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## PERSPECTIVE

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# Ganga 3R-A New Paradigm for Conservation of Environmental Assets

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The book *Ganga: Reimagining, Rejuvenating, Reconnecting* authored by Rajiv Ranjan Mishra and Puskal Upadhyay has recently been published and gives a detailed and firsthand account of the conceptualisation, implementation and future prospects of the largest river conservation programme in modern times. This is not just a memoir, though a few personal experiences have been incorporated to make the context clear. In fact, it is a chronicle of the aspiration of a developing country to be in sync with its natural assets, leveraging its cultural connections and ensuring a better future for its coming generations.

Not many countries have set themselves the agenda of cleaning their rivers and making them sustainable at par with their basic needs like hunger, health and employment. India has done so. Rivers are fundamental to us and mean much more than just a resource. Since the establishment of the National Mission for Clean Ganga (NMCG) in 2011 and the launch of Namami Gange in 2014, significant efforts have been made. The challenge of Nirmal Ganga has been primarily addressed by creating the required sewage treatment capacity in cities along the river, apart from tackling other sources of pollution. Many other facets of rejuvenation, like clean villages, ghats and crematoriums, improving ecology and flow, biodiversity and wetland conservation, plantation, strengthening the people-river connect, research, knowledge dissemination and public participation have been initiated with a holistic approach. In one strategic approach, the mission combines Nirmal Ganga (unpolluted flow), Aviral Ganga (improving ecology and flow), Jan Ganga (strengthening the people-river connect), and to support all, Gyan Ganga (knowledge co-creation, research, developing policies and improving governance). The book describes these interventions along with a brief outline of the processes of their evolution. These efforts aim to make the river not just clean but also rejuvenated, a concept still new to many countries.

This achievement is phenomenal for any river conservation project in modern India, especially by an entity that grew and continued with the programme. In the process, its human capital, i.e. its employees, kept growing. They produced tangible outcomes and laid the foundation of a model for other rivers. It makes an exciting story of aspiration, struggle and zeal, deriving lessons in management, project execution, and planning. It also signifies the emergence of a new India, conscious of its natural assets and its drive to make them sustainable forever.

The Namami Gange programme is unique on multiple counts. It not only provided the necessary political and financial commitment but also facilitated a review of its implementation procedures. The usual procedures would have led to usual results and hence, the review was naturally necessitated if the desired goals were to be achieved. However, whether by design or by sheer logical evolution the programme has been able to achieve results normally unseen in recent times. In the process, the “agile mode” has been reflected in its true form to handle an otherwise “wicked problem” where the solutions have been evolved to meet the ever-changing nature of the issue. This evolution had been the result of a complete 360-degree review of the problem, actually amounting to a “reimagination” of the river and its relevance. The rejuvenation process has been naturally taken off from this reimagination exercise. That is how a series of steps like the Hybrid Annuity Model (HAM), One City One Operator concept, and focus on reuse and sale of treated water have been made an integral part of the process. Some of the chapters in the book give specific cases of the first HAM projects in Haridwar and Ramana in Varanasi, their challenges and successes. “Rebuilding Kanpur for Ma Ganga” gives an elaborate story of rationalisation of old and new sewerage infrastructure and putting in place HAM and the One City One Operator approach. There is also a reference to mainstreaming rivers in the urban planning process and developing the first Urban River Management Plan (URMP). A new and innovative framework for managing urban rivers has emerged and an institutional framework such as River-City Alliance is evolving supported by the National Institute of Urban Affairs (NIUA). Prayagraj comes up again as the story of HAM and One City One Operator, but more significantly to point out how an ephemeral city develops and is managed during the Kumbh Mela. Varanasi is the eternal connection between Ganga and Kashi. But most significantly, the reconnection with the river through a mass public linking has been the real game-changer, which is realised and demonstrated throughout this rejuvenation story in the book.

From the beginning, the organisation had realised the importance of a radically different and holistic approach to resolve the “wicked problem”, which not only included stakeholders from different strata of society with their needs and aspirations, but also the clash of ideas on the road ahead from different intellectuals and well-wishers. Hence, the scope of the mission was expanded to include afforestation, tributaries clean-up, nurturing of wetlands and natural springs, and redevelopment of old ghats. The book throws light on the interesting as well as the challenging process of consulting stakeholders and also persuading and negotiating to develop consensus and commitment.

This includes the journey of the NMCG so far, overcoming challenges of over-exploitation of its waters for development and other purposes, age-old beliefs and traditions, their collaboration with the central and state government and district administrations to achieve their goals. More importantly, it has brought back some of the love and respect of the people for its Mother Goddess.

This process of “Reimagination-Rejuvenation-Reconnection” has evolved as a completely new paradigm, simple to understand and easy to implement. This is especially relevant to complex objectives like the conservation of environmental assets which do not make immediate commercial sense in a superficial manner. Such efforts in the past had not been able to achieve much. The reasons had not been far from understanding. The efforts looked at the entire exercise in a myopic manner, normally focusing on the immediate asset value of the resources. This put a block on its perceived value, future relevance and consequent resources invested. Such limitation compromised the achievement of results and disconnection of the associated population from the asset, and its conservation compromised its sustainability.

This paradigm can be appropriately termed “#Ganga3R” which is not difficult to understand with 3 Rs and Ganga signifying all or any environmental assets. This, of course, is relevant to the conservation of any other river (as in the case of Ganga) but can also be deployed with equal effectiveness in case of any environmental assets like water bodies and wetlands (lakes and ponds), forests, springs, mountains, and so on. This will not be difficult to apply to more complex issues like air pollution and oceans as well.

The first element of this paradigm is “Reimagination”, which has a slightly different connotation from its literal meaning. The term is more broad-based and actually signifies a 360-degree view of the asset or problem not only in its current context, but inclusive of its past significance as well as future value, criticality for future generations and its more innovative usages in the modern digital age. For example, in the case of Ganga, the Reimagination process would consider its past and its religious-cultural value, conventional economic usages like strategic-military concerns, transportation, drinking water and fishery. This would go beyond and take into account how it is perceived by people in this internet age, the evolution of cities on its banks and possible entertainment-recreation spaces in its catchment. It will continue further to consider its criticality in the overall ecosystem, how it affects other components like biodiversity, groundwater, other landforms and possible damages from its wastage. Whether the future generations would have an alternative to River Ganga or not, would complete this Reimagination process and would lead to a completely new understanding of the river which will be much more than its superficial religious-economic-ecological value. This Reimagination process has only caused the government to take efforts with a new sense of urgency and commit large sums of project funds along with a political will. The process would not only include the river but the problem of its degradation too, the causative factors for its swift transition from “river to sewer” in many places and why the efforts failed to yield results. The urge to change the processes and introduce new concepts of project implementation are a direct result of the same.

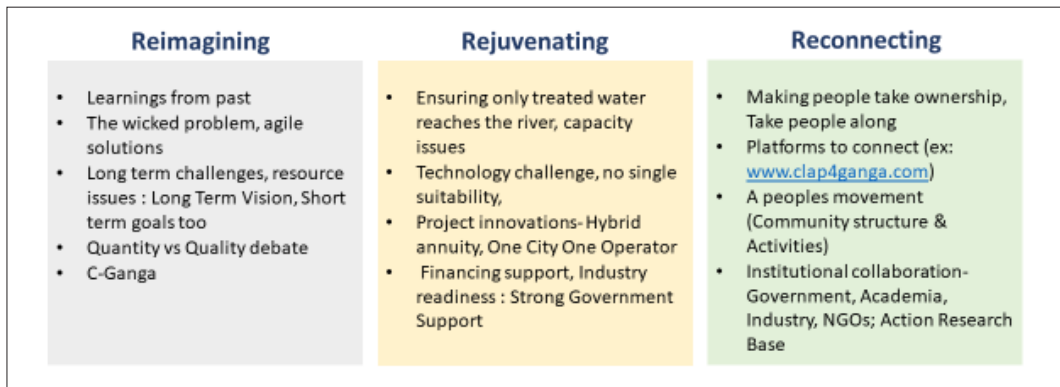
The next process is “Rejuvenation” which is a novel concept in itself, signifying the improvised understanding of the concept moving further from the original “cleaning” and “restoration”. These terms are still operational in most of the western world. Rejuvenation is conceptually different because it does not limit the conservation processes to visual and technical purity or improve to make them as before but sets the objective as “bringing them to their pristine states”, as they had been, not in the recent past, but as they had been in known memory, untouched and unadulterated. This raises the benchmark much higher and makes the objective far more difficult to achieve but makes our priorities right and sound helping us take appropriate decisions. Infusion of this new concept in the Namami Gange programme helped expand the scope exponentially to include “Aviral Dhara”—environmental flows, longitudinal and geological connectivity, as also components of biodiversity conservation, research and communication. Rejuvenation is a long-term commitment and not a short-term objective. It not only warrants immediate results but also presupposes sustainability of efforts, institutions and finances and an inbuilt understanding that this is a continuous process.

The term “Reconnection” emerges from the fundamental concept of symbiotic evolution of environment and civilisation. Every society has evolved in its environmental context mostly in favourable habitats which made them remain in sync with the environmental assets, understand its demands and adjust their needs accordingly. This trait can still be observed in most tribal and rural communities where the socio-religious customs reflect built-in conservation practices. However, with the advent of industrialisation and non-environment-based economic activities this understanding gradually diminished leading to a severe “disconnect” between people and their habitat. Its most significant reflection is seen in the rivers turning into sewers and wetlands being usurped by urbanisation processes or even encroaching and diminishing these for unsustainable cultivation in rural areas. No one can stop the rivers and water bodies from extinction when people turn their backs on them.

“Who owns Ganga?” is a question we need to address and the answer to that is “the people” and then the task is how to make them realise it and own it. We need catalysts and we need to develop champions. Several models tried out in this process for reconnecting people with the river are discussed. These are diverse, ranging from virtual platforms to cleaning at banks, tree plantation, saving aquatic life, adventure sports, runs, walkathons, and audio-visual mediums, all to be sustained through community structures and the institution of District Ganga committees (DGCs). In fact, DGCs reflect institutionalisation of a decentralised approach to river rejuvenation.

An illustrative list of activities under these 3 Rs is given in Figure 1.

Figure 1: A New Paradigm, the 3 R Model: Reimagining, Rejuvenating, Reconnecting



That makes people's reconnection a strong component of the reversal paradigm of degraded environmental assets. Recent public efforts in Bengaluru and many other places to reclaim and revive their ponds are a glaring example of its effectiveness. Reconnection is not difficult to understand. Essentially, it expects people in an area to be aware of their environmental assets, use them effectively and stand up for their protection. This includes raising a voice to attract attention of all concerned, including media and government, and prevent any degradation process. In case of the Yamuna in Delhi, it can be seen that apart from some religious compulsion, no one wishes to visit its banks for recreation or otherwise. This realisation helped the Namami Gange programme to build this component in their overall aims and its success has been observed in a large number of public action activities emerging on its banks, both with and without government support. These arrangements are catalysts of public awakening and have become the nucleus of a much larger process creating a new generation conscious of its rights and responsibilities, capable and willing to consider themselves the owners of Ganga and to fight for its sustenance. A river-based Jan Andolan, a new awakening, is not far behind. Such public awareness and involvement is the most conducive environment for a successful conservation programme.

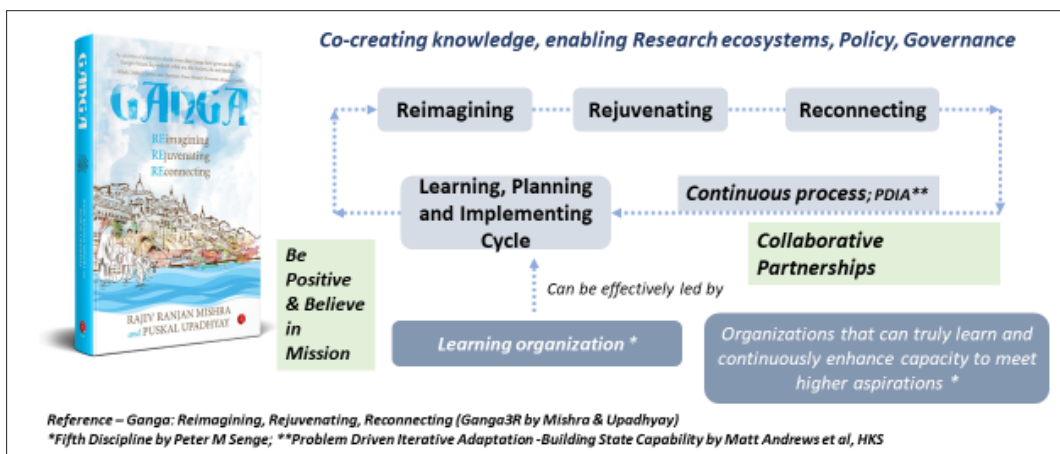
The application of this paradigm, 3R, to any other environmental component would not be difficult with some understanding of its various aspects. If we take the example of air pollution, the efforts would start from reanalysing the role of air in our lives, which may not be difficult considering its criticality for our survival, but the realisation of limitations on the creation of fresh air, the continuous increase in pollution levels, the increasing cost of air purification, exponential impact of consequential health hazards, huge cost of health care, and impact on future generations would help us reimagine air much differently from an ignored ubiquitous asset. This would consider its large reach and ability to disperse, as also capacity to attract pollution from distant areas, making it impossible to tackle it at a local level, and may warrant a global effort. The Rejuvenation aspect would involve the new technologies available and the need for the creation of new agencies, or capacity building of existing institutions to factor in air pollution control measures with a new

sense of urgency and significant commitment of resources. Public connection would be relatively difficult to relate to since air has always been perceived as something ubiquitous and would necessitate a massive awareness programme and enriching of healthy clean habits among people through an attitude correction programme.

A simplified and higher-order version of this model is presented in Figure 2. This shows the cyclic nature of the 3 Rs. It is not possible to complete the exercise/phase of Reimagining and then work on Rejuvenating or Reconnecting. We need to be dynamically looking at them and also be agile and adaptive to make suitable adjustments to the situation, change realities and evaluation of the outcome. One is reminded of the concept of PDIA (Problem Driven Iterative Adaptation), which is needed to understand and work on complicated public management issues (Matt Andrews et al, Building State Capability, Harvard Kennedy School). Developing a comprehensive understanding of the problem is essential for finding a real and sustainable solution. Mishra and Vogel (2020) in their book has described river rejuvenation, basin management, and natural resource management as “wicked problems” associated with the enormity and unpredictability. Reimagining is fundamental to the solution with a deeper understanding of the continuous nature of this process. This becomes even more important in light of the impacts of climate change on several of these interventions and existing models.

Knowledge co-creation and developing a conducive ecosystem for research is an important element of a strategic approach to understanding future challenges along with the present issues. A balance can be brought between Science and Practice. One needs to go beyond the modes of interaction such as separation or even cooperation and proactive co-creating of knowledge in a transdisciplinary manner and also taking advantage of experiential knowledge (Regeer, B. & Bunders, J., Knowledge Co-creation, Interaction Between Science & Society).

**Figure 2: #3R Model of River Rejuvenation**



As explained throughout the book, Collaborative Partnership is a core principle in all the thought processes as well as interventions. Achieving such goals would only be possible if we understand the process of building an institution and organisational dynamics and develop a “learning organisation”. In the book is described this journey in one of the initial chapters, “From Vision to Mission: the ebb and flow of the Start-up journey”, and again towards the end in the chapter “Sustaining Ganga”. Learning organisations are those organisations that can truly learn and continuously enhance their capacity to meet higher aspirations (Senge Peter M., *The Fifth Discipline*). Such organisations can help in knowledge co-creation, develop enabling research ecosystems and lead to an effective learning, planning and implementation cycle of the 3 Rs.

Proper application of this paradigm would need further research in this area and development of a framework for its application in different areas. On a simpler scale this can be applied by all researchers and policy practitioners. It would be interesting to watch further progress in this regard and how people make use of this concept. A separate policy paper on a deeper scale is already undergoing to work out a clear policy prescription of this model for complex problems, especially environmental ones. In the meantime let #Ganga3R become the global buzz on all environmental concerns.

Note: This paper is the initial conceptualisation of a detailed research study being pursued by the authors on “Applications of #Ganga3R paradigm to environmental assets”. The authors have written *Ganga—Reimagining, Rejuvenating, Reconnecting*, a book published by Rupa Publications. (Visit [www.ganga3r.com](http://www.ganga3r.com))

## Conflict of Interest

Authors have no conflict of interest.

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