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Hydrocide: A Conceptual Framework for Transboundary Water Crisis Management

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Water, an indispensable resource for sustaining life and ecosystems, is increasingly at the center of geopolitical tensions, particularly in transboundary river basins. This study introduces "Hydrocide" as a conceptual framework to analyze and address the deliberate manipulation of water resources that exacerbates socio-environmental vulnerabilities in downstream nations. Hydrocide captures the intersection of environmental injustice, resource governance, the root causes of disasters, and the socio-political dynamics of water management, framing such actions as a form of systemic oppression with long-term consequences. Rooted in the principles of the Universal Declaration of Human Rights, and not natural disasters, this framework reconceptualizes water crises as socially constructed phenomena, shaped by inequitable policies and governance rather than natural inevitabilities.

Using the Ganges-Brahmaputra-Meghna (GMB) basin as a case study, this work examines the implications of upstream water management practices, including dam and barrage construction, water diversion, and the absence of equitable transboundary agreements. The downstream impacts on Bangladesh, a riparian nation heavily reliant on these rivers, include seasonal water shortages, artificial floods, ecological degradation, and socio-economic instability. These challenges are compounded by the dual forces of climate change—such as glacier melt and extreme monsoonal rains—and population growth, which intensify demand and strain water availability.

The framework of "Hydrocide" offers a novel lens to conceptualize these challenges, bridging the discourse between environmental justice and global governance of shared water resources. This approach emphasizes the need for cooperative mechanisms, transparent data sharing, and equitable water distribution policies to mitigate the cascading impacts of hydrological mismanagement. By integrating hydrocide into transboundary water crisis management, this study aims to inform sustainable and fair solutions for one of the most vulnerable river basins in the world, while providing a transferable framework applicable to global contexts.