



Abstract Volume

**ICHR Sponsored
International Seminar
On
WATER CHALLENGES**
From Ancient to Contemporary
Times & Beyond



Organised by:

Department of History

Department of Geography

Department of Political Science

Tezpur College, Tezpur, Assam

Date : 27th & 28th February, 2026



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Water Challenges :
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ICHR International Seminar

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International Civil Servant
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From the Principal's Desk



It gives me immense pleasure to note that Tezpur College is organizing the two days International Seminar sponsored by the Indian Council of Historical Research (ICHR). The seminar is being jointly organized by the Departments of History, Geography and Political Science on 27th and 28th February 2026.

I am privileged to be a part of the Organising Committee of this significant academic event. The theme of the seminar, “Water Challenges: From Ancient to Contemporary Times and Beyond,” is highly relevant in the present global context. Water, as a vital natural resource, has shaped civilizations, economies, cultures, and political systems since time immemorial. Today, issues such as climate change, resource depletion, river disputes, environmental degradation, and sustainable management have made the discourse on water more urgent than ever before.

This seminar aims to create a vibrant platform for scholars, researchers, academicians, and students to deliberate on the historical dimensions, contemporary concerns, and future perspectives of water governance and sustainability. I am confident that the interdisciplinary approach adopted by the organizing departments will enrich the academic discussions and generate meaningful insights.

I extend my heartfelt appreciation to the sponsoring agency, the organizing departments, and all participants for their valuable contributions. I sincerely hope that the deliberations of this seminar will pave the way for constructive academic engagement and policy-oriented reflections on one of the most pressing challenges of our time.

(Dr. Manoj Kumar Hazarika)
Principal
Tezpur College

From the Advisors' Desk

It is our honour to host the ICHR Sponsored two days International Seminar on "Water Challenges: From Ancient to Contemporary Times and Beyond." Water has always been an integral part of civilization and more importantly today because water plays a key role in Climate change, ground Water depletion, water privatization, trans boundary river conflicts, pollution and inequitable access to safe drinking water. These issues demand not only technological solutions but also ethical, legal, social and policy oriented responses.

This International Seminar seeks to create a multidisciplinary platform for faculties, academicians, policymakers, researchers, and students to deliberate upon historical experiences, present realities, and future pathways on Water Challenges. The abstracts compiled in this volume reflect a rich diversity of perspectives-ranging from water governance, environmental justice, and sustainable development to indigenous knowledge systems and global water diplomacy and water security.

The discussions envisioned here are not merely academic exercises but essential contributions toward achieving water security and sustainability for future generations. As water increasingly becomes a strategic, ecological, and humanitarian concern, collaborative research and informed dialogues are indispensable.

We extend our sincere appreciation to all contributors, organizing committee members, reviewers, and participants whose dedication has made this publication possible. We are confident that this compilation will serve as a valuable academic resource and inspire further research and policy engagement in the field of water studies.

Let us collectively strive to ensure that water-our most vital resource-remains accessible, equitable, and sustainable from ancient wisdom to future innovation.

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From the Convenor's Desk



Water is the silent witness to the rise and fall of civilizations. From the sophisticated hydraulic engineering of the Indus Valley to the intricate *qanat* systems of ancient Persia, humanity's journey has been defined by its ability to harness, divert, and venerate this life-sustaining element. It is the lifeblood of our civilization, yet currently the most pressured resource on our planet. As we stand in the first quarter of the 21st century, the "blue gold" that once anchored our ancestors now presents one of our greatest existential challenges. The discourse surrounding water has shifted from simple management to a critical struggle for sustainability, equity, and survival.

This ICHR-sponsored International Seminar on "Water Challenges: From Ancient to Contemporary Times and Beyond." hosted by the collaborative efforts of the Departments of History, Geography, and Political Science of Tezpur College, represents a critical juncture in our academic pursuit to understand one of the most pressing issues of the 21st century. The seminar seeks to map the trajectory of water management across the ages. We are not merely looking backward to admire ancient ingenuity; we are looking back to find the blueprints for a sustainable "beyond."

The challenge of water is too vast for a single discipline. With the generous support of the Indian Council of Historical Research (ICHR), we have been able to gather a diverse array of scholars, researchers, and practitioners from across the globe. The abstracts contained in this volume reflect a wide spectrum of inquiry - from the socio-cultural histories of riverine communities to the technical challenges of climate-induced water migration. Our goal is to foster a "hydrosocial" perspective - one that recognizes that water challenges are never just technical; they are deeply rooted in our historical, social, and political fabric. As Convenor, I extend my deepest gratitude to the ICHR for their vision in supporting this discourse. To our international delegates and national scholars: your insights are the tributaries that will make this seminar a reservoir of knowledge.

I would like to extend my deepest gratitude to the ICHR for their patronage, the College authority for its unwavering support and encouragement and to my colleagues in the Departments of History, Geography, and Political Science for their tireless collaboration. Most importantly, I thank the contributors whose intellectual rigor fills these pages. It is our hope that the discussions sparked here will flow outward from Tezpur College, contributing to a more sustainable and equitable water future for all.

Kuntal Sarma

(Dr. Kuntal Sarma)

Convenor

ICHR Sponsored International Seminar

Abstract Volume of ICHR Sponsored International Seminar

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Hydropower Development and Socio-Environmental Conflicts in Northeast India: A Spatio-Temporal analysis of the Lower Subansiri Basin using GIS

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Abstract

The Subansiri Lower Hydroelectric Project, in North East India has emerged as a major source of socio-environmental conflict particularly affecting downstream regions of Assam, besides its potential contribution to renewable energy generation. The primary objective of the study is to examine the nature, causes and consequences of conflict associated with Subansiri hydropower project with special emphasis on displacement, livelihood transformation and environmental risks. Seismic vulnerability, flood risks, inadequate environmental impact assessment, ecological degradation and lack of meaningful participation of downstream communities are the main concerns of the study. The methodology includes Geographic Information System (GIS) and remote sensing techniques to analyze spatio-temporal changes in river morphology, land use and land cover, flood-prone areas and settlement patterns before and after dam construction. The findings show significant changes in river dynamics, increased perception of flood risk, disruption of traditional livelihoods such as agriculture and fishing and long-term socio-economic insecurity among displaced and downstream population. This paper suggests strengthening seismic safety measures, ensuring transparent environmental assessments and incorporating GIS-based risk mapping in project planning and implementing sustainable livelihood rehabilitation strategies to reduce conflict and promote inclusive development.

Keywords: Lower Subansiri basin, Hydropower Development, Socio-environmental conflict, Displacement, Livelihood transformation.

The Water Crisis in India: An Assessment of Causes, Impacts and Government Interventions

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Abstract

The water crisis in India has emerged as a critical national issue, impacting communities across both rural and urban regions. It poses challenges to livelihoods, ecological security, and sustainable development. The rapid expansion of economic activities with increasing population in India have resulted in excessive exploitation and contamination of water resources. With growing populations lacking adequate access to potable water, the increasing contamination of water bodies not only threatens public health but also challenges livelihood security and ecosystem sustainability. The loss of water quality mainly threatens fisheries, agriculture, and traditional occupations in India. The study explores the major causes and impacts of the water crisis in India and further assesses the initiatives introduced by the government. India has 18% of the world's population, but access to only 4% of global freshwater. As per NITI Aayog (2019), around 600 million Indians live under high to extreme water stress. The same report ranked India at 120th position out of 122 nations in global water quality index, reflecting how serious the water crisis has become. India has undertaken a wide range of policies and initiatives to address water scarcity and to improve water conservation. Some of the key policies introduced to address the water crisis are the National Water Policy (2012), Jal Shakti Abhiyan, Atal Bhujal Yojana, Jal Jeevan Mission etc. The study shows that India's water crisis requires better management of water resources, control of groundwater use, promote water-efficient agriculture and more investment in recycling. Such reforms will be crucial for national food security, reducing health risks in vulnerable population and improve economic stability.

Keywords: Water crisis, Public health, Water conservation, Ecosystem, Livelihood.

Flood Risk Zonation and Water management using Geospatial techniques in Nagarbera, Kamrup (Assam)

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Abstract

Flooding is a recurrent environmental hazard in the Brahmaputra valley, with the Nagarbera area of Kamrup district, Assam, experiencing frequent inundation due to its low-lying terrain, proximity to major river channels, and intense monsoonal rainfall. This study aims to delineate flood risk zones in Nagarbera using geospatial techniques and to assess implications for sustainable water management. Multi-temporal satellite imagery, digital elevation models (DEM), rainfall data, land use/land cover (LULC), drainage density, and soil characteristics were integrated within a Geographic Information System (GIS) framework to generate flood risk maps. Weighted overlay and spatial analysis techniques were employed to classify the area into very high, high, moderate, and low flood risk zones. The results reveal that areas adjacent to riverbanks, wetlands, and low-elevation agricultural lands fall under high to very high flood risk categories, while elevated terraces and built-up zones show comparatively lower vulnerability. Rapid land use changes, encroachment of wetlands, and inadequate drainage infrastructure have further intensified flood impacts. The study highlights the importance of geospatial tools in identifying vulnerable zones and supporting evidence-based flood mitigation and water management planning. The findings can assist local planners and policymakers in implementing flood-resilient land use strategies, improving water storage, and enhancing disaster preparedness. Overall, the study underscores the role of geospatial technology in addressing contemporary flood challenges in flood-prone regions of Assam.

Keywords: Flood Risk Zonation; GIS; Remote Sensing; Water Management; Brahmaputra Valley

A brief study on Role of Vijaynagara Rulers in Irrigation Development

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Abstract

The Vijaynagara Kingdom was founded by Harihara and Bukka who belong to a family of five brothers. The Kingdom of Vijaynagara originates its name, city of victory, from its capital on the Tungabhadra River, near the centre of the sub-continent. The date of Harihara's coronation is placed at 1336, with the blessings of sage Vidyaranya. Bukka succeeded his brother to the throne of Vijaynagara in 1356, and ruled till 1377. The Vijaynagara empire then comprised the whole of south India upto Rameshwaram, including the Tamil country as well as that of Cheras (Kerala). To the north however, Vijayanagara faced a powerful enemy in the shape of the Bahmani Kingdom. The present paper attempts to highlight the initiatives undertaken by the various rulers of the Vijaynagara kingdom with special reference to the greatest king Krishnadeva Raya who took keen interest for digging enormous tanks, wells and canals used for the irrigation purposes and look after the upliftment of the agriculture. The present paper would be based on literary and epigraphic evidences that portrays the role of Vijaynagara rulers on irrigation and agricultural activities.

Keywords: Irrigation, Rulers, Agriculture, Literary, Epigraphic.

Blue Literature and Sustainable Water Use through Ernest Hemingway's novel *The Old Man and the Sea*

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Abstract

Blue Literature, an emerging strand within ecocriticism and the environmental humanities, foregrounds water as a central ecological, cultural and ethical presence in literary texts. This paper examines *The Old Man and the Sea* by Ernest Hemingway as a seminal work of Blue Literature, exploring how its oceanic imagery and human-sea relationship articulate a vision of sustainable coexistence with marine ecosystems. Set against the vast Gulf Stream, the novel presents the sea not merely as a resource to be exploited but as a living entity demanding respect, restraint, and ethical engagement.

Through a close textual analysis, the paper argues that Santiago's struggle with the marlin exemplifies a model of sustainable interaction grounded in humility, endurance, and ecological balance. Hemingway's portrayal resists human-centred domination over nature and instead promotes an ethos of harmony between human labour and natural limits. The sea functions as a space of moral testing, where excess consumption is punished and reverence for natural cycles is rewarded with dignity rather than material gain.

By reading *The Old Man and the Sea* within the framework of Blue Literature, this study highlights literature's capacity to cultivate environmental consciousness and sustainable water ethics. The paper further situates the novel within contemporary concerns about marine depletion, overfishing, and ecological responsibility, demonstrating its continued relevance in the context of global water sustainability discourse. Ultimately, the study underscores the role of literary imagination in shaping ecological values and fostering sustainable attitudes toward water bodies.

Key words: Ecocriticism, Environmental, Blue Literature, Sustainable, Nature, Ecological.

Assam's Riverine Culture and Trade: Strategic Importance of National Waterways-2 and 16

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Abstract

Assam's riverine system, primarily shaped by the Brahmaputra and Barak rivers, has historically played a decisive role in determining the region's cultural identity, economic structure, and trade networks. Rivers in Assam are not merely geographical features but dynamic socio-economic lifelines that have influenced settlement patterns, agricultural practices, transportation systems, and cultural traditions for centuries. The riverine culture of Assam evolved through continuous interaction between human communities and river ecosystems, giving rise to distinctive livelihoods such as fishing, river-based agriculture, ferry services, boat-building, and vibrant cultural expressions reflected in festivals, folklore, and traditional practices.

In recent years, renewed policy emphasis on inland water transport has revived the strategic relevance of Assam's rivers through the development of National Waterway-2 (NW-2) on the Brahmaputra and National Waterway-16 (NW-16) on the Barak River. These waterways offer a cost-effective, energy-efficient, and environmentally sustainable mode of transportation. NW-2, stretching across the Brahmaputra Valley, serves as the backbone of inland navigation in Northeast India, while NW-16 enhances connectivity in the Barak Valley and links southern Assam with Bangladesh's river network.

The Indo-Bangladesh Protocol on Inland Water Transit and Trade has further strengthened cross-border trade by enabling seamless cargo movement through shared waterways, reducing logistical constraints and bypassing the Siliguri Corridor. Despite significant potential, challenges such as seasonal water fluctuations, sedimentation, erosion, infrastructural limitations, and environmental concerns continue to affect the efficiency of riverine trade.

This study highlights the need for integrated and sustainable river management that balances economic development with cultural preservation. Strengthening inland waterways while safeguarding Assam's riverine heritage can promote inclusive growth, regional integration, and long-term economic sustainability.

Keywords: Riverine culture, Assam, Inland waterways, NW-2, NW-16, Brahmaputra, Barak River, River trade.

Community-Based Conservation in Maguri-Motapung Beel: A Historical Take on the Wetland Ecosystem

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Abstract

Maguri-Motapung Beel in Tinsukia district of Assam, a biodiverse wetland ecosystem located near the Dibru-Saikhowa landscape is home to numerous species of flora, fauna and avifauna. The surrounding areas of the Beel witness free roaming of the Western Hoolock Gibbon, showcasing a beautiful example of human-animal co-existence. The wetland area supports and sustains ethnic communities like the Moran, Matak and Koch living in its periphery through livelihood avenues such as fishing, agriculture, livestock grazing, tourism etc. These communities have been co-dependent on the Beel for their survival since ages. The Beel have faced significant threats in the recent years due to floods, siltation, habitat alteration, increasing eco-tourism and the ecological impact of Baghjan oil well blowout. The study attempts to derive a historical understanding of how human societies have interacted with wetlands over time in general and how anthropogenic actions have shaped the present nature of such wetlands. The paper specifically aims at examining the role of Traditional Ecological Knowledge in shaping community-based conservation practices in the Maguri-Motapung Beel through qualitative analysis of available literature and discussions with local communities. The indigenous knowledge of these communities holds the potential of strengthening local governance, building resilience against environmental crisis and promoting overall sustainable growth in the region. Moreover, the paper also realizes the importance of combined responsible efforts of local communities, government organizations, NGOs and private parties in biodiversity conservation and resource management.

Keywords: wetland, human-animal, community, conservation, history, indigenous knowledge.

Urbanization and Water Logging Problems: Special reference to Pathsala Town, Bajali District, Assam, India

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Abstract

Urbanization has become a key factor in changing the socio-economic landscape of small and medium towns in India. However, the fast and unplanned growth of cities has led to various environmental and civic issues, with water logging being a major urban challenge. This paper explores the link between urbanization and water logging, focusing on Pathsala Town within the Pathsala Municipal Board in Bajali district, Assam. The goal of the study is to investigate the causes, extent, and effects of water logging caused by chaotic urban growth, poor drainage systems, encroachment on natural water bodies, and inadequate solid waste management. Using primary data gathered from residents in various municipal wards, along with secondary sources, the study emphasizes the seriousness of water logging during the monsoon season and its negative impacts on public health, transportation, sanitation, and the overall quality of urban life. The results indicate that even with municipal efforts, flaws in urban planning and governance worsen the issue. The paper advocates for sustainable urban planning practices, improvements to drainage systems, and community involvement in local governance to reduce water logging and promote balanced urban development in Pathsala Town. This study adds to the understanding of urban environmental challenges in the rapidly developing towns of Assam.

Key words: Urbanization, Water logging

Water as a Weapon: Indus Water Treaty (IWT) and India-Pakistan Relations

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Abstract

The Indus Water Treaty (IWT) was signed on September 19, 1960, after nearly a decade of negotiations. Brokered by the World Bank, it allocated the three eastern rivers - Ravi, Beas, and Sutlej - to India, and the three western rivers - Indus, Chenab, and Jhelum - to Pakistan. The IWT was born not out of goodwill, but necessity. In 1947, the Partition carved two nations out of British India but left the rivers of the Indus Basin awkwardly distributed. The headwork of the system - crucial for irrigation - fell within Indian territory, while Pakistan was downstream and entirely dependent on river flows. When India briefly halted water supply to Pakistan in 1948, alarm bells rang across the region. It was in this context that the World Bank stepped in to mediate what has now become one of the most successful water-sharing agreements in modern history. On April 24, India announced that it would hold the IWT of 1960 in abeyance until Pakistan ceases its support for cross-border terrorism. The term 'abeyance' as used by the Government of India, suggest a temporary suspension, leaving open the possibility of reinstatement. What are the fundamental factors that determine foreign policy of a country? What is the role of Geography in a globalized world where tariff war precedes all forms of war? Water is not just a strategic asset- it is a basic human right. Using it as an instrument of retaliation raises ethical questions that go beyond borders.

Based on this historical background, this paper will attempt to discuss the various issues related to the Indus Water Treaty in the aftermath of the recent Kashmir issue.

Key Words: Geopolitics, Retaliation, Abeyance

Between Flood and Fertility: Water, Risk and the Making of Civilization in the Brahmaputra Valley

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Abstract

Situated between recurrent inundation and exceptional ecological productivity, the Brahmaputra Valley offers a distinctive case of civilization forged in conditions of hydrological risk. This paper examines how the Brahmaputra and its tributaries functioned simultaneously as agents of fertility and forces of disruption in the historical making of Assam. Drawing on inscriptions, copper-plate charters, Ahom chronicles (Buranjis), religious literature and modern scholarship, it demonstrates that rivers structured political boundaries, sustained agrarian regimes, shaped urban and capital locations, and permeated cultural and ritual life. Seasonal floods, channel migration and riverbank erosion generated chronic uncertainty, compelling the relocation of settlements and capitals and demanding adaptive responses from states and communities alike. Yet these same fluvial processes replenished soils, enabled inland navigation and trade and invested rivers with profound sacred meanings. Integrating ecological dynamics with historical evidence, the paper argues that Assamese civilization emerged through a continuous negotiation with a volatile riverine environment. Over the *longue durée*, societies developed embankments, canals, and flexible land-use and subsistence strategies attuned to flood rhythms, even as rivers were venerated in myth, ritual, and political symbolism. The paper thus contends that environmental volatility was not a marginal backdrop but a constitutive force in the making of political authority, subsistence diversity, and cultural life in the Brahmaputra Valley.

Keywords: Brahmaputra river system, flood, Kamrupa State, Ahom State, Assam History etc.

Bankline Erosion and It's Socio-economic Impact: A Case Study of Baghmora Region, Jorhat, Assam

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Abstract

The Bankline erosion of Baghmora region is chosen as it has been one of the recurring environmental challenges affecting the riverine areas of Jorhat significantly influencing human settlement and its livelihood. The initial purpose of this study is to identify the causes of changing nature of floods in Baghmora, the pattern of bank line migration of the region, to identify the impact of riverbank erosion on human settlements and socio-economic activities. The study also focuses on to suggest remedies for flood minimization. The original question is to determine how the pattern of socio-economic conditions of the people belonging to Baghmora area has been constantly changes due to bank line erosion and if the government take any initiatives for the upliftment of these people. Baghmora is a homeland of different communities, castes and tribes which have their own ideological beliefs which are rigid in nature. This study examines how religious belief plays an important role in the path of developmental processes over the region. At the same time, the paper highlights the importance of local coping practices-temporary housing, adaptive farming, shifting of economic activities, and community networks-that enable survival under constant uncertainty. Furthermore, the study discusses the local practices performed by the people for their sustenance and also the historical streaming flow of people to Baghmora and its cultural assimilation. This study conducted a combination of household surveys, field observation, historical records and GIS tries to analyze the shifting of river channels and its impact on people as well as the overall landscape of Baghmora Region. Moreover, the paper emphasizes the development gap over the area as well as the government nature in promoting basic welfare among the people.

Keywords: Brahmaputra river system, Flood, Kamrupa State, Ahom State, Assam History etc.

River as Lived Landscape in Nirupama Borgohain's Hei Nodi Nirobodhi

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Abstract

River narratives can be examined through different ways whether it be literal, symbolic or contextual one. It delineates the relationship between human and the environment, landscape and the communities settled near the riverside, tradition and modernity, the intersection of river, cityscape and crime. Besides they portray the poverty, suffering, hunger, persecution, and exploitation of common people residing near the riverside. The river not only plays the role of a physical or cultural marker but as a real harbinger of different experiences of diverse people. The genre of the Assamese novel has a history of narrativising those tales of glory and misery associated with the people's memories of living by the river since time immemorial. One of the earliest novels in Assamese, *Miri-Jiyori* by Rajanikanta Bordoloi, first published in 1894, is incidentally the first river-centric novel in the language, its subject being the tragedy of two lovers named Jonki and Panei, who grow up together, fall in love, and are condemned to death by the hill council for trespassing the tribal customary laws. Their dead bodies are found flowing in the River Subansiri in upper Assam. The present paper will try to deal with Nirupama Borgohain's *Hei Nodi Nirobodhi* which depicts the life of a village situated near the bank of the river Pagladia, and the course of river Pagladia and that of the protagonist Lakshmi run parallel in the novel. The novel presents the river as a dynamic space where human histories intersect with ecological rhythms, revealing how flood and seasonal change are embedded in cultural practices and collective memory. The objective of this paper is to identify the role that river plays in the growth of the Assamese novel *Hei Nodi Nirobodhi* by Nirupama Borgohain.

Keywords: River, Society, Landscape, Environment

Challenges of Water Storage and Usages faced by Ahom Kingdom

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Abstract

Water is the source of every life. They are responsible for the development of human civilization. Nature has provided water through various means. Through the ages it can be traced that water nourishes life as well as disputes. People fight over water, one state is in dispute with others. While turning the pages of History one can peep into the state of Assam in India. The Ahoms who ruled for six hundred years. Starting from 1226 they entered into the valley of Brahmaputra through the Patkai mountains. They subjugated one by one the hilly tracts and reached the Brahmaputra valley. With them they brought the wet rice cultivation.

The mighty Brahmaputra and its tributary became life line for them. They felt the challenges related to water storage. They manipulated the water resource for their own benefit. They started to dig huge tanks for storage of water. It was possible because of their management system known as paik system. They dug tank for various purposes. Some were for death rituals, some for washing tools, rice, royalty, temple etc. They used the flooded water for war fare. They strategically used to dig the tanks. To strengthen the water tanks embankments were made. They used special techniques to select the site and digging tools. The tanks were of various size some were very large and named sagar while others were called pukhuri. These Tanks were made in such a way that they seldom dry. The present paper will study the challenges faced by the Ahom dynasty to store water. It will further discuss the ways by which they mitigated the challenge.

Keywords: Water, Ahom, Brahmaputra

The Fluid Lives of the Brahmaputra Valley: A Comprehensive Study of Riverine Culture in the Char Areas of Assam

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Abstract

The Brahmaputra Valley of Assam, subjugated by one of the world's most sediment-heavy and hydrologically unstable rivers, is the setting for a unique anthropological and geological phenomenon known as the char-chaporis which is the shifting riverine islands and sandbars. These amphibious landscapes, which make up about 4-5% of Assam's landmass, are home to almost 2.5 million people, most of whom are the Bengali speaking Muslim. They have developed a unique riverine culture based on being mentally strong, moving around the chars, and having a close relationship with water and river. This study provides a comprehensive analysis of the char areas, transcending the simplistic dichotomy of land and water to investigate the intricate liquid geography that characterizes the region. The study examines the geomorphological formation of the chars by utilizing geological data, historical records, ethnographic insights, and uses primary data which are collected from the selected char villages, while tracing the sediment dynamics that consistently create and erode these islands seasonally. The focus of the study was on the practice of living with water, which includes the indigenous ways of adapting to a constantly changing landscape through architecture like dismantlable housing, raised platform for housing, agriculture (flood-synchronized cropping), and transportation (the boat economy). By analyzing the relationship between the fluvial environment, socio-economic and cultural identity, this study claims that the riverine culture of the Char areas of Assam is not merely a survival mechanism but a profound expression of resilience.

Keywords: Riverine Culture, Resilience, Adaptations, Coping Mechanisms.

Representations of Water in Chhayavadottar Poetry: With Special Reference to Kedarnath Singh

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Abstract

Chhayavadottar Hindi poetry marks a shift from the romantic idealism of Chhayavad to realism and social awareness, portraying nature as closely connected to life, labour, struggle, villages, towns, and human experience. In this context, water emerges as a significant poetic motif, reflecting both emotional and social dimensions. This paper examines the representations of water in the poetry of Kedarnath Singh highlighting their distinct approaches. In Kedarnath Singh's work, water appears in an intimate and sensitive form, symbolising memory, village life, childhood experiences, relationships, love, pain, and the flow of life. Rivers, ghats, and boats evoke cultural roots and human connections, while also representing the passage of time and the continuity of existence.

Keywords: Chhayavadottar poetry; water imagery; Kedarnath Singh; nature symbolism; memory; rural life; social realism.

Anthropocene and River Dynamics: A study of a part of Teesta River

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Abstract

Rivers are a dynamic part of the landscape, influencing the extent and spatial structure of adjacent ecosystems formed or conditioned by them. But noticeable changes in the hydromorphology of rivers and streams are one of the major concerns which are the result of human activity in mountain areas. Human impact on rivers is large-scale process that leads to diverse negative consequences. There are following ways of such impact: River flow redistribution in time; River flow redistribution in space; River flow withdrawal; Physical disturbance of river-beds; Pollution; Water clogging; Thermal pollution.

Human intervention has been playing as a vital role in shaping of the morphology of a river. Human activities that directly change river habitat involve flow regulation, channel fragmentation with hydraulic structures, riverbank stabilization, exploitation of aggregates etc. Big rivers like Nile, Amazon, Yangtze, Congo etc. all have gone through some hydromorphological changes due to the above mentioned causes. In India also, rivers like Ganga, Brahmaputra, Yamuna, Kaveri etc. all have been influenced by the activities of human that ultimately changing the morphology of the rivers.

The present study attempts to characterize the hydromorphology of the Teesta River located in Sikkim, India. The aim of the present study is to demonstrate similarities and differences in river hydromorphology between sections that have been permanently transformed by human activities and those without permanent hydro-morphological transformations.

Key words: Anthropocene, River dynamics, Hydromorphology, Teesta River

The Role of Rivers in promoting Trade and Commerce in the Garo Hills

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Abstract

The Garos are one of the major tribes inhabiting the northeastern state of Meghalaya, particularly in the Garo Hills District, located in the western part of the state. Historically, the Garos were mainly agrarian, relying wholly on their crops for their livelihood. Traditionally, they cultivate a variety of crops, including cotton, lac, chillies, ginger, and timber, which serve as their main components of exports. In contrast, rice, dried fish, cloth, ornaments, weapons, and iron implements are imported goods. The Garo Hills is surrounded by several river bodies. The principal rivers that cut through the Garo Hills are the Simsang or Someswari, Bogai or Bugi, Darrang or Nitai, and Ganol or Kalu. The Simsang River runs eastward and is the most significant or well-known river in the highlands. Rongkai, Rompa, and Chibok are some of its significant tributaries (Kar, pp.21-22). The Kalu River begins at Domagitok on the northern slope of the Tura range, approximately nine miles from Tura station. The river Bogai, sometimes known as the bugi, originates close to Nokrek on the southern flank of the Tura range and flows through the Dalu "hat" (Allen, pp.3-5). This paper examines the role of rivers in facilitating trade along the border haats and the challenges it faces during pre-colonial period.

Keywords: Haats, Trade, Rivers, Cotton

Waters of Authority: Fluvial Control, Navigation, and Legal Disputes in the Inscriptions of Early Kâmarûpa

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Abstract

In the historical consciousness of the Brahmaputra Valley, early Kâmarûpa is best understood as a waterscape—a fluid environment where land and water were virtually inseparable. Defined by a mountain girdle consisting of the Eastern Himalayas, Patkai and Naga hills and the Garo-Khasi-Jaintia and the Mikir hills, the valley's sole gateway to the wider world was the Bengal delta. This vital link connected the landlocked region of Kâmarûpa to the Bay of Bengal, primarily through the river Brahmaputra (also known as Lauhitya in earlier times). As a depositional plain formed by the relentless silt of the Brahmaputra, early Kamarupa's hydrography was inherently unstable; intense monsoons frequently caused rivers to overflow and abruptly change course. However, rather than a passive backdrop, this environmental volatility was the fundamental force dictating the valley's social organisation and economic logic.

In this volatile context, water management became the ultimate expression of social order and political survival. It was in this context that monarchical authority found its unique form: the king emerged not merely as a ruler of people, but as a master of the fluvial environment. Sovereignty was anchored in the king's ability to act as the final arbiter between a restless nature and a settled community. Accordingly, this paper examines the relationship between the hydrography of ancient Kâmarûpa and the evolution of monarchical authority between the 6th and 12th centuries CE. Framed through the concept of 'Waters of Authority,' the study illustrates how political legitimacy was derived from the state's ability to regulate its environment. Using a historical methodology centred on epigraphic sources, the research explores three thematic lenses: the physical mastery of the riverine state, naval connectivity, and the legal preservation of state memory in a corrosive archive. The study demonstrates that royal power was fundamentally rooted in the administrative and technical mastery of an unpredictable world.

Keywords: Kâmarûpa, Waterscape, Inscriptions, Sovereignty, Hydrography

Water Diplomacy: Revisiting the Indo-Pak Relations through the glance of the Indus Water Treaty

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Abstract

Historically, the rivers were proven to be one of the vital components in the transformation and evolution of human civilizations. Right from the Ancient period in history, mankind developed societies and civilizations near permanent waterbodies, showing deeply rooted connections between these two. Well known civilizations such as - the Mesopotamian civilization (Tigris and Euphrates), The civilization of Egypt (Nile) and Civilization of China (Huang He) evolved in the alluvial river plains further establishing this notion throughout history. Along with the fertile soil, rivers provided low coast trade routes and ways of livelihood to the nearby inhabitants. Influential regions such as, Rome, Baghdad, Vienna, Budapest etc. were flourished in river sites with an elaborated urban economy. In terms of India, the Indus Valley Civilization (also known as the Harappan Civilization) showcased the earliest historically well-known civilizational development near riverine plains. With a growth of towns like, Varanasi (Banaras), Agra, Haridwar etc. rivers became the life lines of the Indian Civilizations. In modern times, rivers not only served as the high demanding trade routes but acted in terms of geopolitical and strategic importance as well. International conflicts and disputes due to positioning and occupancy of water bodies and corresponding resources were proven to be common phenomenon in the modern-day geopolitics. India and Pakistan, despite of sharing a common history throughout the colonial rule, emerged as non-friendly nations thorough out the courses of transition. Following the atrocities of partition and partition riots, both of these countries were involved in multiple full flagged wars after receiving independence. Diplomatic ties and friendly visits along with benevolent treaties somehow holds the balance between two of these nuclear nations so far. The Indus Water Treaty signed in the year of 1960 at Karachi, Pakistan

between contemporary Indian Prime Minister Jawaharlal Nehru and President of Pakistan Mohammad Ayub Khan was a milestone in this context. It offers division of water in the ratio of 80 percent and 20 percent in favor of Pakistan. The continuous Pakistan founded terror attacks in India and decreasing diplomatic relations between these two, poses a question in the continuation of this treaty.

This paper is a generous attempt to revisit the Indo-Pak relations throughout history. The importance of the Indus water treaty and along with the recent developments are presented herewith for an overall estimate upon the water diplomacy.

Keywords: Indo-Pak Relations, Indus Water Treaty, Water Diplomacy

Coastal Gujarat with special reference to Harappan Port Sites

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Abstract

The Harappan port sites were vital centers of maritime activity during the Bronze Age, around 5000 years ago. While the rest of India was progressing through stages of Neolithic and Chalcolithic, the western and north western regions were flourishing under the Harappan civilization. These port towns exhibited uniformity in various aspects of life. Harappan sailors displayed advanced knowledge of the Indian Ocean's winds, as indicated by Mesopotamian texts referring to the 'village of Meluhha' and related terms. The abstract highlights the significance of Harappan port sites as hubs of trade, cultural exchange, and maritime expertise during Harappan period.

Keywords: Harappa, Port, Maritime

Beyond Roads and Rails: The Strategic Role of Water Transport in Assam during World War II

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Abstract

During World War II, Assam emerged as a strategically important region within British India due to its geographical location and its role in supporting Allied military operations in the eastern theatre. Wartime communication and logistics in the region relied primarily on the expansion and coordination of roadways and railways, which connected Assam to major military bases, airfields, and supply depots. Alongside these dominant transport systems, inland waterways were also incorporated into military planning as an additional means of movement and communication.

This paper examines the role of water transport in Assam during World War II within a broader, integrated transport framework. Focusing on the Brahmaputra River and its tributaries, the study explores how existing river routes were adapted for the movement of military supplies, personnel, and essential goods. Waterways functioned as complementary channels that supported wartime logistics, particularly in connecting river ports with road and rail networks.

By situating inland water transport alongside road and rail infrastructure, the paper highlights how rivers formed part of a multi-modal communication system shaped by geography, military needs, and administrative priorities. In doing so, the study contributes to broader discussions on water-based challenges and opportunities in times of conflict, demonstrating how water transport in Assam was mobilized during World War II, even as newer transport technologies reshaped wartime logistics.

Keywords: Assam, Military Infrastructure, Water Communication, World War II

Overcoming the Challenges of Water: Construction of Ponds and Capital buildings in Medieval Assam

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Abstract

Assam, a state in northeastern India, has a rich history and abundance of water resources that have contributed significantly to the development of its civilization. The intricate network of rivers, wetlands, and forests in Assam during the pre-British era contributed significantly to the region's wealth and cultural advancement. The state has a distinctive ecosystem that supports a certain human-environment dynamic. Notably, certain social group in Assam developed unique subsistence production systems that are essential for maintaining both the environment and the economy. Water has been an essential natural resource in Assam since ancient times, contributing significantly to the economic and cultural well-being of region's inhabitants. During the Ahom Empire (1228 A.D to 1826 A.D), water conservation was promoted through different ways, including the creation of ponds. Remarkably, these ponds featured an advanced technology ensuring a consistent water flow throughout both summer and winter seasons. The Ahom monarchs showed a special interest in water features and storage for urban areas at this time. Water usage in defending the nation against foreign invasions demonstrated its strategic significance and attested to the various roles it played in the socioeconomic and defence facets of the Ahom. Consequently, this aids in the formation of the Ahom capital in different regions of Upper Assam. The main aim of this paper is to examine conventional water management strategies and military tactics within the historical framework of the topic.

Keywords- Ahom, Water, Ponds, Military tactics, Technology and Environment.

Ground Water Contamination: Unveiling Barriers and Challenges and Preventions: A Review Paper

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Abstract

A vital natural resource is ground water which is essential for living beings and without it human cannot survive. However, ground water quality face increasing threats from both natural and man-made factors. A closer inspection of ground water resources today, signals a rude shock. Widespread contamination arising from human activities poses significant risks to human health and water security. Our ground water has turned into a pool of poison. In simple manner, the contamination of water bodies means water pollution. Pollution of water occurs when substances that will modify the water in a negative fashion are discharged in it. This discharge of pollutants can be direct as well as indirect. This review presents the existing literature on ground water contamination and its challenges for the living body. This paper also discusses the policies and programmes to prevent such crisis. Addressing the challenges, this review unravels the complex landscape and ground water contamination. Delayed of detection is major challenge for groundwater contamination. Ground water contamination is hidden beneath the surface and this make it delayed to detect. Pollutants are both natural and man-made. Toxic elements like arsenic, fluoride and radioactive substances are also available in nature. Human made pollution occurs due to rapid and unplanned urbanization, industrial discharge, pesticides and chemical fertilisers use in agricultural farming etc. The discussion has shown the challenges and barriers and integrated it with some effective preventive measures to reduce it. Findings indicate that government initiative for waste water treatment in urban area, utilizing green infrastructure to improve storm water management-capacity, repair and replacing of leakage and malfunctioning equipment, safely managed sanitation, industrial waste water treatment etc. will be the best way to prevent groundwater contamination. This study with the objective of finding barriers and challenges of groundwater contamination contributes to the growing body of knowledge with the way of reduction of ground water pollution in addition to offering viable implications on how policymakers, planners and development practitioners can develop resilient, inclusive and sustainable solution.

Keywords: Groundwater contamination; Pollutants; Challenges; Preventions; Government initiatives.

River Centered Novel Padma Nadir Majhi: An Analysis

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Abstract

Padma Nadir Majhi is a remarkable river centered novel written by Manik Bandopadhyay in 1936. The river Padma is not merely a natural backdrop but the central force shaping human destiny. The Padma river functions as a living presence that controls the lives, struggles and aspirations of the fishing community. The protagonist Kuber is a poor fisherman whose life reflects the uncertainty and restlessness of the river itself. The main character Kuber Miya's existence is marked by poverty, hardship and emotional conflict. The river is both a source of livelihood and a cause of destruction. Flood and scarcity continually threaten the fishermen's survival yet they remain inseparably bound to the river, as it forms the foundation of their identity. Through the character of Kapila, the novelist explores human desire, love and tension between personal longing and social norms. The psychological struggles of the characters reveal deeper layers of human vulnerability. Hossain Miya's vision of Moynadwip symbolizes hope for a new and better life, through this dream is ultimately tested by harsh realities. The Padma river emerges as a symbolic and dynamic force nurturing yet destructive making the work a profound human document of river centered existence. In this research paper the researcher will mainly focus on fisherman, Kuber Miya's life which was fully dependent on the Padma river.

Keywords : River, Padma, Kuber, Fisherman, Life.

Water Governance and SDGs: Rethinking Water Security in The Context of Assam

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Abstract

Water is the basic necessity of life and a daily human need without which sustainable development is not possible. While the importance of water to humankind's survival and development is understood clearly, but the major concern is the quantity and quality of water. It is because vast majority of water on earth is either saltwater (97.5%) or locked up in ice caps (1.75%), and only 0.007% is available for human use. Over-extraction of ground water, intense pollution, rapid urbanisation, and climate change-induced droughts and floods are threatening water security around the globe. Assam, a state situated in the North-East region of the Indian sub-continent, is known for its abundance in water sources. But paradoxically, it is also known as flood-prone area for which a large number of people in rural areas get internally displaced, facing the problems of livelihood, health and poverty. Unplanned urbanisation and development has been a massive problem in the urban areas of this state, which now requires effective water governance. In order to achieve water security and 'water' being the central to achieve the other UN Sustainable Development Goals (SDGs), sustainable management of water through an effective water governance is the need of the hour. Since 'water' is basically a state subject and the Union comes in only in the case of inter-state river waters, the state has the core responsibility to ensure access to safe, affordable drinking water, adequate sanitation and hygiene which constitutes the basic human needs as per the SDG6 of the United Nations. Therefore, this paper makes an attempt to study water security from the perspective of human security. It further analyses how far the water governance in Assam has been able to ensure water security in the light of SDGs.

Keywords: Water Governance, Water Security, SDGs, Assam.

Water Politics over Brahmaputra River and Implications for Assam

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Abstract

The Brahmaputra River is one of the most geopolitically significant trans-boundary river systems in Asia, flowing across China, India, and Bangladesh before entering the Bay of Bengal. The river sustains complex ecological systems, dense human settlements, agriculture, fisheries, transportation, and cultural life throughout the basin. At the same time, competing national development priorities, upstream hydropower construction, sediment regulation, climate variability, and the absence of comprehensive basin-wide governance have transformed the Brahmaputra into a site of strategic political concern. Assam, located along the middle reach of the river within India, occupies a particularly vulnerable yet critical position in this evolving water politics.

This seminar research paper examines the historical evolution, geopolitical dynamics, ecological risks, and governance challenges associated with Brahmaputra water politics, with special emphasis on their implications for Assam. Drawing on inter disciplinary perspectives from environmental history, political geography, and public policy analysis, the study analyses colonial and post-colonial river governance, upstream-downstream relations, hydropower expansion, climate-induced hydrological uncertainty, and the socio-economic consequences of floods, erosion, and displacement. The paper argues that Assam's long-term environmental security and developmental stability are inseparable from the broader framework of trans-boundary cooperation across the basin.

The study concludes that sustainable and equitable management of the Brahmaputra requires transparent hydrological data sharing, ecologically sensitive infrastructure planning, climate-resilient disaster governance, and inclusive participation of affected communities. Strengthened regional diplomacy and basin-wide scientific collaboration can transform the river from a source

of geopolitical tension into a foundation for shared ecological security and sustainable development in South Asia. By situating Assam within the wider politics of trans-boundary water governance, the paper contributes to contemporary debates on environmental justice, regional stability, and cooperative river management in the twenty-first century.

Keywords: Brahmaputra river, Water politics, Assam, Trans-boundary

Portrayal of Brahmaputra valley in Lil Bahadur Chhetri's Brahmaputraka Chheuchhau: An analytical study

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Abstract

River Brahmaputra, lifeline of Assam, plays a pivotal role in nurturing diverse civilizations and cultures since time immemorial. River Brahmaputra has been a constant source for literary as well as cultural creative works. Lil Bahadur Chhetri, one of the renowned novelists of Assam, wrote Sahitya Akademi award winning novel Brahmaputraka Chheuchhau in Nepali language depicting the life of Asameli Gorkhas (Gorkhas of Assam) settled in Brahmaputra belt in a period between 1940s and 1960s through fictitious characters. Lil Bahadur Chhetri makes an attempt in presenting the socio-cultural aspects of the Gorkhas of Assam of that period. This paper makes an attempt in presenting an analytical study how river Brahmaputra has been presented in the novel both as preserver and destroyer for the Gorkha community settled in and around the mighty river.

Key words: Brahmaputra, Gorkha, Novel, Lil Bahadur Chhetri.

Concept of Energy and Life Relationship with Water in Rigveda

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Abstract

Water is regarded as one of the basic elements from which the universe came into being. Amongst the five basic element of the nature, called Panchamahabhutas, i.e., Prithivi (Earth), Apa (Water), Agni (Fire), Vayu (Air), Akash (Ether), Water and Energy occupies the highest place as the upholder of all lives and the savior of everything living or dead on earth and are the two vital sources for the very existence of life in this green planet. Water is seen as a carrier of energy, while energy provides the dynamism and life force (Prana) to water. In the modern day science elaborate and intensive studies have been made on the impact of energy and water on life and living. Dates back to the Vedic period the Vedas inscribes scientific explanation on generation of energy in water and origin of life therefrom; which are found to be reflected in modern scientific studies. In fact, the explanation of energy and water made specifically in Rigveda are considered as the guiding norms of research for the researcher of the modern period. It is a surprising text to imagine such a philosophical exposition incorporated in the Rigveda; In a period where laboratory based experimentation to draw logical conclusion was totally absent. The present paper is an introspection into the exposition made in the Rigveda in the context of energy, life and water relationship.

Keywords: Rigveda, Water, Energy, Life

A study on understanding Urban Flood and its impact on Guwahati city, Assam Sub-Theme: Flood related issues

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Abstract

Every year during the monsoon season, the Assam experiences worst fury of nature in the form of Brahmaputra River flooding and erosion along its banks, devastating large areas of habituated landform and damaging agrarian lands. Guwahati city located at the banks of the river Brahmaputra with its tributaries passing through the city experiences the worst impact of flash floods every year. Urban flooding is one of the most recurrent hydro-meteorological disasters presently in the world. With the rapid urban growth of Guwahati clubbed with uncontrolled development activities, a detrimental impact has been witnessed on the ecology and milieu of the city. In addition to being vulnerable and prone to flood, the city is recurrently affected by seasonal flash floods or artificial flood, which are not caused by natural factors alone. The city experiences unadorned impacts of flash floods which is typically generated by inadequate civic amenities and negligence of existing natural drain basins.

There are several parameters directly related with the resilience of Guwahati city against floods and their related impacts. The key sectors that should be considered to comprehend the risk profile of the city for devising suitable strategies for resilience may include urban infrastructure and planning; services like water supply, sewerage, drainage, solid waste management, electricity, health); informal settlements and slums; ecosystems and land-use; emergency response capacity. As flood cannot be prevented or completely barred but the indemnities due to floods can be mitigated with proper planning and preparedness at community level.

Hence, the objective of the study is to understand flood pattern of Guwahati which covers disaster risk related issues addressing the key sectors affecting the resilience capacity of Guwahati City. The study also focuses on evaluating the risk related to climate change and different vulnerabilities that triggers the intensity and impact of floods on the city and its dwellers.

Keywords: Urban flooding, Flash flood, Vulnerable, Resilience, Disaster

A Historical and Policy Oriented Analysis of Water Challenges In Assam from Ancient Times to Present

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Abstract

Assam, located in the Brahmaputra valley of Northeast India, represents a distinctive and historically rich case in the environmental and water history of South Asia. The region is endowed with abundant water resources in the form of major rivers, numerous tributaries, wetlands, high monsoonal rainfall, and groundwater reserves. These hydrological features have historically sustained agriculture, fisheries, inland navigation, trade, and dense patterns of human settlement. At the same time, Assam has been persistently shaped by water-related challenges such as recurrent floods, severe riverbank erosion, shifting river courses, wetland degradation, and periodic scarcity of safe drinking water. These challenges have produced long-term patterns of vulnerability, displacement, and socio-economic insecurity, particularly among floodplain and riverine communities.

This paper examines the evolution of water challenges in Assam from ancient and medieval periods especially during the Ahom rule through colonial flood-control policies and post-independence engineering interventions, and into the contemporary era marked by climate change, urbanization, and rapid socio-economic transformation. Drawing upon historical chronicles, secondary historical scholarship, government reports, and contemporary scientific studies, the paper adopts an interdisciplinary approach that integrates environmental history with policy analysis. It highlights how pre-colonial adaptive strategies emphasized coexistence with dynamic river systems, while colonial and modern interventions increasingly sought to control rivers through embankments and large-scale infrastructure.

The paper argues that many present-day water challenges in Assam are not entirely new, but represent historical continuities shaped by past governance choices and development paradigms. In the context of climate change, which is intensifying hydrological extremes and uncertainty, the study emphasizes the importance of historically informed, adaptive, and participatory approaches to water governance. By bridging historical experience with contemporary policy debates, the paper contributes to the environmental history of Northeast India and offers policy-relevant insights for building resilient and equitable water futures in flood-prone regions.

Waters of Change: Exploring Blue Humanities through Amitav Ghosh's Ecocritical Narratives

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Abstract

Steve Mentz's term "Blue Humanities" revolutionized how we think about the ocean's role in human affairs. No longer just a passive setting or mysterious unknown, the ocean is now seen as a key player in shaping human history and culture. This paper integrates cultural narratives with sustainable water practices in the light of Blue Humanities through Amitav Ghosh's novels *The Hungry Tide* (2004) and *Gun Island* (2019). The paper demonstrates how literary narratives can illuminate water's centrality in confronting ecological crises and envisioning sustainable futures. Ghosh's works engage with water not merely as a backdrop but as a dynamic force that shapes human livelihoods, cultural memory, and environmental entanglements - offering critical insights for understanding water challenges from both ancient practices and contemporary disruptions.

In *The Hungry Tide*, the Sundarbans becomes a locus for examining water's ecological complexity and the socio-cultural interdependencies it fosters. Through characters such as Piyali Roy, a cetologist, and Fokir, a local fisherman deeply attuned to tidal rhythms, Ghosh foregrounds the epistemic value of indigenous ecological knowledge alongside scientific inquiry. Water is both life-giving and perilous, compelling readers to rethink on sustainable water use and connect it to place-based knowledge systems.

Gun Island extends the engagement with water through a diasporic odyssey that spans Indian coastal regions, the canals of Venice and the waterways of Los Angeles. The narrative intertwines contemporary climate events - floods, droughts, and sea-level rise - with myths of the Gun Merchant, illustrating how ancient water lore resonates with present environmental disruptions. Ghosh juxtaposes mythic traditions with scientific realities while critiquing modernity which believes only in extracting from nature without replenishing, thereby leading to hydrological imbalances.

Keywords: Blue Humanities; Sustainable water practices; Amitav Ghosh; Climate Change; Indigenous Ecological Knowledge.

A Study on The Traditional Water Management System of the Bodos

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Abstract

The Bodo are one of the largest tribal communities of Assam as well as North-East India. They are mainly scattered on both the northern and southern banks of the Brahmaputra River in Assam. Bodo populations are also found in pocket areas of other North-Eastern states such as Arunachal Pradesh, Nagaland, Tripura, and Meghalaya, as well as in West Bengal. Apart from India, Bodos also inhabit adjacent areas of Bhutan, Nepal, and Bangladesh.

Since time immemorial, the Bodo people have practiced various traditional knowledge systems inherited from their ancestors. Among these, the traditional water management system is one of the most significant. This system is known as Dongo (canal) and Bandw (dam). Through this method, water is diverted and stored from rivers for use in paddy cultivation and household purposes. The Dongo-Bandw system is essentially a traditional, community-managed irrigation system practiced mainly in rural areas. Its operation requires collective participation, as it cannot be managed by a single family or individual. Therefore, it is entirely community-based. To manage this system, each village forms a special committee known as the Bandw Committee, which oversees and regulates the construction, maintenance, and distribution of water, particularly during the summer season when paddy cultivation takes place.

This paper attempts to highlight the traditional water management system of the Bodo people, focusing on its construction, management, and benefits to society.

Keywords: Water Management, Dongo (Canal), Bandw (Dam), Bandw Committee, Construction, Benefits.

Water Management : A Heritage Perspective

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Abstract

The current paper provides an historical overview of water management over time and space and also makes an attempt to understand the values that the ancient texts and scriptures laid on 'water' in specific, further detailing out challenges in 'water management' in the current context and suggesting future options for improved water management. The focus is to see how 'water was and is perceived and the influence it had and has on water management'. There are references made in Vedas and in early scholarly manuscripts to several aspects of water management viz. Technologies in water. Management and use, irrigation water management, water allocation and pricing, medicinal properties of water, and conservation of water for sustainable use. All this was perceived through viewing water as a 'divine component' where emphasis was on reverence for water, belief systems, religious practices through which they created a sense of awareness and respect towards water usage which helped conserve it as well. According to the hymns of Rigveda, water was an extraordinary and omnipresent element in Rig Veda, being upholder of all lives and savior of everything living or dead on earth. These (waters) were both mentioned as means of terrestrial and celestial. It had been said in Vedic literature about holiness of rivers that such a river which originate from mountains and flows till oceans is holy. Vedic Rishis want to convey us by this message that we should conserve the flow of rivers. Rivers should be allowed to flow. The paper describes the challenges encountered in water management in the current context. Besides providing a historical view and looking at these two contexts, efforts are made to draw some lessons from the traditional water management practices and other literature as well, for future 'water Management'.

Water in History: Understanding Some Riverine Settlements of Pragjyotisha-Kamarupa

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Abstract

Water has been fundamental to human history, shaping civilization, health, and development for millennia. Early settlements thrived near rivers, and advanced water management, including ancient irrigation, aqueducts, and treatment methods, was crucial for survival and growth. Water scarcity, floods, and pollution have consistently influenced the rise and fall of societies, from ancient Mesopotamia to the Mayan collapse. Water History aims to foster historical understanding of the relationship between water and humankind. As water has influenced the development of human communities throughout the world, the study of water contributes to understanding of economic, political, social, and environmental history, the history of science, medicine, technology, environmental sciences, and geography etc. Since time immemorial the rivers have been playing a vital role in cradling the human civilizations in different parts of the world. Presence or absence of river is always a determining factor in the formation of society, economy and polity of a region. Assam vis-a- vis North East India is the land of rivers and beautiful hills. The Brahmaputra and the Barak, the two major rivers with their tributaries and large basins are two life lines shaping the destiny of the people of Assam. Material evidences show that the major human settlements of the region had been developed along the major river system and these rivers dominated the process of social and polity formation of the region since prehistoric period. In this paper a sincere attempt has been made to trace the role of the rivers of the region in mapping the early settlements of Assam and the nature of human interaction and response with it. It is the environment and ecological set up with whom human beings have been trying to interact continuously since the prehistoric period. The ethnological evidence from the region shows that the early settlers generally selected the river valley of the for the development of their activity for the easy availability of water and other raw materials for their subsistence. In early society's behavior and subsistence activity developed

concentrating on some major river or some hill stream which basically facilitate the early settlers by continuous flow of water, fishing and hunting facility. The study of the folklores and ballades of Assam reflects that almost all the tribes of Assam vis a vis Northeast India regarded river as their mother or even worshipped, named the river in their own way or form which probably developed out of their fear and respect. The river or its tributaries which the early settlers named were ethnic in origin. These are basically Tibbeto- Burmese or Austric formations like Dikhou, Dikrong, Dibru, Digaru etc.

Key Words: Water, Epigraphy, Settlements, Lauhitya.

Water and Warfare: Strategic Dimensions of Ahom Rule in Assam

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Abstract

The Ahoms, a branch of Tai or Shan race ruled Assam for a prolonged period from 1228 to 1826 C.E. The survival of a dynasty for nearly six centuries was a remarkable historical phenomenon. The administrative efficiency and strategic planning adopted by the Ahom rulers, undoubtedly enabled them to sustain their rule for such a long period of time. Through well-planned strategies of expansion and defence, the Ahom rulers consolidated their position as the most powerful ruling authority in the Brahmaputra valley. The geographical location of Assam was also highly conducive to defence and the Ahom rulers effectively utilised this advantage by adopting appropriate strategic measures. As we know, Assam is widely known as a riverine state, with the Brahmaputra and its tributaries playing a significant role in shaping the ecological, agricultural and economic life of the valley. During the period of Ahom rule, the mighty river Brahmaputra and its tributaries acquired strategic significance, especially in terms of military defence and warfare. The establishment of the capital of the Ahoms was also influenced by waterways. The Ahoms constructed their fortifications at strategically significant points along the Brahmaputra for both defensive and offensive purposes. Various garhs or ramparts like panigarh or water rampart, baligarh etc. were constructed by the Ahoms at the time of war with the enemies. The Ahoms were expert in naval fighting and in this aspect also water proved to be important for the Ahoms. The Ahoms were expert in naval warfare and water thus proved to be a vital factor in their defence and territorial expansion.

Objectives: The main objective of the study include:

1. To analyse the significance of waterways in the Ahom period.
2. To study the strategic importance of waterways in the defensive and offensive systems of the Ahoms.

Methodology: The study is based on secondary sources and the historical method of research has been followed for its completion.

Keywords: Ahoms, Waterways, Fortification, War,

Wetlands and Biodiversity Conservation: A Study of the Wetlands of Behali Wildlife Sanctuary and Nearby Areas in Biswanath District of Assam

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Abstract

Wetlands play a special role in the natural environment of the Earth and for conservation of biodiversity. People did not make much effort to understand the importance of such reservoirs such as lakes, canals, ponds, etc. in the past. However, the post-Industrial Revolution in Europe, rapid population growth, the expansion of settlement, agriculture, industry, roads, institutions, etc., put pressure on such reservoirs and consequently the natural reservoirs have gradually shrunk in number and size. These reservoirs have recently shrunk to such an extent that people around the world are particularly aware of their conservation. Thus, adoption of various means for protection of these reservoirs have become apparent at local, national as well as international levels. Besides being a reservoir of various aquatic plants and animals, these reservoirs help in maintaining the balance of nature in various ways.

Recently notified Behali Wildlife Sanctuary, created integrating erstwhile Behali and Singlijan Reserve forests, falls under Sonitpur East Forest Division in the present administrative district of Biswanath is one of the most important hubs of biodiversity, as the nearby forest covers have come in the verge of extinction. The wetlands in and around Behali Wildlife Sanctuary in the Biswanath District of Assam are a vital ecological hotspot supporting diverse flora and fauna. The main focus of this study is to examine the Biodiversity Significance, threats as well as the conservation potential of the wetlands existed in and around the Behali Wildlife Sanctuary. Significance includes the role of the wetlands of this area in sustaining aquatic plants, fish species, birds, and other wildlife. The wetlands include the tributaries of Brahmaputra such as Buroi, Borgang and Behali apart from some other small streams as well as ponds of big and small varieties provide shelter and also water not only for the aquatic species but also the

terrestrial animals. Sometimes, the human activities like agriculture, encroachment and pollution, poaching etc. pose threats to the biodiversity reservoir of the wetlands of this region. The paper also tries to focus on the conservation potentials including the role to be played by non-government organisations for creating awareness among the students and local community, government initiatives taken and the scope for sustainable management. Findings highlight the need for integrated conservation strategies to protect the ecological balance and biodiversity of Behali's wetlands.

Keywords: Wetlands, Behali Wildlife Sanctuary, Biodiversity, Aquatic, Conservation.

Role of Blue Infrastructure in Sustainable Urban Water Management: A Digital Water Management Approach Using Geospatial Technique

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Abstract

This study examines the role of blue infrastructure in advancing sustainable urban water management and enhancing climate resilience in Sivasagar. As the historic capital of the Ahom Kingdom, Sivasagar is characterized by a dense network of traditional water bodies-tanks, ponds, wetlands, and drainage channels-that have historically supported water storage, flood regulation, and socio-cultural practices. The most prominent among these is the Sivasagar Tank, covering approximately 318 acres. However, rapid urban expansion, land-use transformation, and climate variability have placed increasing pressure on these systems, leading to water pollution, reduced storage capacity, disrupted drainage patterns, and heightened vulnerability to urban flooding and heat stress.

The study adopts a digital water management approach using geospatial techniques to assess the current status, spatial distribution, and functional performance of blue infrastructure, with particular attention to urban and peri-urban areas. Geographic Information Systems (GIS) and remote sensing are employed to map and analyze blue and associated green spaces, evaluate their accessibility and quality, and identify spatial gaps in ecosystem services. Land-use/land-cover analysis, water body extraction, buffer analysis, and spatial overlays are used to examine interactions between blue infrastructure, urban growth, and hydrological processes. In addition, micro-climatic variability is assessed by analyzing land surface temperature and its relationship with the spatial configuration of blue and green spaces to understand their role in urban thermal regulation.

The expected outcomes include a comprehensive geospatial inventory of blue infrastructure assets, identification of underserved and vulnerable urban-periphery zones, and spatially informed recommendations for integrating blue infrastructure into urban planning and policy frameworks. By strengthening the multifunctional role of urban water bodies, this research

contributes to climate-resilient and sustainable urban development and aligns with the United Nations Sustainable Development Goals, particularly SDG 6 (Clean Water and Sanitation) and SDG 11 (Sustainable Cities and Communities). The findings highlight the significance of GIS-based digital water management in safeguarding historic urban water systems and supporting long-term urban sustainability.

Keywords: Blue-Infrastructure, Urban water bodies, Digital water management, Sustainable Development Goals.

Water as a Mode of Transport in Colonial Assam

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Abstract

In colonial Assam, waterways functioned as the most vital mode of transport and communication, shaping the region's economic, administrative, and socio-cultural life. The Brahmaputra and Barak river systems, along with their numerous tributaries, formed a natural network that enabled the movement of people, goods, and ideas across an otherwise difficult terrain marked by dense forests, hills, and poor road connectivity. This paper examines the historical significance of water transport in colonial Assam, focusing on its role in trade, administration, military movement and cultural interaction. It also analyses the impact of British colonial policies, the introduction of steam navigation, and the gradual transformation of traditional river-based transport systems. The study highlights how water transport not only facilitated colonial economic interests- particularly tea, oil, and timber but also integrated Assam more closely with the wider colonial economy of India and beyond.

Keywords: Brahmaputra, Colonial Assam, Steam navigation, Trade and Communication, Water Transport.

Water Challenges and Civilizational Decay: Special Reference to Indus Valley Civilization

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Abstract

Throughout history, water act as the primary element for settlement, social and economic development. Civilization and water have always been deeply interrelated. The hunter gatherer communities led a fairly sedentary life around rivers, lakes and reliable water resources in late Mesolithic (some parts of the world) and Neolithic period. The great ecological diversity in different parts of the World especially in climate, soil, water, availability of plant, animal species had become important factors of differentiate a civilization form one another. River Indus, Euphrates, Tigris, Huanghe, Nile etc were the lifeline of Indus Valley Civilization, Mesopotemia, Egypt and Chinese civilization accordingly which gave special characteristics to them. History records how in due course of time, these flourishing civilizations of the World had faced serious crisis when water resources dried up, became polluted or misused/mismanaged. Resources of environment were exploited through over cultivation, over grazing and excessive cutting of trees for fuel and farming which would have resulted in decreasing soil fertility, flood and increasing soil salinity. At present also, it is seen that the World is facing a modern system of water challenges due to population growth, climate change, mismanagement of ground water, making embankment, dam etc. The prime objective of the paper is to analyze how water challenge had become an important factor for the decay of Indus Valley Civilization.

Key Words: Indus Valley Civilization, Water Crisis, Urbanization, Economic Development.

Poverty Alleviation Through Improved Water Access by Rural Households: A Literature Review

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Abstract

Poverty is defined on the basis of a basic minimum required nutritional calorie intake. A person earning an income of less than \$ 1.90 per day per head of Purchasing Power Parity (PPP) as per the new 2011 Purchasing Power Parity is considered to live Below Poverty Line. There are six types of poverty viz. Situational poverty, Generational poverty, Relative poverty, Absolute poverty, Urban poverty and rural poverty. Situational poverty arises out of a sudden mishap, crisis and loss. It is temporary in nature and usually arises due to unsuccessful marriage, medical issues in one's life, loss of jobs and natural disasters such as earthquake, flood, drought and storm. It is related to a particular situation that is completely uncertain. Generational poverty means the burden of debt passes on generation after generation. The people are unable to come out of it as the debt gets carried forward on a legacy basis and drags them into indebtedness. Relative poverty refers to the condition when a person's average standard of living is low in the society in which he dwells. The person lacks to have the minimum income required to maintain the average standard of living in the concerned society. Absolute poverty is a situation when a person is unable to afford the basic necessities of life food, shelter, proper clothing, safe drinking water facilities, health and sanitation facilities and basic education. Towns and cities having a population of more than 50,000 are subjected to urban poverty if suffers from violence, unwanted disturbances, over urbanization and more number of poor people. Whereas, rural poverty refers to the condition of the rural people suffering from financial problems, unemployment, lack of proper shelter, health problems and natural calamities. Rural poverty occurs in areas with population below 50,000.

The Sustainable Development Goals (SDGs) were formulated by the United National (UN) and its 193 member nations along with the global civil societies. The sustainable

development goals are officially known as "Transforming our World: the 2030 Agenda for Sustainable Development". It was formulated in the United Nations (UN) Rio + Summit. It has 17 broad goals with 169 targets among them. Availability of clean and safe drinking water and hygiene sanitation for all: Life cannot be sustained without water. But, water used for drinking must be clean and safe because consumption of unclean water is the prime cause of many diseases. So, this goal ensures availability of clean and safe drinking water for all. Pararely, provision of hygienic toilets is also a must because defecating in the open leads to deterioration of human health. The negative effects of dearth of clean and safe drinking water and hygienic sanitation extend beyond the undeniable consequence of diseases. In this research paper, the researcher has attempted to highlight the impact of SDGs in poverty reduction and accessibility of pure water to the rural households through a literature review.

Keywords: Poverty, SDGs, Poverty alleviation, Rural households, Water access.

Assessment of impacts of flood and other hazards on human activities in Dibru River Basin, Assam (India): A Primary survey concept

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Abstract

The river Brahmaputra is the lifeline for many people in Assam. People directly or indirectly depend on the river for their livelihood. However, the communities that dwell near the bank of the river are increasingly exposed to multiple hazards created by the rivers' actions and have significant direct and indirect impacts on their livelihoods. The research paper mainly focused on the impacts of hazards on human development activities in the Dibru River basin. Data were mainly based on a primary survey, where a questionnaire method was used, and also on secondary data sources. A Stratified Random sampling technique was carried out with 30% of the households from each village. The sample villages affected by floods were extracted from the flood hazard mapping and channel migration of the river of 2022 by overlaying the village features. Floods and bank erosion were identified as primary natural hazards in the study area. The impacts of such hazards on the development schemes and initiatives by the government, agricultural communities, livestock, drinking water, sanitation, nutrition, housing, transport and communication, and biodiversity are considered a core study in this paper. It will help the communities mitigate the issues from the impact and create awareness among the people. The paper consolidates the findings and proposes a localized assessment framework that stakeholders can use in decision-making.

Keywords: Hazards, Human activities, Questionnaire, Remote sensing, GIS.

Contemporary Challenges in Agriculture and Irrigation Management in Kamrup District, Assam

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Abstract

Kamrup District is situated in the heart of the Brahmaputra valley of Assam. It is predominantly agrarian economy where the stability of food production is linked to efficient water management. Despite the region's high annual rainfall, farmers face significant Agriculture and Irrigation issues due to the seasonal variability of the monsoon and the lack of modernized infrastructure.

This paper examines the dual challenges of water scarcity during the Rabi season and the recurring threat of floods and siltation during the Kharif season within Kamrup District. Historically, traditional irrigation methods like Dongs served local communities, but the transition to contemporary agriculture demands more robust solutions. Current issues include the high operational costs of power-driven pump sets, declining groundwater levels in certain blocks, and the inefficient distribution of water from existing canal systems. Furthermore, the encroachment of local wetlands (Beels), which traditionally acted as natural reservoirs for irrigation, has severely disrupted the hydrological balance of the district.

Through a review of local water policies and contemporary agricultural practices, this study highlights the urgent need for sustainable water-use and digital water management initiatives to align with Sustainable Development Goals (SDGs). The abstract concludes that integrating community-based management with technological interventions is vital to ensuring water security for the farmers of Kamrup.

Keywords: Kamrup District, Irrigation, Agriculture, Water Scarcity, Sustainable Management.

Water, Health and Household Expenditure: Evidence from Assam

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Abstract

Access to safe drinking water serves as a fundamental element that determines public health outcomes and economic stability for households in areas which face climate-related threats such as Assam. The research investigates the water-health-economy relationship by studying how water quality issues affect disease transmission and household medical spending patterns throughout the state. Assam encounters various water-related dangers because of its continuous flooding patterns, seasonal water pollution, problems with groundwater safety which include iron and arsenic contamination in specific regions, and differences between urban and rural areas regarding access to safe drinking water. Water-borne illnesses occur more frequently because of these factors which also increase the expenses that patients need to pay for their medical care and preventive services.

The research assesses how government programs which include Jal Jeevan Mission, Swachh Bharat Mission, and National Health Mission work to solve water-related health problems. The results demonstrate that the existing water supply system and sanitation system together with public health infrastructure and climate-adaptive facilities require a comprehensive policy framework to operate effectively. The study shows that water problems need solutions which treat them as public health problems and economic problems because this approach will help achieve sustainable development and decrease household financial duties.

Keywords: Water Quality; Public Health; Household Health Expenditure; Water-borne Diseases; Assam

Waters of Peril, Waters of Promise: Missionary Tropicality in the Brahmaputra Valley

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Abstract

This paper examines how American Baptist missionary (ABM) writings in nineteenth-century Assam constructed the Brahmaputra Valley as a watery tropical world of both peril and promise. Drawing on missionary accounts, medical reports, and conference reports, it argues that water occupied a central place in the missionary imagination of the valley: as an environmental excess that produced danger, disease, and disorder, and later as a medium through which bodily, social, and spiritual reform could be enacted.

Early ABM narratives repeatedly described the abundance of water, rivers, monsoon rains, swamps, and saturated soil, as a practical and existential challenge. The Brahmaputra appeared treacherous, claiming missionary lives during river journeys, delaying travel, and rendering mobility uncertain. Stagnant pools and humid air were linked to fevers, malaria, and cholera, enabling missionaries to frame the valley as a diseased tropical space in need of medical and moral intervention. Such representations participated in wider colonial discourses of tropicality, where water and climate became explanatory tools for bodily vulnerability and cultural difference.

Yet, as missionary stations, dispensaries, and hospitals took shape, water was gradually re-scripted. Practices such as boiling drinking water, introducing sanitation routines, and promoting hygienic discipline were presented as lessons in taming a hostile environment. Through these everyday medical instructions, missionaries claimed to transform polluted water into safe water, and by extension, disorderly bodies into healthy subjects. The culmination of this transformation appears in ritual uses of water, where the same riverine water once feared as dangerous was reimagined as purifying and sacred. In ABM texts, water thus undergoes a narrative transformation, from threat to tool of salvation. The paper suggests that this transformation of water illuminates how environmental management, medical modernity, and ritual practices converged in the missionary project, offering a historical perspective on how water became both a challenge and a solution in colonial Brahmaputra Valley.

Keywords: Tropicality, Missionary Medicine, Hydrological Perceptions, Environmental Imagination, Brahmaputra Valley

Flood hazard and livelihood challenges :case study of fringe villages of Laokhowa -Burhachapori Wildlife Sanctuary,Assam

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Abstract

The problem of flood, erosion and drainage congestion in the Brahmaputra basin is a matter of great concern. There are many causes and factors which leads to the problems like food, erosion and sedimentation. The Brahmaputra floodplain of Assam, like many major floodplains of alluvial rivers has been an attractive landscape for large numbers of flora and fauna, including human beings. The river creates fertile alluvial soils of the floodplain which support congenial ecological habitat for wide varieties of flora and fauna. The river Brahmaputra also acts as a corridor for large wildlife or fauna due to which some prominent Wildlife Sanctuaries and Reserve Forests are found in and around the active floodplain region. The villages/char/chaporis attached to river or lying in the floodplain are the main risk/vulnerability bearer. As agriculture being their main source of income, the damage cause by river flood is most dangerous for them. There are various other livelihood challenges being faced by the people living in chaporis over time due to flood hazard. A household survey covering the entire families of the village was conducted with a purposively designed schedule to generate first hand data and information for the purpose.

Key words: Livelihood challenges, Flood, Fringe, Wildlife Sanctuary

Role of the rivers in shaping and destruction of the Early Historic settlements of Goalpara district of Assam

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Abstract

Literary and archaeological sources suggest that the Goalpara region has witnessed continuous human occupation since prehistoric times, reflected in the density and diversity of its archaeological sites. The region boasts a distinctive combination of hills and river valleys. The Brahmaputra River Valley, the largest river that flows from east to west, intersects with the Gangetic Delta, playing a significant role in the formation of Early Historic cultures in Assam. The majority of the Early Historic sites discovered are situated either on the banks of the River Brahmaputra or on the low hilly terrain adjacent to the floodplain of the River Brahmaputra. From a diachronic perspective, rivers functioned not only as facilitators of settlement formation but also as dynamic agents of landscape transformation. In the contemporary context, the same fluvial processes have become sources of vulnerability, as archaeological remains, such as fortifications, brick structures, ramparts, and ceramic assemblages are increasingly threatened by flooding and erosional forces associated with rivers like, the Brahmaputra and its tributaries and drainage system. This paper seeks to theoretically examine the spatial distribution of settlements in Goalpara district through the lens of human- river interaction, emphasizing how fluvial dynamics have simultaneously structured cultural development and contributed to the ongoing degradation of the archaeological landscape.

Key words: Goalpara, The Brahmaputra River, Material remains, Natural threat

The Role of the Burhi-Dihing River in Shaping the Socio-Cultural Landscape of the Tai Phake Community

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Abstract

The Burhi-Dihing River has played a crucial role in shaping the life, culture, and spatial organization of the Tai Phake community living along its banks in Assam. This study examines the interrelationship between the river and the Tai Phake people, highlighting how the river has influenced their settlement patterns, livelihood practices, socio-cultural traditions, and human-environment interactions. Traditionally, the Burhi-Dihing River has served as a vital source of water for agriculture, fishing, and daily household activities, while also acting as a natural corridor facilitating communication and resource exchange. Beyond its economic significance, the river holds cultural and symbolic importance, influencing rituals, festivals and indigenous knowledge systems of the Tai Phake community. However, recent changes such as environmental degradation, flooding, riverbank erosion, and increasing external socio-economic influences have begun to alter this long-standing relationship. By adopting a geographical perspective, the study seeks to understand how modernization and environmental challenges are reshaping the river-based lifestyle and cultural landscape of the Tai Phake community. The research emphasizes the need to recognize the Burhi-Dihing River not merely as a physical feature but as an integral component of the socio-cultural identity and sustainability of the Tai Phake people.

Keyword: Burhi-Dihing, Tai Phake, Flood, Cultural.

From Sacred Water to Neglected Stream: The Basistha Temple Landscape and Challenges of Preservation in Guwahati

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Abstract

Sacred landscapes in India have historically functioned through a delicate balance between ritual practice, ecological continuity, and administrative care. Constructed by the Ahom King Rajeswari Singha in 1764, the Basistha Temple in Guwahati represents an integral site within such a setting. The temple sits at a revered "Triveni Sangam"-the confluence of three mythical mountain streams (Sandhya, Lalita, and Kanta) originating from the forested foothills of Meghalaya. With its proximity to the Garbhanga Reserve Forest, the stream has long been associated with sacred practices, particularly *Pindadâna*, a ritual performed for the peace of the departed soul, making the site one of the most significant ritual centres for death rites in the region. In addition to its religious importance, the temple has evolved as a major tourist attraction over time, particularly during the summer months when visitors gather around the stream for its scenic and cooling value.

This paper examines how the combined pressures of ritual use and tourism, in the absence of effective management, have gradually altered the water quality and cultural ecology of the Basistha Temple stream. Based on field observations, local narratives, and documentary sources, the study highlights how increasing human activity has not been accompanied by adequate maintenance, regulation, or conservation efforts. While the temple continues to attract large numbers of devotees and visitors, both temple management and government agencies have shown limited engagement in preserving the stream as a living heritage resource. The lack of waste management infrastructure, absence of clear guidelines for ritual disposal, and neglect of routine cleaning and monitoring have contributed to a slow but visible degradation of the water body.

Rather than framing the issue as severe pollution, the paper argues that the primary problem lies in administrative neglect and the absence of coordinated heritage governance. The stream exists in an institutional blind spot, being neither fully protected as a heritage element nor managed as an ecological resource. This neglect has weakened the sacred relationship between people and water, turning ritual abundance into environmental stress. The case of Basistha Temple demonstrates how sacred sites can become vulnerable not because of loss of faith, but due to lack of institutional responsibility.

By foregrounding a small but culturally significant stream, this study contributes to discussions on riverine culture, sacred geography, and heritage management in urban India. It calls for a rethinking of heritage preservation that integrates monuments, ritual use, and the ecological systems that support them.

Keyword: Sacred Landscape, Ritual Water Use, *Pindadâna*, Heritage Neglect, Basistha Temple, Riverine Culture

The Importance of Rivers in Assamese Songs

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Abstract

Rivers have played a crucial role in shaping the natural landscape, culture, and emotional life of Assam. Flowing through the plains and valleys of the region, rivers-especially the Brahmaputra and its numerous tributaries-have influenced agriculture, communication, settlement patterns, and social relationships. This deep-rooted connection between rivers and everyday life is vividly reflected in Assamese songs. The present seminar paper examines the importance of rivers in Assamese songs and analyses how they function as powerful cultural, emotional, and symbolic elements within the musical tradition of Assam.

Assamese songs, particularly folk songs such as Bihu songs, boat songs, and other regional compositions, frequently portray rivers as lifelines of rural society. These songs celebrate rivers for sustaining agriculture, fishing, and trade, thereby acknowledging their role in ensuring livelihood and prosperity. Rivers appear as nurturing forces that support life and continuity, often personified as caring yet unpredictable entities. Through such representations, Assamese songs reflect the dependence of human life on riverine systems.

The seminar paper also explores the depiction of floods and suffering in Assamese songs. Floods are a recurring reality in Assam, and many songs express the pain, loss, and displacement caused by overflowing rivers. These songs capture the collective sorrow of the people while also highlighting resilience, patience, and hope. The dual nature of rivers-as sources of life and agents of destruction-is thus powerfully conveyed through lyrical expression.

Furthermore, rivers play a significant role in shaping Assamese cultural identity as reflected in songs. The Brahmaputra, in particular, occupies a central position as a symbol of unity, heritage, and regional pride. Many modern Assamese songs celebrate the river as a witness to history, tradition, and social change. Through musical expression, rivers become symbols of Assamese identity, connecting past and present generations.

In conclusion, rivers occupy an indispensable place in Assamese songs, enriching them with emotional depth, cultural meaning, and social relevance. They serve as symbols of life,

love, suffering, continuity, and identity. By examining river imagery in Assamese songs, this paper highlights the intimate relationship between nature and human expression in Assam and underscores the significance of rivers as an enduring source of inspiration in Assamese musical tradition.

Keywords: Rivers, Brahmaputra, Assamese Songs, Folk Music, Cultural Identity.

Impact of floods on infrastructure of Dibrugarh district of Assam, India

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Abstract

Infrastructure is the backbone of an economy. The impact of floods on infrastructure causes huge damage to the economy. Floods are one of the most devastating natural disasters that cause huge damage to physical infrastructure such as roads, communications, buildings, and social amenities. Floods expose infrastructure to more risk of structural damage, wear and tear, and reducing the durability of objects and buildings, which increases the maintenance and repair costs of flood-affected infrastructure. Vulnerabilities posed by the floods on the infrastructure of Dibrugarh district during 2012-23 will be the main focus of this paper. The river Brahmaputra and its prime tributary in the district-Burhi Dihing has caused huge damage to district's infrastructural system. During the monsoon, when the rivers swell up to its peak, ferry transport is totally prohibited in many areas. The river water itself engulfed with a speedy current, and restricts the smooth movement of water transportation over it. During flood times, such water currents become more intense. It washes away whatever came its way. Breaches of embankment due to bank erosion by the rivers have become a common phenomenon. The paper will discuss numerical details on vulnerabilities posed by floods on bridges, culverts, roads, railway tracks, embankments, schools, hospitals, and other public buildings, etc.

Key words: Floods, Transportation, Infrastructure, Dibrugarh

Traditional Knowledge of Irrigation among the Bodos of Assam

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Abstract

Traditional knowledge plays a vital role in the agricultural practices of indigenous communities. Among the Bodos of Assam, they have the traditional irrigation system to practice the agriculture. They supply water to their paddy field from stream, ponds, wetlands and seasonal floodwaters. They supply water through 'Dongo' (channel), 'Ali' (earthen embankments) and bamboo based tools. This traditional irrigation knowledge reflects deep ecological understanding and supports agricultural stability. The paper attempts that how the Bodo communities practice the irrigation system in their paddy field.

Key notes : Bodo culture , Dongo , Ali

Flood Zonation Mapping Based on Analytical Hierarchy Process Method: A Study on Jiadhhal River Basin of Assam, India

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Abstract

Globally, flood is considered as one of the most common and dangerous natural hazard which impact on both natural and social environment. The River's which are flowing from the high altitude areas with a steep slope and receive high rainfall often creates devastating flood in the low lying plain areas. The Jiadhhal River is selected in the present study to identify the flood zone by applying the AHP method. The River is a sub tributary of Brahmaputra River which originated in the High mountainous areas of Arunachal Pradesh and flowing towards the Brahmaputra plain. The River inundated the lower catchment areas of the basin during the monsoon time period annually and it creates huge loss in the environmental and socio economic properties of the nearby areas of the basin. The nine numbers of geomorphic flood influencing factors were selected in the study to perform the analysis and identify the flood affected zones within the basin. The result of the study found that low flood zones occupy the upper section of the basin and most of the lower catchment areas include in the high flood zones. The resulted flood hazard map has classified into five classes, viz., very low to very high and the maximum areas has occupied the moderate flood hazard zones which is 1320.46 sq. km and observe in the lower and middle section of the basin. The current study will be help to understand flood behavior of the basin for determine the proper mitigation measures to reduce the flood vulnerability of the area.

Keywords: Jiadhhal River, AHP method, GIS and remote sensing, Flood zonation map.

Hydrological Landscapes and the Riverine Foundations of Deori Indigenous Culture

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Abstract

The Deori people, an indigenous tribe residing in the Upper Brahmaputra Valley of Assam and Arunachal Pradesh, possess a unique cultural identity deeply intertwined with riverine ecology. The Deori language, Jimosaya, carries deep meanings related to nature: "Ji" means water, "Mo" means man, "Cha" means sun, and "Ya" means moon. The Deori Community Believes that they are born from the Moon, the Sun, and the Water reflects their cosmological beliefs, signifying their origin from the Sun, Moon, and Water.

Historically, the Deori people migrated to areas near the Dibang, Lohit, and Kundil rivers, and their villages have developed along riverbanks. Their clan names also reflect this connection; for example, clans like Dibongiya (after the Dibang River) and Tengapaniya (after the Tengapani River) show how rivers are tied to their history and sense of belonging.

This paper examines the intricate relationship between river systems and the cultural identity of the Deori people, with particular focus on their historical migration narratives, clan divisions, settlement patterns, agricultural practices, and ritual systems. By analyzing the interdependence between hydrological environments and socio-cultural structures, the paper demonstrates how rivers serve not merely as physical resources but as foundational elements of identity formation.

Keywords: Hydrological Landscapes, Migration, River, Deori.

Role of Lift Irrigation on Agricultural Growth in Char Areas of Sonitpur District, Assam: A Case Study of Laltapu And Tintikia Char

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Abstract

Assam, being a riverine state, is blessed with the mighty river Brahmaputra and its numerous tributaries. As a braided river the Brahmaputra is associated with the formation of a large number of sand bars either in the heart of the river or on its banks by carrying suspended materials from the catchment areas. As a result, Assam is the powerhouse of such sand bars or riverine islands locally known as chars and chaporis. These islands are impermanent in nature due to frequent monsoon floods and can disappear overnight due to massive erosion by the river. These low-lying, floodplain zones of the Brahmaputra are rich in fertility and suitable for the cultivation of various seasonal crops especially rabi crops. Consequently, farming constitutes the mainstay of livelihood for the char dwellers. The char dwellers of Sonitpur district are associated with the bumper products of agriculture, where most of the farmers rely on this primary activity. Thus, an attempt has been made in this study to explore the role of lift irrigation in shaping agricultural growth in the char areas of Sonitpur district. Keeping this in mind, it has been tried to highlight the key issues with the help of both primary and secondary sources of information.

Keywords: Chars and Chapories, Floodplain zone, Lift irrigation, Rabi crops

Water, Identity and Caste Tribe Interaction

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Abstract

Water has been one of the most vital elements in the development of human civilization, influencing patterns of settlement, livelihood, belief systems, and social organization. Rivers, in particular, have served as sources of sustenance as well as natural boundaries that shape cultural identity and social interaction. Beyond its physical and economic importance, water also functions as a symbolic and cultural medium through which caste and tribal interactions take place. In the socio-cultural landscape of Assam, water plays a significant role in connecting different social groups through traditional knowledge and practices. For example, an elderly Assamese woman, commonly known as aai, is believed to possess the ability to foresee events and offer guidance. Members of various tribal communities approach her for advice, reflecting trust and cultural exchange beyond caste boundaries. Similarly, traditional healers known as ojhas treat common ailments such as fever and stomach ache by chanting mantras while observing water. Water, in this context, becomes a diagnostic and spiritual medium. These practices highlight how belief systems associated with water facilitate interaction, mutual dependence, and shared cultural spaces between caste and tribal communities. Thus, water emerges not only as a natural resource but also as a powerful social and cultural connector shaping identity and inter-community relationships.

Keywords: Water, Caste, Tribe, Interaction, Identity.

Water Challenges in the Indus Valley Civilization: Environmental Constraints and Adaptive Strategies

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Abstract

The enigmatic collapse of the Bronze Age Indus Valley Civilization, water resources played a pivotal role, which was one of the earliest and most advanced Civilizations of Ancient times. Considered as the first Urbanized Civilization of South Asia, this riverine Civilization is classified as Proto-Historic since in the absence of deciphered written records. The mature phase of Indus Valley Civilization roughly covers the period from 2600-1900 BCE, whose survival and prosperity were closely linked to the water management and resources from rivers, monsoon rainfall, innovative hydraulic engineering. Despite developing advance system of wells, drainage and urban sanitation, this Civilization faced serious water related challenges mainly towards the later phase of the Civilization. The diverse and often competing uses of water inevitably lead to the tensions and conflicts in the management and allocations. However, the very water systems that enabled its growth, also posed significant Environmental Constraints. Climatic variability, especially weakening monsoons and prolonged droughts, spanning decades to centuries, it altered river flows and reduced freshwater availability, challenging traditional agrarian systems and Urban Infrastructures. Changes in the courses of Indus and Hakra river system of greater Indus valley have profoundly influenced the settlement patterns and induced significant cultural changes. The environmental pressures coincided with repeated episodes of river droughts, diminished rainfall and shifting hydrographic conditions, forcing communities to rethink settlement relocation towards reliable water sources and decentralized agricultural practices. In response, Harappan societies developed adaptive strategies such as sophisticated water management technologies, diversification of crops, settlement relocation toward reliable water sources, and decentralized agricultural practices. Although, these adaptations sustained communities for centuries, long- term environmental stresses contributed to a gradual transformation of the Civilization from a network of large urban centers to smaller agricultural

settlements. This paper provides some fascinating glimpses into the hydrological, hydraulic engineering that existed in Indus Valley. Also provided information how Indus Valley Civilization's engineers applied concepts of fluid mechanics to create an efficient, sustainable irrigation network. This paper critically examines the water related challenges faced by the Indus people and evaluates the adaptive strategies employed, offering valuable insights into early Human resilience. The present paper also highlights various theories for the gradual decline of this riverine civilization and draws lessons relevant to contemporary water management.

Keywords: Indus valley, Ghaggar Hakra river, Water management, Drought, Floods.

Erosion Zonation Mapping by adopting Analytic Hierarchy Process (AHP) and Remote Sensing GIS Approach: A study on Pagladia Watershed, Nalbari, Assam

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Abstract

Erosion is one of the burning problem of Assam as the region is experiencing high intensity of rainfall every year which leads to flood in low lying areas of floodplain region and it triggered the settlement of village areas, sometimes it devastated the infrastructure, agricultural land, properties and then the process of erosion becomes disaster. In this present study primarily emphasised on a quantitative mapping of erosion prone region of Pagladia river watershed by applying Analytical Hierarchy Process (AHP) and Remote-Sensing GIS data. AHP method includes several parameters such as Channel slope, drainage density, Relative relief, flow accumulation and with the help of comparison matrix table, criteria weight have allotted against each parameter. After the calculation of Consistency ratio (Cr) the erosion zonation map has been prepared with the help of weighted Overlay analysis in GIS software and most erosion prone zone has been identified. The Pagladia river, mostly erosion are takes place in the upstream of the basin as this region consists of high gradient and active in transportation process, therefore, this region comprises high erosion process and get deposited into downstream of the basin mostly comprises of floodplain of Nalbari district. It is necessary to study the rate of erosion and intensity of flood occurred in the floodplain region of Nalbari district as the Nalbari is highly effected from river bank erosion and people are suffered from huge loss as well as physical environment got destructed. Therefore, erosion is considered as one of the significant natural calamities which is required to study and explore suitable scientific remedies to reduce bank erosion of a specific region. Study also beneficial for those are engaged in hydrological and geomorphological research for further exploration of the issues, it helps to assist the proper planning and implementation of mitigation measures.

Keywords: Erosion, AHP, GIS, Pagladia, flood

The Anti-dam movement in Assam and the Rise of New Social Movements

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Abstract

The anti-dam movements in Assam staged against the Lower Subansiri Hydroelectric Project (LSHEP) represent a complex affair of contemporary environmental issues and issues of livelihood in Northeast India that emerged at threshold of development, environment and local politics. Conceptualized as a 2000 megawatt power project to be constructed at a site near Gerukamukh in the Dhemaji district of Assam near the lower part of the Subansiri river, the project was showcased as a revolutionary addition to India's hydel power sector. But in reality the project brings severe questions to the ecology of Assam and bordering areas of Arunachal Pradesh. Issues related to ecological damage, flood risk, displacement of riverine indigenous communities was enough to cause apprehension and fear among the local population. This paper tries to examine and study how this issue became a popular political issue garnering State's political attention and also the emergence of a new spectrum of social movements in Assam where regional organizations like Krishak Mukti Sangram Samiti (KMSS) assumed leadership and brought a whole new change in area of social movements in Assam.

Keywords: Movements, Ecology, Displacement, Regional, Development.

The River as Liminal Chronotope: Time, Space and the Suspension of Truth in Mohim Bora's "Kathanibari Ghat"

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Abstract

This paper discusses the relationship between setting and narrative agency in Mohim Bora's short story, "Kathanibari Ghat," by using Mikhail Bakhtin's literary theory of the "chronotope." While traditional analyses often view the river merely as a scenic backdrop, this paper argues that the river and the "ghat" function as a distinct, active configuration of time and space that dictates the psychological and physical reality of the characters. By examining the ghat as a "threshold" chronotope, the paper demonstrates how the narrative creates a space of radical suspension. The analysis posits the ghat as a liminal zone situated between two opposing worlds: the solid land, representing safety and ignorance, and the fluid river, representing uncertainty, danger, and the unknown. The narrative tension is driven by the delay of the steamer, a delay caused by the river itself, which traps the characters in this transitional space. Within this specific chronotope, normative time is disrupted, time does not merely pass but stretches and stagnates, forcing the protagonist into a state of helpless waiting. The paper investigates how this suspension of movement leads to a "suspension of truth." As the characters wait on the threshold, they are disconnected from the certainty of the land but have not yet navigated the perils of the water. This spatial entrapment mirrors the protagonist's cognitive dissonance, where the boundaries between life and death, and hope and despair, become blurred.

Keywords: Chronotope, Liminality, Riverine Narrative

Water, as The Key Factor of The Indus Valley Civilization

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Abstract

The Indus Valley Civilization in the Indian Sub-continent was one of the early centers where man settled down and progressed to lead a highly civilized life. It is known for advanced urban planning and water management system which left an indelible mark on history. Despite these, the civilization faced persistent and evolving water challenges that significantly shaped its development and eventually decline. This paper discusses the major water related challenges encountered by Indus Valley Civilization. The main source of water mostly the rivers which were floating throughout the neighboring areas were significantly important for the entire growth and the decline of the civilization. From trading within the civilization and also with the different other civilizations of the contemporary world to the social demography and town planning structures, the water was the main source which played decisive role in the entire transformation of the Indus Valley Civilization. By analyzing archeological evidence, hydrological studies and climate reconstructions, the paper argues that environmental stress on water resources played a crucial role in transforming natural disasters not necessarily sudden or single, the civilization experienced a gradual adaption and decentralization in response to mounting water challenges. The study highlights the complex relationships between environment and human resilience in one of the world's earliest urban civilization Indus Valley Civilization.

Key words: Indus Valley Civilization, Water resources, Trade, Town Planning.

Fresh Drinking Water Problem and Its Future Prospects

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Abstract

Fresh drinking water is one of the most critical problem for human survival in India. India has been facing this problem to ensuring safe and adequate drinking water for its people. Rapid population growth, unplanned urbanization, industrialization, agricultural over-extraction, and climate change severely affected surface and ground water resources. Many regions of India has been facing this problem mainly ground water depletion, and contamination due to arsenic, fluoride, nitrates, and industrial pollutants creating serious threats to public health and sustainable development. Looking forward to the future, India's drinking water security will depend on effective water governance, conservation of forest, rainwater harvesting, waste water recycling, technological inventions, community awareness programme, freshwater resources management, etc. are the essential to ensure safe and adequate drinking water for future generations. This paper is an attempt to understand present problem and future prospects of fresh drinking water in India.

Keywords: Drinking, Water, Crisis, Future, Prospects.

Water Bodies and Native Lore: Reading Folk-lore as Ecological Wisdom to Address Today's Water challenges with Particular Reference to North East India

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Abstract

The need to construct narratives around lived realities can be seen to be of universal appeal to human beings throughout generations. These primitive narratives or folklore were transmitted orally across generations. They are specific to a place and its culture.

North East India has a diversity of tribal communities and boasts of storehouse of folklore that speak of the rich cultural heritage of the communities. Living in close proximity to nature, the culture and indigenous knowledge of these people is based on lived experiences. It is indigenous ecological wisdom generated from cumulative experiences gained through living in close proximity to and with nature since time immemorial. Their folklore is replete with tales, myths, legends, belief systems, rituals, where nature, human beings and the supernatural share a sacrosanct and inextricable relationship. Their folklore is rooted to their experience of and encounter with the natural world. In their indigenous knowledge system nature is given agency and is replete with life.

Environmental depletion has created such threatening environmental and ecological imbalances that material methods alone are insufficient to address this issue. The urgent need of the hour is an emotional appeal, a spiritual awakening, the establishment of an ethical relationship between human beings and nature.

This paper examines some selected folklore from North East India and shows how they reflect and shape the environmental consciousness of the communities. The paper tries to underscore the role of traditional ecological wisdom in addressing environmental, more specifically, water challenges. The paper tries to show how folklores create an eco-ethical awareness that regards the intrinsic dignity of nature, fosters empathy with the non-human world and emphasizes the inextricable relationship of all life forms. Human accountability to the environment is embedded in the ethical orientation of folklores.

The Global Water Crisis: Sustainable Solutions with reference to India

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Abstract

The world is facing a looming global water crisis, with demand outpacing supply in many parts of the region. India, a home of 1.4 billion people, is a critical hotspot. The rapid urbanization, agricultural over-use and climate variability have strained its rivers, level of groundwater, and its reservoirs. The main challenges include per-capita availability, pollution of surface water, and over extraction of Aquifers, especially in the states of Haryana, Punjab and Rajasthan.

Though government has taken initiatives (e.g., Jal Jeevan Mission, National Water Policy, etc.) aiming to improve water use efficiency, promote rainwater harvesting, and enhance wastewater treatment, these measures have not been working successfully. However, implementation gaps, fragmented governance and lack of public awareness limit the progress. Hence, sustainable solutions are required for integrated water resource management, adoption of water saving technologies in agriculture and community participation. It is very essential to address India's water crisis not only for its own food and energy security but also for global water sustainability. This paper is an attempt to find out sustainable solutions for global as well as India's water crisis.

Keywords: Global Water Crisis, Sustainable Solutions, Public Awareness.

Pre-Independence Water Challenges in Assam: A Historical and Environment context

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Abstract

Decades before Indian independence, Assam's Brahmaputra and Barak River systems suffered serious water issues. This paper seeks to examine the prime water problems of Assam in colonial and pre-colonial time by consulting historical sources. Drawing on colonial administrative documents, Assam Province Records, and contemporary scholarship (among which of course have a strong selection of Indian scholars), the paper locates recurrent floods and riverbank erosion, water-borne diseases, and lack of irrigation infrastructure as core problems. During the late 19th and early 20th centuries, the Brahmaputra river's braided channel caused widespread loss of life due to flooding as the river shifted its course. The Assam District Gazetteers and other British colonial reports noted repeated crop failures as well as the annual flooding leading to dispossession. Apart from altering river courses significantly, the Great Earthquake of 1897 made erosion and flooding even more severe in subsequent decades. The loss of homestead and agricultural land from riverbank erosion has profound implications for rural livelihoods. Poor drainage and standing water led to severe malaria, cholera, and dysentery. Colonial-era public health records suggest that the leading causes of death were insufficient sanitation and contaminated water. As agriculture largely depended on monsoons and there were limited irrigation facilities, the peasants were exposed to flood or shortage of water due to change in season in Assam. These vulnerabilities were exacerbated by water-related disruptions and colonial tax policies and low levels of infrastructural development. The administration's priority to income extraction rather than a sensible long-term water management could be seen in the sporadic and often failed embankment construction work. From this study we can infer that current water challenges can be tackled with the knowledge which is deeply engraved in colonial and environmental histories. Understanding these pre-independence water-related problems is essential for designing a sustainable and locally sensitive water resource policy in the Brahmaputra valley.

Keywords: Assam; Brahmaputra River; Floods; Riverbank Erosion; Colonial Water Management

Understanding Floods in the Brahmaputra Valley: Natural Dynamics and Human Interventions

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Abstract:

The Brahmaputra valley is one of the most flood-prone regions in India, experiencing recurrent and devastating floods annually. Historically, flood and erosion were not calamities for the local communities, but a part of natural hydrological cycle, through which the people learned to co-inhabit devising flood dependent agrarian livelihoods. However, with the coming of colonial state, the region experienced long lasting environmental, economic and social change. Motivated by the global tendencies towards controlling and harnessing nature through infrastructure, colonial government in order to expand agriculture and generate revenue lead to significant shift in land use, settlement patterns and the perception of floods through massive hydraulic projects. Apart from that human intervention in the forms of influx of immigrant in the low-lying floodplains aggravated the situation. Post colonial Assamese state continued the colonial legacy and together with deforestation in upstream encroachments of wetlands, unplanned urbanization and climate change have significantly altered river's natural flow. By integrating historical and socio-environmental perspective, this paper argues that floods in the Brahmaputra Valley can't be understood solely as natural disaster, rather they represent a complex interaction between dynamic river system and human-intervention.

Keywords: Floodplain, Livelihoods, Capital, Infrastructure, Urbanization.

Changing River Channels and Changing Lives: The Impact of the 1950 Earthquake on Present Lakhimpur's History

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Abstract

The 1950 earthquake had a profound impact on present Lakhimpur, leading to long-term changes in the region's geography, economy, and demographics. It also highlighted the region's vulnerability to natural disasters. After the great earthquake of 1950, the intensity and frequency of flood increased in the study area. The earthquake had a significant impact on the topography of the hills, causing massive landslides, the formation of natural dams, and breaching of massive floods in the area. It also disturbed the water pattern of the Brahmaputra River, leading to changes in river channels e.g. Subansiri along with its tributaries Dirgha, Kadam and Kakoi, Pabho, Dhekiajuli, Gabharu, Gum, Boginodi, Dikrong, Ranganodi. The changing River in Lakhimpur district lead to floods in new areas by altering the natural flow of rivers, increasing water levels, blocking natural drainage channels, and deflecting flood waves. This exacerbates flood issues in Lakhimpur as people of Lakhimpur had experienced devastating floods in 1954, 1962, 1972, 1977, 1984, and 1988, 1998, 2002, 2004 and 2012 affecting lakhs of people and making their lives troublesome. By observing the nature of the floods that occurred after 1950, local people term it as 'Balua Ban' which can't be predict also impossible to comprehend it.

Keynotes: 1950 Earthquake, Changing River Courses, Flood and Lakhimpur's History

Between Reverence and Risk: River Festivals in India and the Contested Realities

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Abstract

Rivers in South Asia are central to cultural, religious, political, and ecological life, sustaining livelihoods and shaping everyday existence. Rivers carry multiple meanings for both communities and the state and are often spiritually personified, with Hindu traditions venerating rivers like the Ganga as a mother figure, reflecting sacred and relational views of water. In this context the rise of river festivals like Siang River Festival, Dwijing Fest, Namami Brahmaputra, Ganga Mahotsav, Kumbh Mela etc., highlights a celebratory narrative emphasizing unity, heritage, and cultural continuity, yet this symbolic reverence coexists uneasily with everyday experiences of communities affected by riverbank erosion, displacement, and water insecurity. Moreover, the promotion of river festivals as a catalyst for tourism and economic growth raises equity and quality-of-life concerns, central to sustainable event tourism debates. Increased visitor influx during festival periods can intensify pressures on water resources, sanitation systems, and fragile riverine landscapes. For river-dependent communities-fishermen, boatmen, farmers, and displaced populations-the festival may offer limited long-term benefits while amplifying environmental risks.

In case of Northeast and specifically Assam, the river festivals like Namami Brahmaputra was envisioned as a cultural and river-centric festival to celebrate Assam's lifeline. The festival sought to position the Brahmaputra as a site of cultural pride, destination branding, and economic opportunity. A central problem lies in these attempts to isolate festivals as discrete entities aimed at maximizing visitor numbers and economic impacts. These festivals risks abstracting the river from its complex ecological realities. The festivals use the rivers merely as a cultural backdrop but leaves out the narrative of a dynamic river system marked by seasonal flooding, erosion, sedimentation, pollution, and climate-induced uncertainties. While these festivals focus primarily on spectacle, performance, and visibility, the deeper water challenges are often sidelined or rendered invisible.

The paper aims to explore the broader tension, through a literature survey, between river festivals as tourism strategy and the ground realities. In trying to problematize the river festivals, the paper shall try to bring into light the limitations of celebratory, event-centric approaches in effectively engaging with the issues of river governance, ecological resilience, and community vulnerabilities.

Water and Water Bodies: Exploring the Water Management System in Medieval Assam

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Water and its management is crucial for a state or civilization to thrive and grow throughout time. This paper tries to examine the evolution of water harvesting, flood control, and irrigation systems in Medieval Assam with special reference to the Ahoms and the Dimasas. Arupjyoti Saikia's analysis of the Dimasa Kachari kingdom is vital in understanding how 'peripheral' powers managed water differently from the Ahom 'Hydraulic state'. Though the work will not be an extensive work, however, with available sources both archaeological and literary it will try to have an overview of the same. Massive commemorative and functional tanks (*Sagars*) and an extensive network of earthen embankments (*Alis*) characterized the Ahom water management system, while Dimasa Kacharis had to adopt new strategies with the change of place such as from 'highland' water strategy to 'Pukhuri' model.

Keywords: Ahoms, Dimasa Kacharis, Water management, Sustainability

Denied at the Well: Caste, Thirst, and the Politics of Water

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Abstract

Water is the elemental condition of life, yet access to it has never been socially neutral. Drawing on hydrohumanities and political ecology, alongside insights from Black and Dalit ecological thought that link environmental deprivation to the regulation of life itself, this paper argues that the denial of water is not merely infrastructural exclusion but a biopolitical act that determines whose life is sustained and whose is rendered expendable. When access to water is restricted, what is withheld is not simply a resource but the material basis of survival.

Through a comparative reading of Mulk Raj Anand's *Untouchable* and Mahasweta Devi's *Jal*, the paper examines how water becomes a medium through which caste hierarchy is spatially and corporeally enforced. In *Untouchable*, the well functions as an infrastructure of untouchability: Bakha's thirst is mediated through ritual prohibition, while Sohini's attempt to draw water exposes her to humiliation and sexual vulnerability. Access to water depends upon sanctioned touch, transforming thirst into a socially produced condition. In Mahasweta Devi's narrative, water is not only scarce but administratively controlled, revealing how state power and local hierarchy converge to regulate collective access. Here, control over water translates into control over labour, mobility, and bodily endurance.

Engaging Dalit ecologies and theories of everyday resistance, the paper contends that these texts expose how caste society converts ecological necessity into social exclusion.

Water, as wealth and sustenance, becomes the site where dignity, survival, and power are negotiated. By foregrounding embodied thirst and regulated access, modern Indian literature renders visible the intimate politics through which water becomes both an instrument of caste governance and a contested ground for life itself.

Keywords: Caste, Untouchability, Hydrosociality, Water, Hydrohumanities, Political Ecology

Irrigation, Indigenous Knowledge, and Political Ecology: The Dong Bundh System of Assam

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Abstract:

The *dong* is a traditional water management system of the Bodo people in Assam, consisting of man-made canals that divert water from perennial sources such as rivers, streams, swamps, and *beels* to irrigate paddy fields. Practiced in the Subankhata area of Baksa district, this indigenous system emerged as a community-driven response to acute water scarcity in a geo-climatically fragile region characterized by a low groundwater table and poor soil moisture retention.

Over time, the management of *dongs* was institutionalized through *Dong Bundh Committees*, which ensured equitable water distribution and maintenance of the canals. However, shifts in state irrigation policies and the expansion of modern irrigation infrastructure have undermined the relevance and functioning of these traditional systems. This Paper examines the risks faced by the *Dong Bundh* system and highlights how policy failures have contributed to its decline. The analysis is grounded in political ecology, exploring how environmental change, governance, and shifting power relations have transformed community practices and eroded social capital. The Paper is based on the analysis of secondary data to capture the interplay between participatory water resource management, modern irrigation policies, and institutional gaps in Assam.

Keywords: Dongs, Indigenous irrigation, Participatory water resource management, Policy

The Forgotten Victims of Assam Floods

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Abstract

The annual monsoon floods in Assam are a recurring nightmare, submerging vast areas and displacing lakhs. These disasters destroy homes, livelihoods and exacerbate social inequalities, with marginalized groups like transgender people bearing the brunt. Transgender individuals in Assam face deep-rooted stigma, exclusion, limited employment opportunities and challenges accessing basic services, which worsen during floods. Their settlements are often destroyed, leaving them without shelter or resources. They receive less relief aid due to biases, and disaster frameworks overlook non-binary identities, limiting access to aid, shelter, and healthcare. Shared facilities are often unsafe, and healthcare needs are neglected. This paper highlights the need for inclusive policies, safeshelters, and proactive support to address these issues.

Disaster management must recognize and meet the needs of transgender people, ensuring equal access to aid and resources. By acknowledging the specific needs of transgender people, we can create a safer, more supportive environment for all.

Keywords: Assam floods, Transgender community, Disaster management.

Hydro Criticism: Reading Water as a Literary Character

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Abstract

This paper proposes hydro-criticism as a distinct eco-critical approach that interprets water not simply as metaphor or backdrop but as a literary character with agency. While traditional readings often confine water to symbolic roles—purity, chaos, renewal, or destruction—such interpretations risk overlooking its active presence in narrative structures. Hydro-criticism insists that water interacts with human characters, influences plot development, and embodies cultural anxieties, thereby challenging anthropocentric assumptions about agency in literature.

The study examines a range of texts to illustrate this perspective. In Romantic poetry, Wordsworth's lakes and Coleridge's sea in *The Rime of the Ancient Mariner* reveal water as companion and adversary, shaping memory and moral consequence. Modernist literature, particularly Eliot's *The Waste Land*, dramatizes the absence of water as a character of despair, its failed promise of rain symbolizing cultural collapse. Postcolonial narratives extend this dynamic: Conrad's *Heart of Darkness* positions the Congo River as both accomplice and adversary to colonial exploitation, while Indian English poetry, such as Jayanta Mahapatra's "Relationship" portrays rivers as sacred yet endangered, embodying ecological crisis alongside cultural reverence. Contemporary climate fiction, exemplified by Margaret Atwood's *MaddAddam trilogy*, depicts floods and rising seas as antagonists reshaping human survival, granting water a survivalist agency that dictates the terms of existence in dystopian futures.

By situating hydro-criticism within eco-critical discourse and engaging with theoretical perspectives such as Bruno Latour's actor-network theory and Jane Bennett's notion of "vibrant matter," the paper argues that water must be recognized as a participant in literary worlds rather than a passive element. Ultimately, hydro-criticism enriches literary analysis by foregrounding water's narrative agency and by highlighting literature's anticipatory engagement with environmental challenges in the age of climate crisis.

The Dying Lifeline: Water Crisis and the Decline of Diphu River in Urban Karbi Anglong

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Abstract

Diphu, the hill district headquarters of Karbi Anglong in Assam, has long been an important cultural and ecological habitat of the Karbi people. Traditionally, the Karbis have lived in close harmony with nature, worshipping natural elements and depending on rivers, streams, and other water bodies for their daily needs. For generations, Karbi women carried water from nearby rivers and springs, reflecting a sustainable relationship between community and environment. However, in recent decades, rapid urbanization, population growth, and poor waste management have drastically altered this balance.

Today, the urban areas of Diphu face a severe water crisis, especially during the winter months when natural water sources shrink and supply systems become inadequate. The Diphu River, once known for its crystal-clear water and central role in the life of the town, has gradually transformed into a dumping ground for household waste, plastic, and sewage. What was once a lifeline for the people is now on the verge of ecological collapse.

This paper highlights the cultural and environmental importance of water in Karbi society and examines the deteriorating condition of the Diphu River. It also explores the causes and consequences of the seasonal water crisis in urban Diphu, focusing particularly on the winter period. By analyzing the changing relationship between the community and its natural water sources, the paper seeks to draw attention to the urgent need for conservation, sustainable urban planning, and community awareness. The study ultimately emphasizes that protecting the Diphu River is not only an environmental necessity but also a cultural responsibility.

Key words: Karbi, Water, Lang, Diphu, River

Flood and Campaigns: Role of the Monsoon in the Ahom Mughal Wars

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Abstract

Water has been a fundamental necessity for life on Earth since the beginning of civilizations. However, it has also destroyed livelihoods and settlements through natural disasters such as flooding. Assam is one such region where the geological process of flooding has indirectly influenced and shaped political, economic, and socio-cultural events in different time periods. One such significant phase where we can observe the role of flood in shaping the political and socio-economic history of the region is during the Ahom Mughal wars (1615 CE-1682 CE).

The Ahoms, under the initiative of Chaolung Sukapha, laid the foundation of their rule in Charaideo by 1228 CE. Eventually, his successors began to follow a policy of territorial expansion beyond their western frontiers. By the early seventeenth century, the western frontiers of the Ahom kingdom came into contact with the eastern frontier of the Mughal Empire. Certain economic and political differences between the two parties eventually led to the beginning of direct clashes by 1615 CE. Political and military hostilities continued to occur between the factions for several years. Finally, in 1682 CE, the final confrontation between the two parties occurred, where the Ahoms emerged victorious.

Throughout this conflict, the climatic conditions of Assam, especially the monsoon season, determined the course of these wars. The monsoon season is generally accompanied by heavy rains, which contribute to the flooding of the river Brahmaputra and its tributaries annually, leading to devastation in various parts of the region. During the Ahom-Mughal wars, the contemporary sources mention how the monsoon floods served as both a blessing and a curse for both parties. Besides describing how the flood affected the livelihood of the common people, these sources also describe how it affected the political and economic policies of both parties.

Most of the available studies focus primarily on the political events, military strategies, and economic relations regarding the Ahom-Mughal wars. However, the fact that how floods determined the course of the Ahom Mughal Wars and affected both factions has not received much focus. The present paper seeks to discuss the role of floods in shaping the course of the Ahom- Mughal Wars. This paper also seeks to discuss how floods affected the common people of Assam during the Ahom-Mughal wars. Regarding methodology, the paper will be descriptive in nature and historical in orientation. Besides, primary sources like the *Buranjis* and Persian sources will be used along with secondary sources.

Wetland Encroachment and Sustainability Concerns: A Study of Morikolong Wetland, Nagaon, Assam

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Abstract

Wetlands are among the most productive and ecologically significant ecosystems, offering a wide range of environmental, economic, and socio-cultural benefits. They play a crucial role in biodiversity conservation, water regulation, livelihood support, and climate resilience. The Morikolong wetland, popularly known as Morikolong Beel, is located in the Nagaon district of Assam within the middle Brahmaputra valley. This wetland has traditionally served as an important natural resource for the surrounding communities in recent years, however, Morikolong Beel has been experiencing significant environmental degradation due to rising anthropogenic pressures. Rapid population growth, expansion of settlements, agricultural encroachment, unplanned land use, and infrastructure development have led to the gradual shrinking of the wetland area. Encroachment in the peripheral zones has disrupted the natural hydrological regime, reduced water-holding capacity, and adversely affected the ecological balance of the wetland. Against this background, the present study critically analyses the pattern and extent of encroachment in and around the Morikolong wetland and examines the associated sustainability challenges. The paper explores how continuous human interference has altered the physical and ecological characteristics of the wetland, threatening its long-term viability. It also highlights the implications of wetland degradation for local livelihoods and environmental security. Furthermore, the study emphasizes the need for effective policy interventions, community participation, and sustainable management strategies to restore and

conserve Morikolong Beel. By identifying key issues and proposing integrated conservation approaches, the research seeks to contribute to the sustainable management of wetlands in Assam and similar floodplain environments.

Key words: Morikolong Beel, Land Use Change, Human Impact, Encroachment, Sustainability Challenges.

Indigenous “Ritual Science” and Hydro-Technology: A Study on the Traditional Ahom Water Management System

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Abstract

The Ahom dynasty, a Tai polity that ruled the Brahmaputra Valley from 1228 to 1826 CE, developed one of the most resilient and sophisticated indigenous water management systems in pre-modern South Asia, adapting to a monsoon-dominant, flood-prone landscape through a blend of engineering ingenuity, ritual practice, and institutional governance. Historical evidence reveals deliberate strategies that enabled the Ahoms to harness water for agricultural productivity, urban supply, ritual use, and flood mitigation. Central to this system were *pukhuri* (artificial tanks) and extensive embankments that not only regulated water but also structured agrarian life across spatial and seasonal gradients. The hydrogeologic environment is defined by stratified Palaeo-Proterozoic to Recent sediments and a subsurface aquifer system composed of sand-silt-clay mixtures. Strategic site selection was performed by experts known as *Maticheleka* (soil testers) under the supervision of the Chang Rung Phukan. To tap into perennial springs, the Ahoms used a “*Nagmaari*” (a central tree trunk) and a “*Tamrapatra*” (copper sheet) layered with charcoal and stone for water filtration. These monumental projects were made possible by the *Paik* system, a unique labour and military organization where every adult male contributed rotational service to the state. While many of these structures survived devastating earthquakes, including the 1950 event, they are currently threatened by modern encroachment and neglect. Relearning these ancient “tech-fix” approaches offers vital insights for addressing contemporary water crises and sustainable environmental management.

Comparative literature situates Ahom hydraulic statecraft within broader frameworks of traditional water management such as Himalayan foothill irrigation systems, *qanats*, *aflaj*,

and stepwells highlighting shared principles of ecological fit, modular engineering, and community-embedded governance. The Ahom case foregrounds how indigenous technical knowledge, coupled with ritual and organizational norms, produced a durable hydraulic civilization adapted to the Brahmaputra's dynamic riverine ecology. This analysis underscores the value of historical Ahom practices for contemporary climate-resilient water governance, advocating for participatory, hybrid systems that leverage *indigenous hydro-technologies* and institutional memory in managing common pooling resources in Assam and comparable river basins.

Keywords- Ahom hydraulic systems, Indigenous water management, *Pukhuri* (tanks), Ritual science, Flood control, Climate resilience.

UN and Water Crisis Management in Developing Nations

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Abstract

Water is a fundamental source of sustainable development, socio-economic development, energy, food production and livelihood. From the time immemorial water has been the focal point of numerous progress and problems. History has evidence of how civilizations have turned out near the source of water. With due course of time the essentiality of water has been elevated more for people, environment and for all over the ecosystem. Water issues have become the center of all activities of human beings.

In both national and international perspectives water issues and crisis have been gaining attention from all because of its prime necessity and scarcity at the same time. Domestic and international politics surround around water issues because of the confrontation occurred over the inequality of water distribution, weak management of water resources, water pollution, lack of consciousness and skilled practices related to water degradation. In the international arena people are witnessing multiple challenges linked to water consumption and reduction of ground water level. The fluctuating rate between the western wealthy countries and Asian underdeveloped countries, misinterpretation and implementation of water rights and justices, insufficiency of proper international and domestic legal framework on water have pushed people to study and research over water to mitigate the crisis and to find out innovative ways of water dealing. Water has enormous implications and possibilities for both present and future generations. A comparative study between past and present on water issues will show the right and particular path to adopt. International organizations like the United Nations, World Water Council, Pacific Institute, Water Aid have been working in the field of water to ensure a world with universal access to clean and available water. Further study and research over this issue will be helpful in finding innovative ways and measures to operate water as a fundamental and finite resource for the generations.

Keywords: United Nations, Water Scarcity, Crisis Management, Developing Nations

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