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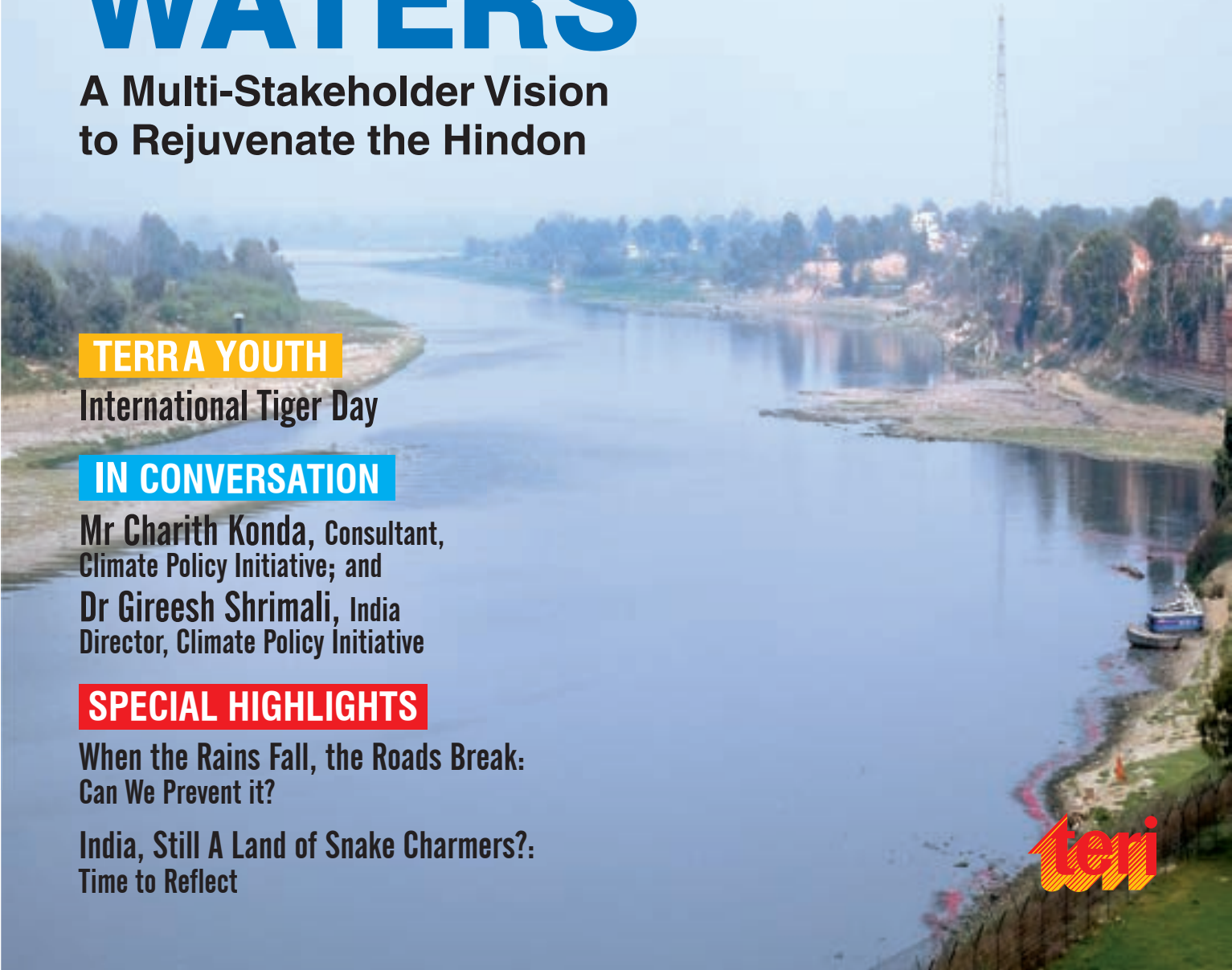
EARTH MATTERS

TROUBLED WATERS

A Multi-Stakeholder Vision to Rejuvenate the Hindon



TERRA YOUTH

International Tiger Day

IN CONVERSATION

Mr Charith Konda, Consultant, Climate Policy Initiative; and

Dr Gireesh Shrimali, India Director, Climate Policy Initiative

SPECIAL HIGHLIGHTS

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Troubled

Waters

A Multi-Stakeholder Vision to Rejuvenate the Hindon

Over the past few decades, man has made all possible attempts to conquer the rivers by blocking them off with long embankments, dams, barrages, channels, crossroads, short-length bridges, and physical structures, all leading to deteriorating river conditions. People, unaware of the dire consequences, have treated rivers as a means of dumping all kinds of garbage. **Biba Jasmine** and **Annelieke Laninga** feel that River Harnandi (Hindon) is no exception to these atrocities! They highlight that given the gravity of the situation, various approaches towards rejuvenating the Hindon River are adopting ecological measures (particularly, the 'Hindon Yatra' exhibition and symposium series) that aim to effectively stall deterioration and reduce pollution.

> "With the aim to involve stakeholders from different backgrounds in reviving the Hindon river basin, a 'Hindon Yatra' exhibition and symposium series was initiated by the 2030 WRG and its partners. The aim was to endorse a common vision and demonstrate good practices to inspire and motivate actors from all sectors to prepare a basin-wide action plan with positive action towards collectively achieving a healthy river basin."

Courtesy: 2030 Water Resources Group, photographer Parveen Singh Lamabam

The Hindon River (Harnandi), a sub-basin between Ganga and Yamuna rivers, covers a stretch of 355 km across Western Uttar Pradesh from Saharanpur to Gautam Budh Nagar (Greater Noida). About one crore (10 million) people, who call this region their home, are dependent on its water for their day-to-day chores. Apart from one of its upstream tributaries called Paondhoi River, Hindon River is currently non-perennial, which means there is no natural flow all year round and the primary water source in the dry seasons is waste water. There are over 100 drains that open into Hindon River discharging partially treated effluents from sugar, paper, textile, and tannery industries as well as large inflows of untreated sewage from towns resulting in heavily polluted surface waters. Over-abstraction by farmers leads to crippling levels of groundwater and the formation of so-called 'black zones' with unsustainably declining aquifer water levels. This is particularly problematic for the surface water flow if one realizes that Hindon River used to be fed partially by its shallow groundwater aquifers. The above-mentioned factors in combination with chemical run-off from agriculture, open defecation, and illegal practices of dumping solid waste, resulting in choking the drains and tributaries, make the water quality of both surface and groundwater in large parts of the Hindon River Basin unsuitable for various activities.

Courtesy: 2030 Water Resources Group, photographer Parveen Singh Lamabam

When we think or talk about dying or excessively polluted rivers, we need to understand the spatial and temporal dimensions of the river. The temporal dimension looks into the developmental trajectory. As we are aware, rivers undergo natural changes added to which human impacts have far exceeded the natural ones. Furthermore, if we try to understand rivers from a spatial perspective, hydrological cycles, geomorphic conditions, soil moisture, snowfall, rainfall, interactions between surface water and groundwater are factors that should be taken into account. We have to look through a microscope and analyse subsets, such as ecology, biodiversity, and landscape as a whole that provides crucial ecosystem services essential for human survival.

Sadly, the value of such services to the ecosystem has rarely received any attention in the past few decades. Instead of working with nature, man has

attempted to conquer rivers by blocking them off with long embankments, dams, barrages, irrigation channels, crossroads, short-length bridges, and physical structures that have led to deterioration of the natural conditions for the sake of development. To make it worse, people often consider rivers as drains by dumping all kinds of waste in it, and unfortunately, Hindon River is no exception to this callousness!

Slowly but gradually people are adopting various socio-ecological approaches focussing on river conservation and rejuvenation as they are beginning to realize the need to decouple economic growth from environmental degradation. Social and economic development is largely dependent on healthy ecosystems for a sustainable supply of resources, including water as a primary source of life. Issues that need serious attention are physical contamination and reduced surface water flow in combination with declining aquifer levels. Causes of degradation of water bodies in India are multiple, including groundwater over-abstraction, diversion of water from rivers through (irrigation) channels and canals, agri-chemical runoff, soil erosion and siltation, discharge of untreated sewage and effluent, dumping of solid waste, obstructive constructions, and unauthorized encroachment.

Given this, the obvious question that arises is what should a healthy, living river look like? From an integrated perspective, a healthy water body performs essential ecological, social, cultural, and economic functions. River systems ideally meet water demands of all water users of the region, including flora, fauna, farmers, households, and large industrial plants as well as micro, small, and medium enterprises. But how can this be achieved?

Genesis of the Hindon Yatra: An Attempt to Mobilize Stakeholders for Collective Action

Both national and state governments, including the Government of Uttar Pradesh (UP) are in the process of rejuvenating water resources with special attention on Ganga River and its tributaries. As local water bodies are of immense importance to farmers, industry, households, and others, the 2030 Water Resources Group (2030 WRG), a public–private–civil society partnership at the global level, realized the urgent need of addressing water security issues by strengthening stakeholder engagement. It had

Courtesy: 2030 Water Resources Group, photographer Parveen Singh Lamabam

proposed to the UP government in 2015 to develop a model for a participatory approach at the tributary level comprising players from government, the private sector, civil society, academia, and international agencies.

In this process, the state government had set up a Steering Committee consisting of representatives of different government departments that was chaired by the Chief Secretary of UP. It had a clear mandate to provide guidance to transform water resources management in the state. The UP Irrigation and Water Resources Department was appointed as the nodal agency coordinating different work streams to rehabilitate the state's rivers and their tributaries, including the Hindon River. At river basin level, another government committee was put in place that was chaired by the Divisional Commissioner of Meerut. The 2030 WRG was a member of these committees at both levels (state and river basin) and was given the responsibility to rejuvenate the Hindon. With the aim to involve stakeholders from different backgrounds

in reviving the Hindon river basin, a 'Hindon Yatra' exhibition and symposium series was initiated by the 2030 WRG and its partners. The aim was to endorse a common vision and demonstrate good practices to inspire and motivate actors from all sectors to prepare a basin-wide action plan with positive action towards collectively achieving a healthy river basin. A multi-stakeholder approach towards river rejuvenation was embraced at the tributary level in one of the most polluted rivers in the world—the Hindon River.

Demonstrating Good Practices to Inspire Positive Action

To work towards these issues and to ensure that the people in the surrounding habitat are aware of the different problems Hindon River faces, an attempt was made with support from 2030 WRG to make a positive change in people's outlook towards the entire issue of the Hindon revival and rejuvenation. While travelling across the basin and engaging with stakeholders, the team discovered that although the challenges of saving a dying river are immense, a number of positive actions are already being implemented across the Hindon basin. The challenge was to get these institutions, organizations, and people working in silos to come together to collectively develop a commonly agreed action plan of reviving the river based on a common vision. A change in mindset was initiated through the 'Hindon Yatra' to reorient people towards working as an organized group recognizing that every water user is also a water polluter who can contribute towards solving the water crisis. An attempt was made to document the good practices comprising completed projects and works in progress from across the basin being led by different groups of players. The purpose was to demonstrate how several aspects of the complex process of rejuvenating a tributary of the Ganga River are already in motion in different parts of the Hindon.

The 'Hindon Yatra' case studies provide a ray of hope by showcasing the work already undertaken by the state government, NGOs, lawyers, activists, the private sector, and various research organizations to address the issue related to river rejuvenation challenges. The 'yatra' was accompanied by a series of symposia and workshops as it travelled across the Hindon basin from Lucknow, through the Hindon basin to Delhi, weaving together multiple stakeholders to collaborate to save the Hindon. The exhibition covered a period of about six months, inaugurated in Lucknow by the former chief minister, followed by a basin-wide 'Hindon Yatra', which started upstream near the source of Hindon River—in Saharanpur. It travelled downstream to visit the following districts: Shamli, Muzaffarnagar, Baghpat, Ghaziabad, and Gautam Budh Nagar. In each town a local event was held to serve as a platform for stakeholders to come together to address local challenges and generate new project ideas. It culminated in a final event in Delhi hosted by FICCI.

Revival of Polluted Rivers: The Road Ahead

The multi-stakeholder tributary approach to river rejuvenation is gaining momentum across the country. It is important that a country, such as India, which is already grappling with environmental issues of major concern, river pollution being one of them, develops targeted participatory interventions that are endorsed and accepted by local stakeholders at the earliest. It

Courtesy: 2030 Water Resources Group, photographer Parveen Singh Lamabam

is imperative that a holistic approach in developing effective solutions to water quality challenges needs to be dealt with utmost gravity and implemented across sectors in the heavily polluted rivers of the country and their tributaries.

Focus on Pollution Prevention and Water Use Efficiency

Curbing and restricting pollution in the rivers, or eliminating the contaminants at the source level, is the most effective way to protect water quality. Beyond legal compliance by industries and stricter enforcement by responsible government agencies, a sector-wise voluntary cleaner production programme could be designed, which may reduce production cost and improve the branding and imaging of companies. In urban settings, sewage treatment requires a lot of attention, including a better spatial design of human settlements and large investments in infrastructure for sewage networks and treatment plants. Construction contracts should address a life-cycle approach to operation and maintenance. In addition, innovative and low-cost decentralized sewage treatment solutions are also applicable in the Indian (Hindon) context. A range of proven and innovative methods and technologies are already available.

Under the guidance of 2030 WRG, several innovative proposals have been prepared and submitted for a grant under the Millennium Alliance to pilot and scale up the implementation in an entrepreneurial manner.

Treating and Finding Innovative Ways of Re-Using and Recycling Wastewater

In India, many water bodies and sources are already of poor quality and require treatment and remediation measures. High-tech, energy-intensive innovation, and ecological approaches can be used to treat contaminated water. More effort to multiply and expand the deployment of these approaches is needed; they need to be scaled up rapidly to deal with the tremendous amount of solid and untreated liquid waste entering into the waterways every day. Water and wastewater utilities need financial, administrative, and technical assistance to implement these approaches.

Singapore, for example, has proven that it is more than a theoretical exercise to close the gap between demand and supply in the urban water cycle by reusing and recycling treated water. While Indian cities are currently a long way away from such closed loop solutions, cultural resistance to polluting our water bodies should no longer be contested, especially given the realization that water scarcity issues have become so severe.

If a wastewater market can be created, in which sewage and effluent is no longer regarded as waste but as a resource that can be utilized for many purposes, such as irrigation and industrial processes, the private sector will likely come forward to invest—possibly in a PPP-mode—in constructing treatment facilities and maintaining and operating those with a profitable business model. This is in line with the global trend to think in terms of a circular economy. In order to create

Courtesy: 2030 Water Resources Group, photographer Parveen Singh Lamabam

market-based models for treating and using municipal and industrial wastewater, measures such as recycling water in factories and plants on-site to match water quality standards required by the production process are needed.

Needless to say, a paradigm shift is required in water policymaking so that we collectively emphasize and regard wastewater as a resource.

Ecosystem Management and Restoration

Hindon River is part of the unique biodiversity system of the Ganga basin. Targets can be set to bring back certain indigenous species into the water bodies. This could be milestones that motivate people further to work towards restoring and conserving the ecosystem. Tree plantation drives and construction of wetlands are some actions that are currently being undertaken. If pollution is prevented, water is treated and reused, and over-abstraction of water is largely reduced, the natural ecosystem will gradually recover.

Various Ways to Achieve Active Solutions

Water is an indispensible part of life and its rapid depletion has become a cause of major concern. Addressing water quality challenges in developing countries, such as India, will mean building capacity and expertise and deploying real-time, low-cost, quick, and dependable field sampling tools, technologies, and data-sharing, and management institutions.

Call for a Coordinated, Collective Action at the Tributary Level

The need to get policymakers into evolving a sustainable water utilization policy across water-user sectors is not a short-term activity but a long-term process in which players from different backgrounds should be engaged to achieve results on the ground. The tributary or sub-basin level is where all participating sectors can come together. Therefore, it is the need of the hour to put in place coordinated multi-stakeholder governance structures in tributaries of the Ganga basin that can endure the test of time. Only a collaborated effort can result in achieving a healthy Hindon sub-basin by 2030.

Additionally, it is important to define the overarching principles and participatory governance structures for managing trade-offs between water for development and water for ecology, and trade-offs arising out of water allocations across the competing sectors and sustainable abstraction limits so that the ecosystem integrity is maintained. With this, it becomes crucial to acknowledge that river rejuvenation at the tributary level requires a sustained process and long-term efforts. ■

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