Jammu and Kashmir (J&K) in India. The project is being opposed by Pakistan, which argues that it is not in line with the provisions of the Indus Waters Treaty. In fact, the treaty itself originated from the severe water conflict between India and Pakistan at the time of partition, including an incident of cutting off water supplies from India to parts of Pakistan in 1948.[7] Moreover, a recent survey by the US National Aeronautics and Space Administration (NASA), analysing data collected by satellites between 2003 and 2013, indicates that Indus Basin is the second most overstressed water basin in the world, with its water levels falling by four to six mm every year.[8] To understand the conflict around the Indus Basin between India and Pakistan, it is important to study the 1960 Indus Waters Treaty in detail.

Table 1: Number of water conflicts reported by the Pacific Institute, 1980 – 2015



Source: The Pacific Institute

THE INDUS WATERS TREATY

The Indus Waters Treaty, signed in 1960 between India's first prime minister, Jawaharlal Nehru, and Pakistan's then president, Gen. Ayub Khan, provides for the sharing of the six rivers that flow through the Indus basin – encompassing certain areas of both Indian and Pakistan territories. According to the arrangement, India has unrestricted access to water of three eastern rivers (Ravi, Beas and Sutlej) whereas the water of western rivers (Indus, Jhelum and Chenab) is allocated to Pakistan; India can use the latter only for domestic, non-consumptive, agriculture and hydro-power generation purposes. Some analysts refer to the treaty as one of the most "liberal" water-sharing arrangements in the world, given Pakistan's 80.52-percent share in using Indus system waters as against India's share of only 19.48 percent.[9]

In spite of the treaty, however, tensions between India and Pakistan over these waterways have not come to an end. This includes the 2013 arbitration dispute over India's Kishanganga hydro-electricity plant, which confirmed India's right to divert water for the purpose of the project, as well as the recent engagement of the World Bank in the outstanding disagreements pertaining to the construction of the Kishanganga and Rattle hydro-power projects by India. Responding to the concurrent requests from Pakistan and India to appoint a new arbitration tribunal or a neutral expert, respectively, the World Bank, which plays a procedural role under the Indus Water Treaty, urged both countries to resolve their differences through mediation.[10] Before that, in September 2016, the terrorist attacks in Uri brought the Indus Waters Treaty to the fore. The attacks killed 18 Indian soldiers and left dozens wounded, opening yet again another channel for public debate in India as policymakers and security experts weighed in on the question of how to identify strategies and options to cause disorder in Pakistan. A range of non-military options, including abrogating the water treaty with Pakistan, emerged during the policy discourse. In regard to the Indus Waters Treaty, the Indian government considered the following two measures:

1. Suspend the operations of the Indus Waters Commission established under the treaty to facilitate consultations, exchange of data and resolve potential disputes.[11]

2. Exercise its right to use water of the western rivers to the maximum by building dams, canals and reservoirs.

CUSTOMARY LAW OBLIGATIONS ON THE USE OF TRANSNATIONAL WATER RESOURCES

The turbulent global history of the use of transboundary waters has led to the emergence of an elaborate legal framework of rights and obligations for co-riparian states. From a legal perspective, no country is allowed to exercise its rights over transboundary rivers to the detriment of its neighbours. Even in the absence of an international agreement, any project undertaken by India on common rivers has to comply with its obligations under international customary law (or international rules which arise from repeated, uniform and representative states' practice accepted as law) on the use of transnational water resources.[12] Further, the Indus Waters Treaty itself specifies that it should be applied and interpreted in line with the customary international law.[13] In fact, in the 2013 case between India and Pakistan, the arbitration tribunal concluded that while India was entitled to construct the disputed power-generation project on the Kishanganga/ Neelum River, its right to use the shared waters was limited by the constraints specified by the

Indus Waters Treaty and customary international law.[14]

Although the precise legal content of the rules established under the customary law is difficult to define, the practice of the international community and the decisions of tribunals reinforce the various important principles relating to the utilisation of international rivers. Rejecting the claim of absolute territorial sovereignty over transboundary water resources, the customary legal framework revolves predominantly around the principles of equitable utilisation of the water resources and a duty to prevent transboundary harm.

The rule of 'limited territorial sovereignty' implies that a country can use shared rivers flowing within its territory as long as it does not prejudice the interests of other co-riparian countries. The principle has been reaffirmed as part of customary law in the famous *Lack Lanoux* arbitration case. The dispute arose around a project carried out by the government of France on the waters of Lake Lanoux in the Pyrenees mountain range, which the Spanish government feared could adversely affect its interests. The international tribunal ruled that the upstream country "is under the obligation to take into consideration the various interests involved; to seek to give them every satisfaction compatible with the pursuit of its own interests, and to show that in this regard it is genuinely concerned to reconcile the interests of the other riparian [country] with its own."[15]

Consequently, countries have a right to use water resources within their own territory in an equitable and reasonable manner. It implies that the upper and lower riparian countries are entitled to an *equitable*, not necessarily *equal*, share of transboundary waters. Various legal instruments—for example the UN Convention on Non-Navigational Uses of International Watercourses, the Helsinki Rules on the Uses of the Waters of International Rivers, and most recently, the Berlin Rules on Water Resources—require the determination of use of common water resources to take into account factors such as geography of the basin, population dependent on the common rivers and its economic and social needs, existing utilisation and potential needs in the future. These instruments, though not legally binding on India, are considered to provide guidance in the interpretation of the customary rules. The principle of equitable and reasonable utilisation of shared water resources was endorsed by the International Court of Justice (ICJ) in the *Gabčíkovo-Nagymaros* case.[16] Adjudicating on the dispute over Gabčíkovo–Nagymaros Dam projects on the Danube river carried out by Slovakia[17] despite environmental concerns raised by Hungary, the ICJ cited the well-established legal principle of "perfect equality of all riparian [countries] in the use of the whole course of the river and the exclusion of any preferential privilege of any one riparian [country] in relation to the others."[18] It further observed that under international law, a country cannot unilaterally assume control of shared resources and deprive another riparian country of its right to an equitable and reasonable share of the natural resources of rivers.[19]

The obligation to prevent transboundary harm is another well-established principle of the customary international law and as a fundamental rule, it cannot be undermined by the development policy of any country. Thus, whenever a development project may cause significant harm to the environment of another country, there is a duty to prevent or at least mitigate such harm.[20] This rule has been reaffirmed by the Permanent Court of Arbitration in the dispute launched by Pakistan against India's Kishanganga Hydro-Electric Project. It was interpreted to imply that Pakistan, as a lower riparian state, has a right to the minimum flow on the downstream Kishanganga/Neelum River, which implied reduction in energy generation of India's

planned power plant.[21] Although the precise legal content of this obligation is not clearly defined, the analysis of legal instruments embodying the principle demonstrates that it is normally considered to be an obligation based on the duty of diligence (obligation to exercise reasonable diligence and care to achieve the result) rather than an absolute duty (absolute obligation to achieve specified result). A country must act with reasonable diligence while taking measures which may potentially harm other countries. The duty of diligence was considered by the ICJ in its 2010 opinion in a dispute between Argentina and Uruguay concerning the construction of pulp mills on the Uruguay River. Interpreting a particular provision of a bilateral water-sharing treaty imposing an obligation to prevent environmental harm upon the parties, the Court set a useful interpretative guidance as to the content of the due diligence requirement. It stated that the obligation to prevent harm "is an obligation to act with due diligence in respect of all activities which take place under the jurisdiction and control of each party. It is an obligation which entails not only the adoption of appropriate rules and measures but also a certain level of vigilance in their enforcement and the exercise of administrative control applicable to public and private operators such as the monitoring of activities undertaken by such operators to safeguard the rights of the other party."[22]

Moreover, it has been observed that the aforementioned precautionary principle would remain meaningless without the duty of cooperation, which includes requirements to notify, exchange information, consult and negotiate with interested countries about any project that may be hazardous for them. The importance of duty of cooperation in the field of environment protection was reaffirmed in the *Gabčíkovo-Nagymaros* case.[23] In the Resolution on Cooperation between States in the field of environment,[24] the UN General Assembly stated that the effective duty of cooperation requires that technical data on the work to be carried out by the countries within their national jurisdiction, be made publicly available. However, it adds that this requirement should be performed in "the best spirit of cooperation and good-neighbourliness; without this being constructed as enabling each [country] to delay or impede the programmes and projects of exploration, exploitation and development of the natural resources in the [country] in whose territories such programmes and projects are carried out."[25] This customary law obligation is incorporated in various bilateral water-sharing agreements by establishing an institutional framework with bilateral commissions which review, consult, and decide upon individual projects implemented on the transboundary river waters.

More specifically, the obligation to conduct an environmental impact assessment is considered central to the performance of the duty of cooperation. Without an environmental impact assessment, the duty to notify and consult countries exposed to transboundary risks becomes meaningless. The requirement to undertake an environmental assessment was addressed by the ICJ in its opinion on the *Uruguay-Argentina Pulp Mill* case. Although the case involved a dispute concerning obligations under the bilateral agreement between the parties (1975 Uruguay River Statute),[26] the Court observed that the treaty codifies already existing obligations imposed under the customary law. It further stated that the treaty had "to be interpreted in accordance with a practice, which in recent years has gained so much acceptance among [countries] that it may now be considered a requirement under general international law to undertake an environmental impact assessment where there is a risk that the proposed industrial activity may have a significant adverse impact in a transboundary context, in particular, on a

shared resource. Moreover, due diligence [...] would not be considered to have been exercised, if a party planning works liable to affect the regime of the river or the quality of its waters did not undertake an environmental impact assessment on the potential effects of such works."[27]

The above-mentioned principles of customary law, evolving around the concept of limited territorial sovereignty over transboundary waters, are also enshrined in India's domestic legislative system. While resolving inter-state water disputes, tribunals in India have always favoured the duty to prevent harm. In its 1978 Report, the tribunal in the Narmada Water dispute between the states of Madhya Pradesh, Gujarat, Maharashtra and Rajasthan pronounced that "it is not open to a state to take actions in respect of an inter-state river as this would prejudicially affect the rights of other states in the waters of the same inter-state river."[28] The allocation of waters of inter-state rivers between the states in India is based on the principle of 'equitable apportionment', according to which every riparian state is entitled to a fair share of the waters.[29]

It thus follows from both international and India's domestic legal system that transboundary rivers must be treated as shared resources providing common benefit for all communities, irrespective of political boundaries. The international customary law applies in cases where there is no specific water-sharing treaty concluded between the countries, but it also complements and fills the gaps in the legal framework envisioned by existing agreements. Given the evolving nature of the customary law on transboundary resources, it now provides rules that were not covered in the early water treaties; an example is the obligation to conduct an environmental impact assessment. As a result, countries conducting projects on international water basins must not only comply with the letter of their water-sharing agreements, but also ensure respect of the obligations recognised as part of the international customary law.

ECONOMIC AND SOCIAL IMPLICATIONS OF TRANSBOUNDARY WATER PROJECTS

India's policy decision to construct dams, reservoirs and canals over rivers in the Indus basin necessitates an assessment of associated benefits and costs. Various research have shown that the construction of large dams has repercussions for the whole ecosystem, including the poor and indigenous people whose livelihoods depend on rivers. According to the World Commission on Dams (WCD), "[t]he end of any dam project must result in sustainable improvement of human welfare, that is, it must be economically viable, socially equitable and environmentally sustainable."[30] While many countries have invested in constructing large dams in order to meet the growing water and energy demands of their population, the benefits are outweighed by the costs incurred.

Dam construction projects require large financial investments, to begin with. In a study conducted by WCD in 2001, it was estimated that in the 1990s, developing countries invested nearly US $ 22-31 billion every year in dam projects, of which 80 percent was financed directly by the public sector.[31] In addition to monetary investments, a dam takes five to eight years on average to finish.[32] Despite the large investment and long gestation period, dams have been constructed worldwide. In India alone, at present, there are over 5,190 large dams,[33] of which 313 are still under construction. About 39 dams are located in the Indus basin; a majority were completed amidst controversies.[34]

It is well recognised that most of the water conflicts between India and Pakistan are, in reality, conflicts over dams. For instance – the Baglihar dam, constructed on river Chenab in

J&K and completed in 2008, has been a contentious issue between India and Pakistan due to its design and storage capacity. Similarly, the Kishanganga dam on river Jhelum is mired in controversy because of its river diversion plans.

Dams have an important role in managing water resources and diverting water for multiple uses like agriculture, industrial and domestic use, flood control and hydropower generation. Water debates between India and Pakistan, however, are more complex and go beyond water-sharing; underlying these water conflicts is a fundamental absence of trust between the two countries. As per the special report by the Institute of Peace in the US, disagreement on the Baglihar dam project was not merely over technical specifications but was largely driven by Pakistan's security concerns—India's intentions to hold/restrict water during low-flow winter months and release excess water during high-flow summer months, was feared to cause flooding in that region of Pakistan.[35] This rightly underscores the trust deficit between the two countries; any action by India attracts suspicion in Pakistan, and vice-versa.

The sensitivities around the Indus waters and the treaty that covers it, follow a specific pattern. The treaty does not feature regularly in the media reportage of India and Pakistan. In a study[36] on frequent water dialogues between India and Pakistan, it was found that India features in media reportage of Pakistan only during the winter months when availability of water in Pakistani rivers goes down; in the summer months, this negativity towards India becomes more subdued. An opposite trend is observed in the Indian media's coverage of water issues: there is greater concern to criticisms by Pakistan over water in the summer months, as compared to winter months. A considerable sensitivity to Pakistan's actions over water in summer months is apparently due to peak electricity demand in India during that time. Hydroelectricity generation is one of the major concerns for India, which reflects in media dialogues between India and Pakistan during summers.

India's plans to construct dams and reservoirs in the aftermath of the Uri attacks need to be seriously examined given the environmental costs involved. Lessons on the ecological impact of constructing dams must be drawn from India's earlier forays into dam construction. For example, the Sri Sailam dam across the river Krishna in Andhra Pradesh played a role in the submergence of some 106,925 acres of land across 117 villages in the region. Before that, the construction itself caused the displacement of more than 27,000 families. Similar instances of displacement have happened in other states of India. The Ukai dam across the river Tapi in Gujarat displaced 52,000 people; the Pong dam in Himachal Pradesh displaced nearly one lakh people; and the Bhakra dam displaced over 2,100 families.[37] Displacement, evacuation and submergence are the negative externalities of constructing large dams, which often get ignored during the planning phase of dam projects. The Government of India must take into account that constructing dams over rivers in the Indus basin would cause displacement of people and submergence of lands in J&K. While estimating costs for the dam project, rehabilitation and replantation costs as well as other mitigation costs[38] must be incorporated for a true and precise cost estimate.

A pre-requisite to initiating construction of dams and reservoirs in J&K is to gather ample understanding of its topography. Also, it is important to recognise that the state at present does not have an adequate infrastructure (canals) to store water, which could potentially cause flooding in the state if water flow to Pakistan is restricted.[39] Any construction activity undertaken in the mountainous terrain of J&K requires excellent engineering, architectural design, and significant labour and

monetary investments from the public or private sector.

Dam construction projects generally cause diversion of natural water flows and consequently modify the distribution patterns of water for the countries/states involved. Although, the diversion normally does not occur in the case of run-of-river hydropower projects, it is important to note that the Indus Waters Treaty provides an independent definition and criteria for the design and operation of the run-of-river hydro-electric plants in the Indus basin.[40] As confirmed by the Permanent Court of Arbitration, the Treaty explicitly acknowledges that in certain cases a run-of-river project may lead to the diversion of water between rivers (i.e. inter-tributary transfer).[41] As a consequence, for the purpose of the resolution of 2013 dispute between India and Pakistan, the Kishanganga Hydro-Electricity Project, which intended to divert water from Kishanganga/Neelum River into the Bonar Nallah, was considered to constitute a run-of-river project.[42] Yet, any change in water distribution is a major source of water conflicts. There are experiences of sub-national water conflicts arising in India and Pakistan merely with the signing of the Indus Waters Treaty. One of the causes of interprovincial conflicts in Pakistan is the Indus Waters Treaty, which allocated most of the water share of Pakistan Punjab (under Sindh-Punjab Agreement of 1945) to India by allowing India to construct canals in order to share water of the western rivers of the Indus basin.[43] Similarly, Jammu and Kashmir suffers losses due to the treaty as it allocated water of three western rivers (flowing through the state) to Pakistan. According to official estimates, the absence of water storage facilities on the rivers of the Indus basin (especially Chenab and Indus) results in losses of about INR 6,000 crore annually.[44] According to the *Economic Survey of Jammu and Kashmir 2014-15*, the state has identified hydropower potential of nearly 16,475 megawatts (MW) out of the total potential of 20,000 MW from rivers in the Indus basin, especially Chenab River (68.5 percent), Jhelum River (18.7 percent), Ravi River (3 percent) and Indus River (9.8 percent).[45] Due to lack of storage infrastructure in the state and constant restrictions from Pakistan on design of dams, canals and storage reservoirs, much of this potential remains untapped. The ensuing loss in hydropower development has provoked popular discontent and grievance from the citizens in this state.

All the above considerations need to be kept in mind before executing recent plans of constructing dams over rivers in the Indus basin as this might aggravate political tensions between India and Pakistan. The Indian government needs to study the implications of the policy decision carefully. A long history of water conflicts between India and Pakistan is surely a lesson in tact.

CONCLUSION

Any development project undertaken on transboundary waters will not only have to be scrutinised from the perspective of its compliance with the letter of the water-sharing agreement, but also its conformity with various principles established under the customary international law. The analysed obligation to use water resources in fair and equitable manner, duty to prevent transboundary harm or duty to cooperate is meant to ensure that water is not used as a weapon in international relations.

The dam construction projects must be undertaken after conducting economic analysis, along with other forms of knowledge such as social analysis, ecological risk analysis, among others. All whose livelihoods are at stake must be taken into consideration while making any decision to construct dams/reservoirs. In this way, the true cost (including economic, social and other costs) of a project would be identified. India and Pakistan have had a history of

doubting each other's intentions. The dam construction projects need to be informed by economic, social, and environmental assessments rather than political perceptions. The distribution of water resources in scarcity conditions eventually results in conflicts, which can be avoided by building trust between countries, recognising rights of the involved parties and sharing benefits of common water resources. The common environmental challenges must be identified and used as opportunities for building trust and confidence.

The Indus Waters Treaty represents a huge achievement in transboundary water cooperation. Concluding it decades ago, both countries acted in the spirit which reflects their understanding of the need to preserve shared water resources for the mutual benefit of communities which depend on them. Currently, when water is becoming a scarce resource due to growing population and over-exploitation, competition over access to it sparks violent conflicts in some parts of the world, the Government must realise that while playing with water it may soon find itself to be playing with fire. It is time that India realises that bargaining with water is not the way and instead must ensure that shared resources continue to be used peacefully for the greatest common interest. ORF

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ENDNOTES:

1. The Pacific Institute categorises conflicts as: Control of Water Resources (state and non-state actors): where water supplies or access to water is at the root of tensions, Military Tool (state actors): where water resources, or water systems themselves, are used by a nation or state as a weapon during a military action, Political Tool (state and non-state actors): where water resources, or water systems themselves, are used by a nation, state, or non-state actor for a political goal, Terrorism (non-state actors): where water resources, or water systems, are either targets or tools of violence or coercion by non-state actors, Military Target (state actors): where water resource systems are targets of military actions by nations or states, Development Disputes (state and non-state actors): where water resources or water systems are a major source of contention and dispute in the context of economic and social development.
2. The list can be accessed at http://worldwater.org/water-conflict/.
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4. Ibid, p. 3.
5. International Water Event Database can be downloaded from:http://www.transboundarywaters.orst.edu/database/interwatereventdata.html.
6. Water Chronology List http://www2.worldwater.org/conflict/list/.
7. VK Shashi kumar, "The Indus Treaty Has Stood the Test of Time. There's No Need for Any Rethinking," *The Wire*, September 27, 2016. Available at: https://thewire.in/68662/indus-treaty-stood-test-time-no-need-rethinking/.

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10. "Press Release: World Bank Urges Mediation for India, Pakistan over Indus," The World Bank, Washington, November 10, 2016.

11. S. Haidar, "India suspends talks on Indus water pact," *The Hindu*, September 26, 2016.

12. Statute of the International Court of Justice in Article 38(1) provides the most authoritative list of the sources of international law.

13. Paragraph 29 of Annexure G to Indus Water Treaty, 1960.

14. Indus Waters Kishengenga Arbitration (Pakistan v. India), PCA Partial Award, para. 445.

15. Lake Lanoux Arbitration (France v. Spain), Award, Reports of International Arbitral Awards, vol. XII (1957), pp. 281-317, para. 22.

16. Gabčíkovo -Nagymaros Project (Hungary/Slovakia), Judgment, I.C.J. Reports 1997, p. 7.

17. Following the legal succession of rights after the split of Czechoslovakia into Czech Republic and Slovakia.

18. Gabčíkovo -Nagymaros Project (Hungary/Slovakia), Judgment, I.C.J. Reports 1997, p. 7, para. 85.

19. Ibid.

20. Award in the Arbitration regarding the Iron Rhine ("Ijzeren Rijn") Railway between the Kingdom of Belgium and the Kingdom of the Netherlands, Reports of International Arbitral Awards, vol. XXVII (2005), pp. 35 – 125.

21. Indus Waters Kishengenga Arbitration (Pakistan v. India), PCA Final Award 2013, paras. 85 -87 and 112-114.

22. Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, I.C.J. Reports 2010, p. 14, para. 197.

23. Gabčíkovo -Nagymaros Project (Hungary/Slovakia), Judgment, I.C.J. Reports 1997, p. 7, para. 17.

24. General Assembly, Resolution 2995 (XXVII) on Cooperation between States in the Field of Environment, 15 December 1972, UN Doc. A/RES/2995(XXVII).

25. Ibid., para. 3.

26. Uruguay–Argentina Statute of the River Uruguay of 26 February 1975. Text available at: http://www.internationalwaterlaw.org/documents/regionaldocs/Uruguay_River_Statute_1975.pdf.

27. Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, I.C.J. Reports 2010, p. 14, para. 204.

28. The Report of the Narmada Water Disputes Tribunal, Vol -1, 1978, para. 8.2.9. Available at: http://nca.gov.in/hindi_web/NWDT/Vol-1.pdf.

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40. Annexure D to the Indus Water Treaty.

41. This is provided in Para 15(iii) of Annexure D to the Indus Water Treaty.

42. Indus Waters Kishengenga Arbitration (Pakistan v. India), PCA Partial Award, paras. 155, 383-385.

43. United States Institute of Peace, See n. xxxv.

44. 'J-K govt. pitches for construction of small dams as Centre reviews IWT', September 29, 2016. Available at: http://indiatoday.intoday.in/story/indus-waters-treaty-j-and-k-govt-pakal-dul-sawalkot-power-projects-bursar-dam-river-chenab-jhelum-indus-sham-lal-choudhary-omar-abdullah/1/776166.html [accessed on 26 October 2016].

45. Authors' calculations using data from the Economic Survey of Jammu and Kashmir 2014-15.

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