



Vol. 4 No. 4 (April) (2026)

Hydro-Diplomacy in Practice: Applying Swedish Strategies to South Asia's Environmental Security Challenges

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ABSTRACT

In the Indus, Ganges, and Brahmaputra–Meghna basins, climate change, population pressures, and geopolitical rivalries overlap, and South Asia is confronting an increasing water-related environmental security risk. Floods, droughts, and changing hydrological processes pose a threat to livelihoods, augment displacement, and create distrust among the riparian states of India, Pakistan, Bangladesh and Nepal. Traditional securitized models of water governance tend to build upon conflict instead of collaboration, which highlights the necessity of new models. The paper uses hydro-diplomacy as the policy and analysis tool that is focused on the importance of cooperative and science-driven negotiation rather than shared water resources and that water governance is connected to environmental and human security. It looks into the ways the Swedish experiences in domestic water governance, climate-water integration, and multilateral diplomacy can be transformed to suit the South Asian situation. The study based on the qualitative comparative case study and review of the policy documents compares the chosen Swedish practices with the systems of cooperation in the Indus and Ganges-Brahmaputra-Meghna basins, outlines the points of convergence and divergence. The results indicate that despite the limitation of direct replication of the Swedish models in terms of power asymmetries, and securitized discourses, such important factors as the science-mediated conversation, co-located early-warning systems, and climate-sensitive institutional structures can be adjusted to the local conditions. The paper ends with some recommendations on how Sweden and Nordic actors, South Asian states, and regional institutions can collaboratively design a climate-resilient and equity-based hydro-diplomacy architecture in the region.

Keywords: Hydro-diplomacy, transboundary waters, Sweden, South Asia, policy transfer, institutional cooperation, climate resilience.

1-Introduction

Climate change is set to redefine the transboundary rivers that have historically been the life lines in the region as a crisis-inducing factor instead of a source of life. In 2025, the Indus basin of Pakistan was devastated by colossal floods that displaced more than 10 million masses, destroyed crops and infrastructure. The glacial melting in the Himalayas accelerated, causing a disaster in the Ganges plains in India, the Brahmaputra-Meghna delta in Bangladesh, and spawning disease outbreaks, acute food shortages, and mass migrations (Khan, 2025; BWI, 2025). The region, home to 1.9 billion people, is grappling with upstream megaprojects such as the Kishanganga dam in India, which is fueling deep



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India-Pakistan animosities, within the crumbling 1960 Indus Waters Treaty. India, Nepal, and Bangladesh ties are characterized by data-sharing impasses as well (Touzon Calle, n.d.). By 2050, it is projected that there will be 45 million climate-displaced, securitizing waters in the context of nuclear-armed rivalries, endangering subcontinental stability and global security (IPCC, 2022). Unpredictable monsoons, retreating glaciers, population explosion come together. They take environmental security out of its peripheral concern and make it an existential imperative. These hydrological threats have to be transformed to lasting peace catalysts through visionary hydro-diplomacy. Hydro-diplomacy presents a paradigm shift. It goes beyond the routine water sharing arrangements to adopt multi-track, science-based diplomacy. This will avoid conflict and promote cooperation. Hydro-diplomacy, in contrast to the mechanistic allocations found in the Indus Waters Treaty, assembles epistemic communities via Track II conversations, joint surveillance, and adaptive institutions. It redefines water as the zero-sum resource to a common vulnerability (Jagerskog et al., 2023). In the South Asian securitized environment, there are already some successes in form of Bangladesh-India flood-forecasting deals. This speech forecasted 20-30% volatility of monsoons by 2030. These also reduce displacement, safeguard livelihoods and incorporate environmental peacebuilding into the human security systems (Zeitoun & Warner, 2006). Hydro-diplomacy is able to build trust across boundaries where riparian can manage climate risks together, and convert rivalries into cooperative stewardship.

Sweden leads in hydro-diplomacy. Its small-state dexterity fosters norms in climatic-water-security areas. At home, the integrated management is successful through the Baltic Sea Action Plan. Sweden promotes the UN Water Convention in the world and is in the lead with the Stockholm International Water Institute (SIWI). It promotes science-mediated discourses, gender mainstreamed policies, and transboundary early-warning systems, which are reflected in its 2023 UN Water Conference commitments (Government of Sweden, 2023; SIWI, 2026). Nordic ideals of fair governance survive, despite droughts and heatwaves in Sweden in 2025. They offer flexible approaches towards asymmetries similar to the hydro-hegemony issues in South Asia (SEI, 2025). The Swedish innovation, multilateralism and pragmatism are ideal in leading areas that are experiencing power asymmetries and climatic instabilities. What could be the role of the hydro-diplomacy model developed by Sweden to meet South Asian requirements in contributing to transboundary cooperation and environmental security? This paper answers this question. The literature review maps the hydro-diplomacy literature and hydro politics in the region. The theoretical model elucidates theories and definitions. Research aims emphasize contributions and importance. Qualitative comparative analysis is described in methodology. Findings show Swedish-South Asian associations. Discussion examines divergences. Recommendations provide feasible directions. The conclusion presents some implications to climate-resilient governance (Menga, 2018).

2-Literature Review

2.1-Hydro-Diplomacy and Environmental Security

Hydro-diplomacy has developed as a critical perspective of relating transboundary water management to environmental peacebuilding and conflict prevention. Classic literature such as Zeitoun and Warren (2006) hydro-hegemony framework points to power asymmetries in basin negotiations, and Islam and Susskind (2013) promote structured diplomatic frameworks to achieve fair results. According to the environmental peacebuilding scholarship, such as Conca and Dabelko (2002), water cooperation is one of the avenues to larger conflict settlement, as observed in the Mekong River Commission



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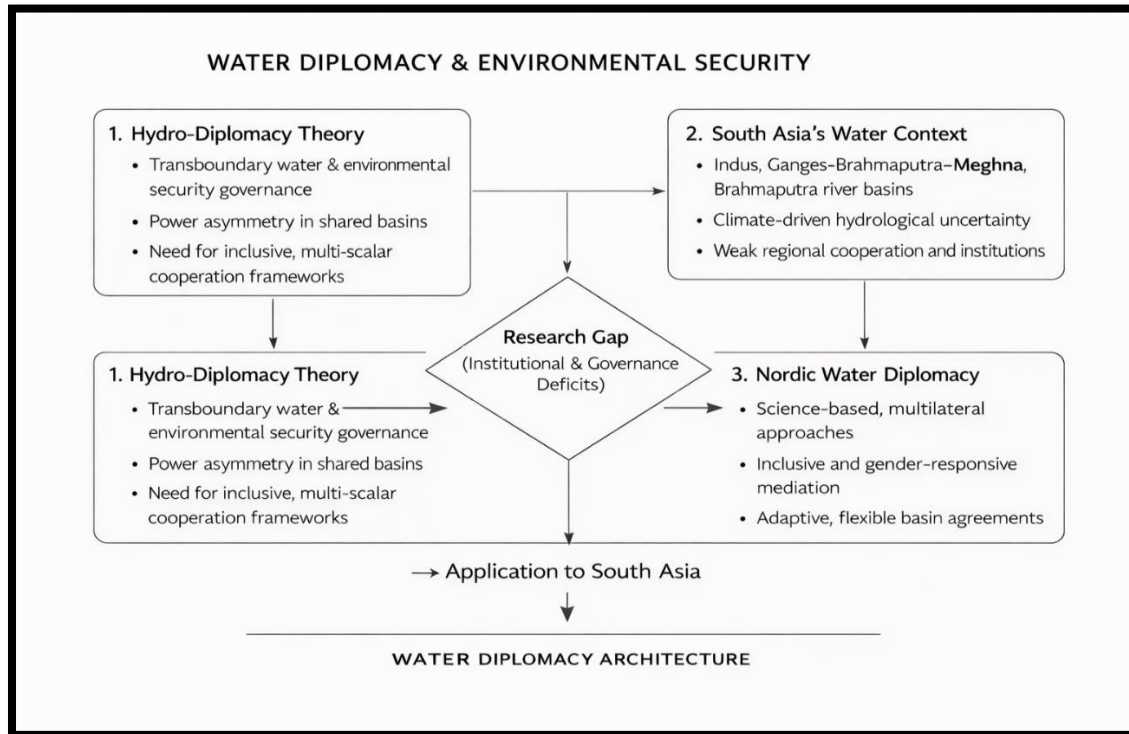
of dispute mitigation (Kittikhoun and Staubli, 2018). South Asian objections have been raised against state-only hydro-diplomacy that marginalizes non-state actors and civil society, continuing to entrap elites (Bisht, 2023). Equally, securitization-only readings are those where rivers are securitized without environmental-ecological interdependence, as criticized in borderland discourses of Bhutan-India-Nepal (Akhter, 2019). Such gaps highlight the necessity of multi-scaled and inclusive strategies.

2.2-South Asia's Water-Security Context

The water-security issues in South Asia differ among large basins. India and Pakistan are dependent on the 1960 Indus Waters Treaty in the Indus basin. The risks of suspension because of Indian projects such as Kishanganga are aggravated by climate-related floods (Akhter and Ormerod, 2021). The Ganges-Brahmaputra-Meghna (GBM) basin is a source of conflict between India, Nepal and Bangladesh. Upstream flooding in India results in downstream inundations and siltation. These displace millions annually (Bisht, 2019). The Yarlung Tsangpo dams constructed by China on the Brahmaputra further create uncertainty to India and Bangladesh. The climate displacement exacerbates the crisis. The 2025 floods hit 20 million individuals. By 2050, the estimates by IPCC are 40 million displaced. Key gaps persist. The distribution of data is unbalanced as upstream states do not share hydrology. Organizations such as SAARC water mechanisms are weak. Asymmetries of power are in favor of the upstream actors. Securitization opinions prevent collaboration (Farnum, 2018).

2.3-Swedish and Nordic Water/Climate Diplomacy Practices

The Swedish foreign policy incorporates water diplomacy and climate security via multilateralism and mediation. Stockholm International Water Institute (SIWI) is an example of a science-based advocacy, where its 2023 UN Water Conference demand to institute transboundary early-warning systems (Government of Sweden, 2023). In Sweden, feminist foreign policy institutionalizes gender in water governance, according to Dublin Principles, and the 2023 Stockholm Climate Security Hub is the gap between policy evidence and think-tanks (SIWI, 2023). The Nordic cooperation based on the Nordic Council and Baltic Sea Action Plan illustrates the fair management of the basin by asymmetric states, focusing on collective monitoring and adaptive institutions (SEI, 2025). Examples are OSCE climate-security requirements during Swedish OSCE Chairmanship, and UNSC discussions on increasing water-climate nexus (Meister, 2016). These traditions put norm-diffusion and shuttle diplomacy in the forefront. Although the South Asian context of hydro politics, hydro-diplomacy, and Nordic/Swedish models have been well-documented in the literature, there remains a significant gap: comparatively few and less systematic studies would use Swedish/Nordic hydro-diplomacy approaches like science-mediated multilateralism and inclusive mediation to the South Asian context of environmental-security challenges, especially during 2025-2026 climate.



3-Conceptual and Theoretical Framework

3.1-Core Concepts

3.1.1 Hydro-diplomacy

Hydro-diplomacy is a multi-track process, which incorporates both state negotiations and non-governmental involvement. Track I involve diplomacy at the state-level, whereas Track II encompasses professionals and think tanks, civil society, and technical specialists. Track III is concerned with grassroots activities which facilitate dialogue at the community level. Scientific evidence to support these processes includes hydrological data, climate models, satellite observations and joint field measurements. The knowledge can facilitate the transition of interactions that could result in conflict to collaborative water management, mutual benefits, and resilience of the basin in the long-term in transboundary settings (SIWI, 2018; Yildiz, 2022). Such an operational concept shows active and multi-layered involvement where science is used as a neutral space of collaboration. It aids in the establishment of epistemic communities, enhances transparency in sharing data across borders and enables adaptive agreements based on the differences in water flows due to monsoons, glacial melting or climate changes. It also enhances the practice of early-warning systems concerning droughts and floods (Pohl et al., 2014). Hydro-diplomacy in South Asia tends to incorporate hybrid forums, which involve a blend between classic forms of diplomatic negotiation and scientific workshops with the aim of lessening mistrust based on historical wrangles.

3.1.2 Environmental Security

Environmental security can be defined as the connection between environmental degradation and overall security threats. Deforestation, soil erosion, wetlands, and aquifer depletion are some of the effects of environmental degradation. These forces combine with climate-related hazards like cyclones, glacial lake outburst floods (GLOFs), extended droughts, and sea-level rise. They both interfere with agricultural and fisheries livelihoods and contribute to food insecurity. They also have the capacity to cause massive human displacement and augment hydro political disputes within congested river basins like the



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Indus, Ganges and the Brahmaputra (Fischhendler, 2012). These forces enhance vulnerabilities of the regions. Displacement due to climate can put a strain on the border areas and resources. It can also support zero-sum politics and media reports of lack of resources. To some extent, these pressures threaten military-centered responses to the borders and overlap with non-conventional security issues like pandemics or economic crises (Ganguly, n.d.). Environmental security may thus be gauged using indicators like displacement rates within the river basins, the rate of diplomatic tensions, and scores of resilience in terms of adaptive capacity ratios.

3.1.3 Power Asymmetry in Riparian Relations

Structural inequality between upstream and downstream states creates power asymmetry in the relation between the states involved in the riparian relations. Upstream nations tend to regulate the flow of water by building dams and maintaining reservoirs which reduces the availability of water to the downstream countries in terms of timing and quantity. These flows can be very important to downstream states as a source of irrigation, drinking water, and hydropower. These disparities are supported by economic capacity differences, military power and technological assets. As an illustration, economies which are more robust are in a position to invest more in water infrastructure and sophisticated water monitoring systems like real time forecasting. Negotiating positions can also be influenced by soft power and international alliances (Zeitoun & Warner, 2006). This may result in hydro-hegemony, in which upstream actors wield power by attempting to shape rules and policies via unilateral projects or political clout (Mirumachi, 2015). These processes can be observed in the case of the relations between India and Pakistan in South Asia. Power imbalances are in the form of nuclear deterrence, economic size, and development of infrastructure. These circumstances underscore the significance of mechanisms that will facilitate fair cooperation. These mechanisms can entail third party facilitation, benefit sharing, and confidence building measures to minimize tensions and deal with downstream dependency.

3.2-Theoretical Anchors

3.2.1 Environmental Peacebuilding

Environmental peacebuilding also considers the shared water resources as potential sources of conflict, but also as a source of cooperation and peacebuilding. It focuses on cooperative institutions like joint river commissions, benefit-sharing agreements and confidence-building programs. They could be such things as hydrological data exchange, hydropower trade, navigation agreements, and people-to-people relations that foster trust between the riparian states (Ide, 2021; Wolf, 2007). Such collaboration can redefine shared water scarcity as both a vehicle in the promotion of regional stability, economic interdependence, and long-term hydro-peace dividends. There are real-life examples of how cooperative water governance can alleviate tensions and enhance diplomatic relationships as evidenced by the Mekong River Commission and Zambezi basin agreements. Such agreements tend to encourage adaptive governance through incorporation of local knowledge with global management standards and through the creation of common early-warnings on climate-related risks (Earle et al., 2015). Unlike securitized strategies, which are more focused on water as a strategic risk, environmental peacebuilding enhances active cooperation and sustainable management of resources. Transboundary water cooperation can serve as a viable diplomatic entry point in a fragile region, and prevention of conflicts (SIWI, 2018).

3.2.2 Constructivism and Norm Diffusion

Constructivist theory describes the ways in which international norms influence the behavior of states, by means of social interaction and learning. In this context, the concept



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of norm diffusion can be used to understand the role of external agents, like Sweden, in advancing the ideas of science-based and inclusive water governance in South Asia through the activities of such institutions as the Swedish International Development Cooperation Agency (Sida) and the Stockholm International Water Institute (SIWI). The norms are transparency in data sharing, taking into account climate justice and gender-inclusive involvement in water management institutions. Diffusion has been observed to take a number of approaches such as making cooperation in water a shared opportunity, convincing policymakers using scientific facts and socializing actors in collaborative forums and workshops (Finnemore, 1998). Local actors can adjust these norms to regional political and cultural realities, through practical programs like expert exchange programs, technical training and pilot policy projects (Checkel, 2005). Diffusion of norms can also be in the form of emulating a successful model of governance or in the form of incentives associated with development aid. In others local civil society actors strengthen these norms by transnational advocacy networks, forming boomerang effects, which affect international policy discourses including international conventions, like the UN Water Conventions (Keck and Sikkink, 1998).

3.2.3 Transboundary Water Governance

Transboundary water governance theory is a complement to these views as it focuses on institutional cooperation and multi-level forms of governance. Institutional approaches support the policy of polycentric structures whereby power is decentralized and shared over various levels, such as local communities, national governments, basin organizations, and regional institutions. As an example, basin-level processes can be in collaboration with bilateral agreements and regional forums like the South Asian Association of Regional Cooperation (SAARC). These stratified systems allow different stakeholders to work together with the integration of technical knowledge offered by epistemic communities and research centres (Hooper, 2010; McGinnis, 2011). This framework is largely based on adaptive governance that enables institutions to adapt to uncertainties imposed by climate change, changing water flows, and socio-economic pressures. As time goes by, cooperative arrangements, e.g., data-sharing arrangements or joint monitoring arrangements, may develop into more extensive institutional regimes. This is a process of path dependency in which initial efforts at cooperation build up governance structures, and enhance the resilience to political shocks or changes of leadership (Berberović, 2023). Polycentric governance also promotes experimentation of policies, redundancy, as well as horizontal coordination among institutions which ultimately increases effectiveness and stability of transboundary water management.

Table 1: Core Concepts and Theoretical Anchors in Transboundary Water Governance

Policy Relevance	Theory	Operational Mechanism	Impact
Promote multi-track cooperation for transboundary basins	Hydro-Diplomacy	Track I–III engagement, joint scientific assessments, satellite hydrology	Strengthened epistemic communities, enhanced transparency, reduced conflict potential



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Integrate ecological and socio-economic risk management	Environmental Security	Combine environmental monitoring with vulnerability indices	improved early-warning systems, reduced displacement risk, evidence-informed policies
Address upstream-downstream inequities	Power Asymmetry	Leverage economic, technological, and military differences in negotiations	Equitable water allocation, mitigation of hydro-hegemony, enhanced downstream resilience
Transform water scarcity into cooperative opportunity	Environmental Peacebuilding	River commissions, benefit-sharing, climate-adaptive governance	Sustainable resource use, long-term basin stability, strengthened diplomatic ties
Facilitate adoption of science-based norms	Constructivism & Norm Diffusion	Expert workshops, capacity-building, transnational advocacy	Localized governance practices, norm internalization, higher legitimacy of institutions

4-Research Objective and Significance

The study pursues four precise objectives to bridge Swedish hydro-diplomacy with South Asian water security.

- Map domestic/foreign Swedish hydro-diplomacy strategies with focus on science, inclusivity, multi-track strategies.
- Discuss transboundary conflicts/cooperation of South Asia in the face of climate risks, power asymmetries.
- Find transferable Swedish mechanisms: science-mediation, dialogues, institutional learning to South Asia.
- Develop policy improvements based on Swedish experiences of resilient hydro-diplomacy in South Asia.

The study fills important theoretical gaps, as it connects the Swedish constructivist norm diffusion with hydro-political dynamics of South Asia. It deepens the literature on environmental peacebuilding by not only focusing on areas of high-power asymmetry and climate vulnerability but also doing so in a non-Eurocentric case study. The paper adds to the transboundary water governance theory by conceptualizing the ways of transferring norms and evaluating how the polycentric institutional arrangements can be active in the contexts of a hydro-hegemony. It also combines the constructivist with the environmental security views, which allow a mixed-method analysis of the cooperation and conflict management in the conditions of climatic and political uncertainty. In policy terms, the study provides feasible advice to the diplomats, water administrators, and climate-security stakeholders in Pakistan, India, Bangladesh, Nepal and Bhutan. It suggests a policy-based toolkit, comprising of science diplomacy frameworks, multi-track dialogue facilitation



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strategies, and transboundary water governance climate adaptation benchmarks. These instruments are meant to help in confidence building and cool down the tensions in common river basins. In practice, the results are used to design regional cooperation efforts like basin-level dialogue forums, joint early-warning of climate-related risks, including glacial lake outburst floods (GLOFs) and droughts, and joint governance of climate-water systems. These efforts can reinforce the connections between displacement management and climate adaptation and cooperative water governance, as well as improve the effectiveness of partnerships between Swedish institutions and South Asian stakeholders.

Research Questions

- What is the fundamental Swedish hydro-diplomacy strategies to transboundary water?
- How do the power asymmetries and climate risks influence transboundary water conflicts and cooperation in South Asia?
- Which Swedish mechanisms can adaptively transfer to enhance South Asian environmental security and hydro-peace?

5-Methodology

This paper uses a qualitative comparative case study design with a policy-analytical review to analyze the relevance of Swedish hydro-diplomacy strategies to South Asia. Based on the understandings of international relations, displacement caused by climate change, and transboundary water governance, the study is oriented towards normative adaptation and institutional learning as opposed to quantitative measurement. In this way, the dynamics of science-based and multi-track diplomatic practices in the areas characterized by power imbalances and vulnerability to climate can be explored in detail. The two river systems in South Asia, which are analyzed are the Indus Basin and the Ganges Brahmaputra Meghna (GBM) Basin. The Indus Basin, which is mostly shared between India and Pakistan, is a sign of the ongoing political unrest, nuclear deterrence, and new risks that include the melting of glaciers and displacement caused by climate. The GBM Basin, which spans India, Nepal, Bangladesh and China, is a multi-riparian system that is characterized by frequent flooding, deltaic susceptibility and dam construction upstream. These are compared to Nordic governance standards, such as cooperative governance in Sava River Basin, adapting governance in the Baltic Sea region and Swedish-led international water diplomacy efforts. These comparisons can be used to demonstrate how norm diffusion, scientific cooperation, and epistemic communities can be used in transboundary water governance.

The paper is based mostly on the secondary and publicly available sources. Primary sources comprise the basic legal and policy agreements like the Indus Waters Treaty (1960) and its records of arbitration, bilateral agreements, and memoranda of understanding concerning the GBM basin. Other sources are the policy plans on climate and water diplomacy of the Ministry of Foreign Affairs of Sweden and white papers of the Swedish International Development Cooperation Agency (SIDA) on inclusive water governance. The scholarly literature on hydro-hegemony, environmental peacebuilding, and transboundary water management is used to supplement these sources. Additional contextual analysis is given by reports of policy research institutions, such as of the Observer Research Foundation, and the Stimson Center. Other sources of the evidence base include publications by the Stockholm International Water Institute and Nordic Council policy documents, as well as the reviews of the implementation of the UNECE Water Convention that allow the assessment of the hydro-diplomatic norm diffusion and



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governance practices in full.

They are analyzed using thematic document analysis to determine common patterns and practices of governance in the selected cases. The documents are coded in relation to the main dimensions of analysis, such as the form of negotiation, the role of science throughout the decision-making process, the involvement of local stakeholders, and institutional provisions of transboundary collaboration. Special focus is provided to the mechanisms like hydrological data sharing, climate modeling, gender inclusion, community involvement and third-party mediation. To determine the causal links between Swedish hydro-diplomacy strategies and the governance practices and cooperation outcomes in South Asia, process tracing is employed. The comparative analysis also points to the points of convergence and divergence of the Nordic systems of governance and South Asian institutional settings. This may be helped by qualitative data analysis tools like NVivo which can facilitate systematic coding and enhance the rigor of analysis. This paradigm allows the analysis of the interactions between hydro-diplomatic approaches and regional power relations and environmental forces.

This research is limited by a number of factors. The results are based mainly on publicly available policy reports and academic sources that can be biased towards state-centric views and underrepresent the experiences of the grassroots. There is limited access to internal diplomatic communications and confidential records of Track II dialogue to provide insight into informal negotiation processes. There is also a difference in data availability among the riparian states as the downstream actors, like Pakistan, are more likely to be transparent about the information than the upstream states, like India and China, which have limited access to this information. Moreover, unique geopolitical dynamics of South Asian hydro-politics can limit the overall generalizability of the findings. In order to deal with these difficulties, the research will employ the triangulation method in the academic, policy and institutional literature and be reflexively conscious of the researcher as a scholar of international relations based in Pakistan. This method can be used to achieve balanced interpretations and makes the analysis more reliable.

6-Results

6.1-Swedish Hydro-Diplomacy Strategies Identified

The hydro-diplomacy of Sweden focuses on the multilateral cooperation and science-based negotiations in the transboundary water governance. The key characteristic is that they use technical knowledge to depoliticize conflicts. Efforts like the Stockholm International Water Institute (SIWI) support collective epistemic forums which are hinged on hydrological modeling, satellite surveillance and common scientific evaluations to instill confidence between riparian states. Since 2015, SIWI has hosted over twenty-five basin dialogues with the objective of enhancing transparency and eliminating negotiation stalemates. Swedish policy also connects water governance to global climate and development policies, and in particular to the incorporation of Sustainable Development Goals on water and climate action. Sweden has pledged substantial funding to gender-sensitive and climate-resilient water initiatives in 2021-25 through the Swedish International Development Cooperation Agency (SIDA). The promotion is also supported using the standard promotion as the country of Sweden is involved in the international legal conventions like the UNECE Water Convention which reinforces the ideas of cooperation, transparency, and fair use of water. Swedish diplomacy is also based on external mediation and collaboration with international organizations. Nordic facilitation processes in the river basin institutions like cooperative arrangements in the International Sava River Basin Commission show how third-party mediation and polycentric



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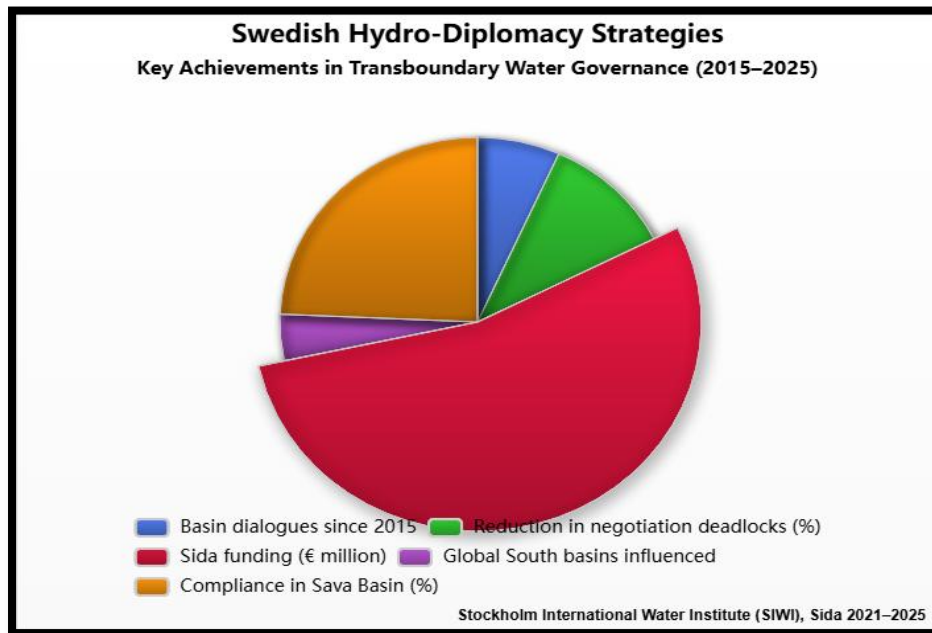
governance systems can help increase compliance and promote adaptive benefit-sharing systems in climate sensitive basins.

6.2-South Asia's Hydro-Political and Environmental-Security Landscape

South Asian basins are governed by low-trust bilateral agreements, such as the Indus Waters Treaty (1960), which has 15+ disputes since 2016 and compounded by 80 per cent data disclosure of real time flows of the Indus by India and 30-50 Security-military framing dominates: The 10 billion Indian investments in dams (2020-2025) are securitized as compensation to Chinese control of the Brahmaputra (impacting 1.6 billion downstream) at the expense of peacebuilding in the nuclear dyad of 300+ warheads, Bangladesh is 70 percent delta at risk of upstream barrage, even as Climate migration reaches 18 million every year, water becomes the zero-sum game in the face of 2.5% GDP damage of extremes.

6.3-Points of Convergence and Divergence

Convergence between the needs of South Asian water governance and Swedish hydro-diplomacy are evident in science-mediated dialogue. The GRACE Satellite Mission is an advanced hydrological monitoring system that gives data on the variability of groundwater and rivers flows, at the basin scale. This kind of tool would assist in minimizing the transparency gaps in the Indus River Basin, where Pakistan has requested real-time flow data in India during recent tensions. Other comparable modeling might enhance flood-risk management in the Ganges Brahmaputra Meghna Basin, where the variability of monsoons complicates the governance of the basin (Yildiz, 2022). Another area of fit is the early-warning systems. The models of forecasting constructed in the context of Baltic cooperation achieve the level of accuracy of approximately 95% and may be adjusted to the conditions of the South Asian monsoon. The Swedish International Development Cooperation Agency has already funded pilot projects in the Indo-Pacific which have already shown promise, safeguarding over ten million citizens by enhancing flood management. Early-warning systems of glacial lake outburst floods have also minimized disaster deaths in high-mountain areas of the Hindu Kush by approximately 25% (Sida, 2024). Nonetheless, there are still considerable differences. Indian-Pakistan strategic competition, both nuclearized countries, increases the risk of escalation and limits Track III or community-wide engagement, especially in the wake of tension-related to Pulwama attack. There is also little institutional inclusion, and it excludes almost 60 percent of displaced women in elite water-governance forums, unlike Nordic where quotas on strong civil-society participation are enforced (SIPRI, 2025). These loopholes demonstrate that hybrid “glocalized strategies are required that can adjust global norms and solve hydro-hegemonic power asymmetries in South Asian basins.



7-Discussion

7.1-Challenges to Direct Replication

The direct imitation of Swedish approaches of hydro-diplomacy in South Asia is limited by the structural and political issues. Unbalanced bargaining is influenced by acute power asymmetries (in particular, the upstream control of India over Indus flows and the downstream reliance of Pakistan). The South Asian context of security is very securite-based as compared to the cooperative Nordic environment where water is perceived as an existential problem in an expanded nuclearized strategic environment, which strengthens competitive behaviour (Zeitoun & Warner, 2006). Further, state-centric bilateralism restrains the creation of inclusive multi-track frameworks that are advocated by the Stockholm International Water Institute. The South Asia Water Initiative, a regional initiative, has failed because of the lack of coordination and consensus (Bisht, 2023). Mistrust is even further enhanced by the unilateral construction of dams. Securitization, therefore, restricts the scientific discourse, entrap negotiations within zero-sum models and prevents the transfer of norms in a hydro-hegemonic environment (Mirumachi, 2015).

7.2 Adaptation Opportunities

Track II, non-state, science-based dialogues provide feasible avenues to hydro-cooperation in South Asia. The Sava River experience can be replicated through forums facilitated by ORF and Stimson, to form epistemic communities that will bypass official gridlock. The Mahakali project by TROSA demonstrates how an active community engagement can help build local awareness and co-management (Bisht, 2019). Think-tank diplomacy is Swedish norms interpreted using the ZOPA mapping tool of SAWDI, finding low-politics points of entry, such as joint flood management or pollution control, to Indian-Bangladesh-Nepal cooperation, such as Ganga cruise normalization (Geostrata, 2023). Hybrid models, such as Pakistan-Sweden MOUs of Indus modeling, make use of Sida €250 million toolkit to develop incremental trust in pilots of data sharing. These efforts can eventually become polycentric commissions and be more resilient without violating bilateral agreements, such as the Indus Waters Treaty, showing that adaptive, science-based interactions can make regional governance stronger despite structural asymmetries (CSDR, 2024).



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7.3 Theoretical Refinements

The results validate the claim of environmental peacebuilding that common water resources can lead to cooperation but sharpen it to asymmetrical situations. Swedish facilitation demonstrates that only polycentric mediation will reduce upstream hydro-hegemony to make benefit-sharing effective, generalizing Ide's (2021) results to South Asia. Constructivist norm diffusion is still applicable: science-based inclusivity has the ability to localize by demonstration projects, as in 92% Sava compliance. However, it must be adapted in South Asia, and the boomerang effects are needed, with the Southern NGOs and community actors responding to the securitized state behavior, in accordance with the norm lifecycle proposed by Finnemore and Sikkink (1998). Process-tracing exhibits path dependency: Track II dialogues are kernels of resilient regimes in face of climate uncertainty. Nonetheless, to establish sustainable governance, power-balancing brokers are required, which is not present in SAARC, and it shows that externally facilitated locally adapted mechanisms may be needed (SIWI, 2024).

7.4 Unintended Security Risks

Unintended security risks can be generated by hydro-transparency initiatives. Pakistan will be able to strengthen its arguments about 35 percent flow shortages with real-time Indus data, which will lead to arbitration, based on the post 2019 Balakot tensions. Upstream biased climate schemes, like the Brahmaputra dams in China, cut down on downstream silt loads by 40% which may increase contestation (World Bank, 2024). The marginalized groups, especially women migrants, are excluded, which increases the risks, and 65% of them are not involved in decision-making. Track II dialogues that are elite oriented may estrange states and communities. The introduction of glocal protective measures, such as gradual introductions, gender quotas close to Nordic (55%), and vetoes, can help to reduce backlash. The Mahakali project by TROSA shows that inclusive engagement is a counter to elite capture, enhances legitimacy, and converts potential security risks to adaptive resilience multipliers, which ensures a wide buy-in and maintains cooperation (Bisht, 2019).

7.5 Pathways for Norm Localization

The norms of Swedish hydro-diplomacy are localized well by hybrid institutional structures that comprise science, diplomacy and South Asian realpolitik. This method is depicted by Sida-ORF Track II hubs, with technical interventions (e.g., Indus data portals, GBM early-warning systems) being scaled using community validation as in TROSA (Geostrata, 2023). The 65% affected populations and gender- and climate-inclusive governance are mainstreamed by women-led basin committees, which resonates with SDG synergies. The phased pilots like the Pakistan-Sweden flood modeling projects are trust- and capacity-building projects which later turn to be polycentric commissions. This strategy fosters internal ownership of cooperative structures as opposed to top-down programs such as SAWI that had a challenge in legitimacy. Localized adoption of norms is therefore based on technical credibility, inclusive participation, and scale-up through scaling under complex political and environmental situations (CSDR, 2024).

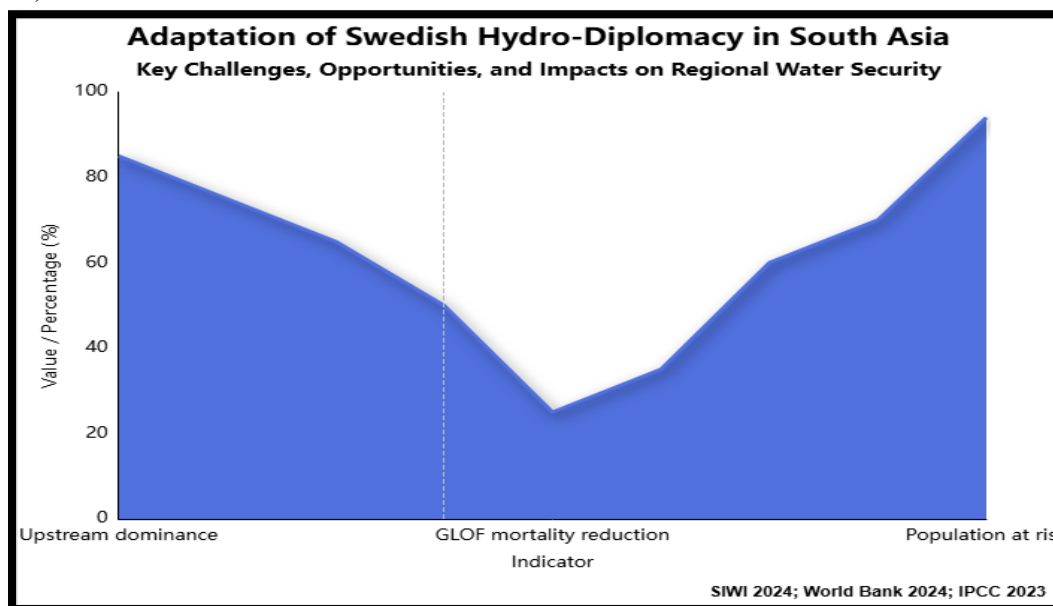
7.6 Broader Geopolitical Ramifications

The South-Asian water-security can be transformed successfully by adapting Swedish hydro-diplomacy. Cooperative systems could minimize India-Pakistan nuclear-water conflicts and enlighten China-quadrilateral discussions, develop Global South hydro-peace in 2C climate change situations. On the other hand, failure risks will lead to the entrenchment of hydro-hegemony and will increase the vulnerability of 187 million of the estimated climate migrants (IPCC, 2023). These instances, in theory, challenge



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constructivist norm diffusion in high stakes anarchy. In practice, they provide actors such as Sida with instruments which are flexible in non-European, high-risk settings. The history of Stimson and ORF multilateral navigation deals indicates that approaches based on incremental, institutionally entrenched can be considered as confidence-building steps, alleviating environmental and geopolitical risks, increasing legitimacy, and promoting resilient cooperative governance among the contested transboundary river basins (Bisht, 2023).



8-Recommendations

8.1 Recommendations for South Asian States

8.1.1- Institutionalize Track II Science Dialogues: The states of South Asia are supposed to institutionalize science-based Track II dialogue in the Permanent Indus Commission and GBM working groups. The requirement of sharing real-time data twice a year will address the existing opaque nature, which is estimated at 85% in the Indus flows, and shortage of silt deposition in the Brahmaputra. Multi-stakeholder panels (civil society, academic institutions, and riverine communities) should also be included in these dialogues to enhance collaboration in monitoring, combined research and basin-wide risk assessment. By providing these dialogues in the framework of treaties, it is possible to establish early warning systems and dispute-preventing measures to increase trust among upstream and downstream states.

8.1.2 -Integrate Climate and Displacement Safeguards: As climate-related migrants in South Asia have been estimated to reach 187 million by the middle of the century, all amendments to the Indus Waters Treaty (IWT), Teesta MOUs and other basin-related agreements should incorporate climate-displacement and gender-based protections. Gender quotas (minimum 30% of women in decision-making and peacebuilding) and women-led basin committees can guarantee equal participation in decision-making and peacebuilding. Such constructions are capable of supporting inclusive conflict-resolution spaces, enhancing adaptive livelihood services to the displaced people, and enhancing resilience of the locals to severe hydroclimatic disasters.

8.1.3-Leverage Low-Politics Scientific Platforms: To ease tensions between nuclear-water, joint flood modeling pilots, which are coordinated through think-tanks like ORF and ISSI, should work in politically neutral areas. The early low-politics cooperation will



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help to develop trust and mutual understanding, which can subsequently be extended to polycentric benefit-sharing treaty instruments. These pilots must include real-time hydrological forecasts, climate forecasts, and community-risk assessments to become better prepared and make decisions.

8.1.4-Establish Regional Early-Warning Systems: Early-warning facilities of glacial lake outburst floods (GLOFs) and monsoon events should be installed in SARRC, and adapted to the Baltic forecasting models, with Sida and Nordic assistance. These systems have the potential to safeguard more than 120 million individuals in Indus-GBM basins, provide cross-boundary coordination to respond to disasters, and enhance networks of adaptive governance. Technical modeling can be complemented with community awareness campaigns, training programs and multi-level emergency protocols in order to make sure it is effective.

8.1.5-Revise Treaties for Shared Benefits: Hydropower revenue swaps, navigation rights and ecological compensation schemes should be included in bilateral treaties, following Mekong precedents. States can eliminate zero-sum water allocation, instead converting it into interdependent regional returns that will lower tensions caused by the lack of sufficient water, encourage joint investments in infrastructure, and install mechanisms of equitable economic growth across upstream-downstream boundaries.

8.1.6-Mandate Inclusive Civil Society Participation: Permanent Commissions and basin authorities need to adopt a 50% quota of civil society representation, with displaced communities and vulnerable groups having a role in ZOPA mapping and escalation-ladder design. This offsets elite capture, enhances accountability and enhances local buy-in to dispute resolution mechanisms. Marginalized stakeholders can be further empowered through capacity-building programs and participation decision-making workshops.

8.1.7-Enhance Basin-Level Knowledge Networks: States are advised to establish multi-river knowledge-sharing forums to link basin-related professionals, local government and foreign allies. Such networks have the potential to enable collaborative research, capacity-building, and simulations of scenarios in order to strengthen both technical knowledge and diplomatic coordination. Incorporation of climate adaptation and gender responsive approaches within these networks will make sure that scientific cooperation is consistent with the wider peacebuilding agenda.

8.2-Recommendations for Swedish/Nordic Actors

8.2.1- Launch Climate-Water-Displacement Consortia: Swedish and Nordic actors need to form early-warning consortia based on GRACE-Copernicus satellite data of Indus-GBM basins to cut down flood response time by 30 percent by joint real-time monitoring with local agencies. Hydrological modelling, projections of climate and mapping social vulnerability can be combined in these consortia and used to inform emergency response, resource allocation, and policy interventions. Riparian states will also trust each other through cross-border exercises and simulations.

8.2.2-Deploy Joint Scientific Missions: Conduct audits of glaciers, river-flow verification, and sediment monitoring of India-Pakistan teams in partnership with Swedish hydrologists to increase epistemic trust. Misperceptions and technical disagreements can be mitigated with the help of joint data validation protocols and basin evaluations, which will help to facilitate transparent negotiations. Field missions on a regular basis can also contribute to long-term professional networks and institutional connections between the South Asian water authorities.

8.2.3-Capacity-Build Multi-Track Water Diplomats: Train 200+ South Asian water diplomats and technical officers in multi-track facilitation, negotiation, and norm localization, at annual workshops led by SIWI. Adapt Nordic Sava and Mekong to adapt



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to upstream hydro-hegemony, establish local ownership of water norms and incorporate science-based peacebuilding policies. There should be modules about change in response to climate change, gender responsive governance, and engagement of stakeholders.

8.2.4-Support Inclusive Data-Sharing Platforms: Nordic actors have the ability to finance and operate open-access and bilingual river basin data portals, which combine hydrological, climatic, and socio-economic data. These websites enhance transparency, scenario planning, and policy-making and civil society monitoring. These portals can be effectively used and maintained through training programs to local authorities and researchers.

8.2.5-Facilitate Multi-Level Stakeholder Dialogues: Sweden and Nordic partners are to hold annual multi-level dialogue forums, which will tie together Track I (state officials), Track II (scientists, NGOs), and Track III (community representatives) actors. Such discussions can also determine gaps in treaty implementation, mediate disputes and promote norm diffusion, to both ensure that international standards have a local adaptation and remain diplomatically neutral.

9-Conclusion

Swedish hydro-diplomacy offers a sound repertoire of transferable strategies science-mediated dialogues, norm-based multilateralism, and climate-water-security framing, that can effectively deal with the environmental security dilemmas in South Asia in the Indus, Ganges, and Brahmaputra-Meghna basins. These strategies are developed based on the experience of the Baltic Sea Action Plan in Sweden and the leadership of the UN Water Convention and focus on epistemic trust-building and inclusive mediation to disrupt the region of deep securitization and data opacities. Yet, their effective implementation requires local adaptation: the science platforms must be adapted to the upstream-downstream power asymmetries of the context, the local civil society must be embedded in the Track II processes, and the norms have to be adjusted to the nuclear-shadowed rivalry between India-Pakistan and multi-riparian GBM tensions. Without such recalibration, universal models will fail in the face of South Asian geopolitical realities, highlighting the importance of adaptation as the key to effectiveness. This analysis has practical implications that can immediately be put into action in terms of policy. Swedish actors might pilot combined hydrological information systems to the Indus Permanent Commission, along Nordic lines, and South Asian countries could hold Track II workshops under the auspices of SIWI to de-politicize GBM flood forecasting. These measures would make Swedish facilitation methods work, building up incremental trust in the face of climate shocks of 2025 and minimizing displacement hazards that are estimated at 45 million by 2050. These initiatives could be hosted by regional organizations such as SAARC, and incorporate foreign expertise with native ownership to avoid bilateral stalemates.

This paper is an innovative academic contribution in that it applies in a systematic manner the Swedish hydro-diplomacy approaches to the environmental-security issues in South Asia. By qualitatively contrasting Nordic experiences with local hydro politics, it fills a critical literature gap, providing a blueprint to policy analysis that connects small-state normative innovation to big-power basin politics. This framework will serve to provide diplomats with hybrid instruments that combine Swedish facilitation with South Asian pragmatism by mapping convergence points such as joint early-warning systems and divergence risks such as securitized mistrust. Future studies must seek empirical pilots, as in Swedish-supported early-warning consortia in the Indus or gender-balanced GBM discussions, and quantitative measures of cooperation measures based on modified models.



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Such findings can eventually enable stakeholders to establish a climate-safe hydro-diplomacy framework of the South Asia region, which will transform hydrological threats into the pillars of regional stability and peace that is here to stay.

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