



SRM
UNIVERSITY
DELHI-NCR, SONEPAT

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To,
Shri Brijendra Swaroop.
Executive Director
NMCG.

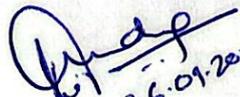
Subject:- Submission of proposal National River Act & National Sewage Policy for action plan and execution

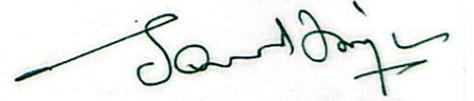
Respected Sir/Madam,

On behalf of SRM University Delhi-NCR, Sonapat, and in collaboration with Clean-Healthy River Committee, Microbiologist Society, India, and SKECT Jal Sanjeevani, we are jointly working towards river basin approach initiatives for rejuvenation of the Small major Ganga-Yamuna and other small and major rivers through microbiome solutions, biological solutions combined with technological solutions, which is pertinent for resolving issues of industrial agricultural & domestic waste.

Hence, we are submitting a river manifesto drafted in consultation with an expert for your information and needful action. A detailed draft will be provided if required.

Warm regards


26.09.2025
EDLP, NMCG



Prof. V. Samuel Raj
Registrar

बृजेन्द्र स्वरूप / Brijendra Swaroop

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Enclosed: Draft Proposal for National River Act & National Sewage Policy

SRM University Delhi-NCR, Sonapat

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This document is an appeal to bring Experience in the Field of Life to bear upon the Draft of the PREAMBLE to the National River Act & National Sewage Policy

“National River Convention held at SRM University Delhi-NCR, Sonapat on 25th & 26th Sept, 2025: A Consultative Process to create the National River Manifesto, for reviving River health and planetary health” in collaboration with SRM University, SKECT Jalsanjeevani & Clean-Healthy River Committee, Microbiologist Society, India

With inputs from VC SRM, Dr Snehal Donde, Chairman SKECT Jalsanjeevani & Clean and Healthy River Committee, MSI, V Prakash Rao, Chairman Indian River Basin Council, Dr Devanand Shinde, Former VC Sholapur and Mumbai University, Dr Arvind Deshmukh President MSI, Prof. V. Samuel Raj, Registrar, SRMUH.

Conceptual framework

Bharat is a blessed land bestowed with most enriching natural resources. The deep impact of ‘Prakriti’ inspired our ancient scholars- the Rishi’s – to delve into the mysteries of the ‘Brahmand’ and thus was created our ‘Sanatan Sanskrit’ and life systems in tune with nature and seasons. Rain, Rivers, Water have been the life source of all life on earth. The Nadi Sukht of the Rigveda mentions the major rivers of Bharat, which are also indicators of the cradles of Bhartiya Sabhyata Sanskriti evam Itihasa. We called our Rivers and Earth as ‘Jeevan dayani Maa’. The concept of Vasudhaiva Kutumbakam- that is all life systems are interdependent and part of our family. This unpatrolled/unique model gave us the distinction of being just not the oldest living civilization, surviving for over at least 5,000 years, but a great economy and knowledge center making our country a Vishwa Guru. So what went wrong? We have imposed/ blindly followed a model of development that is not in sync with natural sustainable cycle of natural resources.

Delhi is the face of Bharat to the world, and is the oldest surviving Capital of the world. This most auspicious Tirath land was established on the banks of River Yamuna, the dear of Sri Krishna. Today this river, our Maa Yamuna, is in ICU. The characteristic of a river is to flow- but there is no flow in the channel of Yamuna. Each River has its own characteristic water content/ properties but Yamuna here has no drop of its original Yamuna water. Each river gives and maintains a pro-creation life system and gives birth to specific type of aquatic life, flora, and fauna. Today the riparian zones and flood plains of Yamuna are lost and the Iconic Turtle other life species are nowhere visible? The natural systems of rain are the second significant source to replenish river waters- Yamuna in Delhi has lost its channel depth, being filled with sludge and sewage & effluents waste/ discharge? Same is the conditions of almost all rivers across the nation.

A mounting evidence attests to the fact that we humans are destroying the life-support systems of the Earth at an alarming rate. Ecosystems are being degraded by rapid industrialization and relentless development. Disturbing data keeps pouring in that planetary boundaries are being exceeded as we continue to alter the climate and toxify the air, water, and soil of the planet with the result that a healthy future for humans and other species is at serious risk. Clearly there is urgent need for human beings to find a path forward that is much more sustainable.

For rehabilitation of rivers and overall sustainability River basin approach is pertinent to;

- Evolve our River Basin Understanding individually and collectively
- Repair and to heal our individual and collective relationship of inter-dependence with the Mother River and the River Basin
- Weave a comprehensively inclusive people to people River Basin Wide grass-roots. Networking through the adopting of rivers
- Institutionalize the regular interactions between civil society and governance institutions through our continued national conventions,

The aim of this Yamuna Manthan-II is to retrospect on specific issues and create an 'Action Plan' based on intelligent synergies between traditional and western technologies in order to restore rivers Aviral, Nirmal Flow, and Swatantrata for her incessant flow.

Besides the above, deliberations will focus on what steps can be taken to stop encroachments, exploitation and pollution of rivers and the huge dam constructions ongoing, in the period where all western countries are decommissioning the dams/check dams to allow the rivers to flow freely and regain biodiversity and facilitate migration of fishes. Other water conservation practices need to be focused, along with the emphasis on treated used/recycled water.

There is common consensus to have a National River Act & National Policy framework for sewage regulation. During 'Yamuna Manthan-II' a Round Table discussion is more pertinent to promote right kind of understanding of role of microbes and sewage degradation Science and its principles for the wastewater/used water treatment. The main objective is to further seriously understand the complete stretch of river Yamuna from experts, as this is the most polluted river flowing in the heart of nation capital city. Interaction with government representatives and stakeholders under one roof helps in getting proper perspective of the problems, challenges and possibilities within existing framework. To overcome the existing challenges, the effort is intended to prepare guidelines to create apt policies and restructure archival ones to facilitate 'do-able / suitable' solutions for sewage treatment, natural Yamuna water in the river channel and maintaining its cleanliness. This Yamuna Manthan is second phase of such an action oriented initiative. Agony of Yamuna resonate all other rivers.

The main outcome expected of the daylong deliberations is to create engage youth of our country, create mass awareness and understanding of existing challenges and lacunae, laying the seeds for the principle of nature based co-existence, and generate strategies/ options to restore incessant flow of rivers while focusing on scientific basis of sewage treatment.

Deliberations attempt would be to bring together various stakeholders involved with Yamuna and other rivers, and explore various scientific methodologies, from modern to ancient, that can facilitate a clean and healthy river waters.

Another essential take away shall be to rekindle the culture of reverence towards rivers and generate partnerships from all quarters of the society, as all are concerned about River Yamuna. We aim to explore solutions.

I. Background:

Recent 10th Nov,2024 media report that even originating point of pious river Ganga is polluted by STP discharge, Uttarakhand Government has informed NGT, as 540/100ml MPN faecal coliform found in sample collected from 1MLD Gangotri plant. Tribunal doubts compliance reports of CPCB and noted deficiencies in the States Report. As 63 untapped drains were directly discharging untreated sewage into Ganga. An empirical study conducted by Dr Snehal Donde from Manhattan to Mumbai city, and thereafter Indore and Bangalore city STPs functional audit, all revealed that conventional STPs are meagrely producing any result. Many other authors findings support these findings.

World over current practice is to flush toilet waste with grey water (other use namely bath, laundry, and kitchen). And in India we use portable water to flush toilet. All this water is channelized to STPs

and is called MFSL (mix first separate latter), for convenience called WW- wastewater (meaning domestic WW). This is unscientific and once mixed there is no successful management for the treatment of domestic WW. Because all Black water (BW fecal mass) & Grey Water (GW kitchen liquid waste) have different physical, chemical, biochemical and microbial characteristics.

Black and Grey waters cannot be mixed, must be kept separate, and be treated separately. There is no method (STP) that can offer a solution. One single economic decision of using a common pipe (Cloaca Maxima) to carry all liquids has created this mess. In nature also it is separate as urine and excreta come out of body through different intestinal/organ system. Mixing of urine with the black water is killing important bacteria. More dangerously BW as a source of pathogen is not addressed adequately. Repeated pandemics world over (4 in last 100 and others over 1000 years) all urban in origin and sewage as a common source of pathogens is the evidence. Separation of pipelines calls for a huge U-turn on a centuries-old linear path (sewage+water-WW-STPs-a lake or a river-to a sea). A promise of an untreated path with scientific clarity offers some hope. But then do we know the cost (not fully understood) of ignorance in sticking with a wrong path?

This challenge is further complicated by mixing industrial wastewater and storm water to meet the convenience, is misleading with unforeseen consequences. To cover it up, new terms like sustainable development, asset management, etc., and therefore science is neglected, economy suffers.

Slums and eutrophication are urban gift to this planet. Such an approach with only short-term economy does not guarantee civility.

Sewage is a climate linked microbial science governing public health and pathogen elimination, breaking worms life-cycles. Handling it with mere hydraulic equations, tools, leads us nowhere. Flushing human excreta with pristine water (leading to water scarcity) is no brainer.

World over sewage management is standing on an unexamined foundation. Conventional sophisticated approach is unaffordable to a pocket and to the nature, hence not a solution.

Inadequate sanitation for 40% world population now, where are we for 10 bn in 2050? Water and aeration have no role in organic degradation and infrastructure built on such parameters are a liability with no solution in sight. Water crisis is a fallout of pushing the poop with pristine water. Nutrient and water recovery is a proof of sewage illiteracy rendering a society

poorer, world over losing lakes and rivers, and working as a double edged sword over use of water to push sewage till it reaches a water body with environmental consequences. All aquatic systems are compromised as a result.

Approach to 1- to 5- litre lab scale studies does not provide a solution for real issues. And conventional STPs have proved ineffective. Only after this is accepted, a 3-day workshop where scientists from various disciplines may offer a direction, be conducted.

To understand Sewage it is pertinent to understand Gene transcription dynamics form the very basis of sewage degradation, as only colon microbes are capable of performing. As anaerobic digester, a

ST provides an extension of colon to complete the process. Expressed at its best and easily demonstrable the microbial synergy in nature's most sophisticated anaerobic digester is a septic tank working on the photon- independent energy source. Genome based microbial dark matter in colon/ST (only BW) known as the 'black box' holds the secret of pulverizing complex organic molecules.

As the mandate of CPCB norms emphasizes on BOD/COD parameters, it is important to know what BOD really means and what kind of oxygen is used for organic degradation. Advance oxidation is all about microbial ability to use various -OH (hydroxyl radicals) with different ORP. O₂ is a nonpolar molecule. Degradation of organic molecules generate CO₂ which is 40 times more soluble than atmospheric O₂, so CO₂ pushes out O₂ resulting into DO depletion. O₂ depletion is due to higher Solubility of NH₃, SO₂, H₂S, CO₂, throwing out the DO. Not because of a failure of aerobes. Prokaryotes are not DO breathers and Eukaryotes have NO ROLE in BOD reduction. Also no single reaction of Krebs cycle influenced by all prokaryotes and no single prokaryote is capable of completing entire Krebs cycle due to lack of all enzyme machinery (lack of gene bank for production of all enzymes).

For all these clarity of sewage degradation principles and process a 3-day workshop is recommended for all the stakeholders.

Delhi as such is brewing up air pollution issues of approx.500 AQI, that is due to 11 thermal power plants, spewing SO₂ round the year. They emit 16 times more smoke than stubble burning which has high pm. Stubble burning is only seasonal. Low temperatures in winter SO₂ settles due to higher density than air. Installing the flue-gas desulfurization (FGD) technology in 12 coal-based thermal power plants within a 300-km radius of Delhi could lead to a dramatic 67 per cent reduction in sulphur dioxide (SO₂) emissions, a new study has found. Also the gases emitted from the 4 big trash hills along with leachets flowing, are adding catastrophe to the highly polluted river Yamuna. Hence a comprehensive study with interconnectedness is also recommended to tackle the issue of massive air pollution.

Corona Pandemic & water crisis

1. The Corona Pandemic caught all of humanity by surprise. In 2020 and 2021, as never before, we human beings were reminded of 2 things:

- a. Our ignorance about the self-protective reactions of Nature which is under an increasing human threat.
- b. Our ability to surge into global cooperation to face a global threat.

2. The Indian Water Crisis is a complex crisis affecting all aspects of the Water Cycle. As the River is the Mother of our Civilization and as we are all living in River Valley and River Basin Civilizations today, we need to understand the following:

a. The River is the Mother of Human Civilization. Now, as this Mother is not well, and this River is exhausted by Pollution, Exploitation, Encroachments and insensitive Policy and Implementation, Civilization will have to evolve into the role of the Mother of Rejuvenated Rivers. WE THE PEOPLE will now have to give Life to the Mother River, which gave Life to sustainable communities, cultures and civilizations which flocked to the Rivers.

b. In evolving to be the people who revive our ailing rivers, we shall have to understand that the River dwells in 2 river basins: ONE is the physical basin which is the area from the ridge line to the banks of the river and TWO is the mental basin where the river flows as her own reflection inside the minds, hearts, plans and life-projects of the people inside and outside the river basin.

3. The Indian Water Crisis can be comprehensively addressed, only if the people of all the states of India share with each other the status of their nearest rivers:

a. Share the crisis that is a shadow on each river's catchment and flow and basin

b. Share the study and grass-roots research that is going on to understand the river and the river basin and the nature of human activities which harm the river and heal the river

c. The sharing of the best practices which will guide us in our ongoing research of what hurts the river and the healing response to bring back the river to health

d. The identification of those who are already working to protect, revive and rejuvenate their rivers and the creation of River Basin Councils for every River in India and her tributaries up to the fourth level and then up to each micro-watershed which collects water for the river to flow

f. The creation of River Basin Councils on all the Major Rivers of India - in which members from the State River Basins Councils will be collaborating together across the state, district and taluka borders.

The aim is to together undertake the Mission of identifying, monitoring and coping with all issues which adversely affect the Ganga and other River Basin Populations as well as identifying, monitoring and healing all that ails and adversely affects the Rivers and River-Basin System itself - inclusive of the Forests in catchment areas, the threats of Exploitation, Pollution and Encroachment faced by the River in rural and urban areas, the aquifers under threat of overexploitation, the changing individual and collective loads placed by human beings on the River Water System and everything else known and unknown that affects the River. Now we are engaged in bringing together the people of all the rivers of India in a similar but wider and more comprehensive effort - this is to form and to consolidate River Basin Families inclusive of experts, civil society organizations and government institutions in the service of the people of each river basin.

II. The Consultative Process to create the River Basins Manifesto

1. In creating the synergy of all the River Basin Councils of all the rivers of India - we have a long and meticulous task before us. This task must be guided by a River Manifesto that is

National at first and then evolves into the foundation of a River Manifesto to guide all the Nations of our Planet Earth. In the creation of such a comprehensive River Manifesto there are three things to be considered:

- a. The creation of the River Manifesto is a long term consultative process.
- b. The broad agreement in a series of discussions and consultations between different representatives of different states and river basins is that -
- c. the River Manifesto Framework be shared during this SRM National Consultation Convention for Clean and Healthy Rivers for reviving Jal Sanskar and Sustainability
- d. the Template for gathering the detailed feed-back to the River Manifesto Framework shall be shared with all the delegates
- e. Feedback Templates with all their suggestions for evolving the Draft of the National River Manifesto

III. The Brief Outline of the subjects in the proposed River Basin Manifesto

1. Preamble
2. Definition of River
3. Giving the Legal and Constitutional Status of a Living Entity to the River, with Rights and with the Role of Mother of Human Civilization to be highlighted
4. The Vision of National River Manifesto
5. The Mission of the National River Manifesto
6. The State of our Rivers - with reference to Encroachment, Extraction-Exploitation, Pollution and the need for River Policy Reform
7. The River Basin Approach
8. The need for a Catchment Area Protection Act to be drafted and passed
9. Academic and Research Institutions engagement and collaborations with ULBs for regular monitoring and solutions, by building deep understanding of science of river and sewage and role of microbiome. For Waste to Worth: Managing India's Urban Water Crises Through Wastewater Reuse. As 72,368 MLD daily sewage generation of India. (delhi 3600, Maharashtra 10547, UP 5500)
10. Other stakeholders participation; water-literacy; cadre training; online certificate courses; on the ground nadi pathshalas; state, river basin and trans-boundary conferences
11. Best Practices sharing; best practices posted on extensive website and online portal; best practices highlighted in the quarterly journal
12. Bio-Diversity research and response; People's Bio-Diversity Registers in comprehensive and exemplary action
13. Handling Char dwellers issues, Inter-State and Trans-Boundary Water-Disputes; formation and role of dispute resolution committees, Disaster management policy implementations, by Best use of Institutional Autonomy and flexibility to design curriculum, NEP 2020 & IKS
14. Global warming, cloud bust and atmospheric river.
15. Conduct regular Research on status of/implications of Inter-Linking of rivers (as every river is having a unique ecological system) and inter-basin transfers

16. Explore efficient design of River front development issues and dam constructions on rivers
17. Silt deposition in the dams impacting water holding capacity, soil microbes (Phosphates deposition impacting soil fertility) and flood expansion
18. Interconnectedness of disappearing lakes, Ground water depletion and borewells, impacting river flow
19. River Basin Councils address the climate change; equitable sharing of water after the rejuvenation of the rivers and water bodies; harmonization of crop patterns with changing rain patterns; shared inter-state protection of the hill and mountain catchment areas and their declaration as reserved and protected areas of precious forests and natural heritage
20. Nature of inter-communication and inter-action with government departments and ministries, from local to national levels
21. The river-sensitization of the people, teams, institutions and associations of those who do not yet take water and river to be the core issue of interest; in this, the nature of bridge-building and coordination with all professional associations; government institutions; people's representatives and media. The creation of River Parliaments - Nadi Sansads
22. The research and response to reform the existing laws, policies, approaches, methodologies and constitutional provisions for protecting and rejuvenating the rivers
23. The focus on training youth till there is comprehensive reform in school and college syllabus
24. The continuity of conferences and between-the-conference assignments in order to move urgently to save our rivers
25. The eventual advance to the understanding and resolving of International River Disputes. There is a need to understand similar processes of compiling and consolidating the approach to river protection and river rejuvenation in every state and in every river basin effort that is already going on.

(Delegates are invited to give detailed suggestions regarding topics above - up to 26th sept 2025.

iv. Action Plan for sustainable action & policy framework for sewage treatment and river basin restoration

The commoditization of the river has resulted in the river becoming a cause of conflict between states and communities. We have disregarded the right of the river to have a healthy and pure continuous ecological flow. Our Exploitation, Encroachment and Pollution of the river has been continued relentlessly. We shall strive to identify all rivers, tributaries and the people of these rivers who are active in protecting and healing them and we shall form the families (Kutumb) of various River Basin, which shall transcend the man-made borders which otherwise divide us and create rights based conflicts instead of the responsibility based convergent approach to river and human health.

Empowered through objectivity, relatedness, teamwork and comprehensive institutionalization of our quest for the synergy to serve and to heal the Indian Rivers and each River Basin Ecology, we have started the Consulting Process with sharing the Context

and Purpose of creating a National Sewage Management Policy Manifesto. In order to protect and rejuvenate our rivers we shall robustly pursue the creation of the National River and Sewage Management Policy Manifesto based on detailed consultative process with all teams. Our team shall adopt a river basin approach and begin work there, inclusive of research and response.

Below are some principles and action imperatives discussed for sewage treatment with an integrated-holistic and comprehensive approach, in alignment with the directions of Natural Biological Solutions by Government of India for the Used water/wastewater, with the purpose of practices & policy perspectives for sustained well-being of the rivers and people of India.

1- Water resources authorities must reconsider dam water supply with appropriate water management strategies for water distribution and supply for domestic, agriculture and industries. Recycle and reuse along with reduce use, making rain water harvesting compulsion on all sectors. Compulsion on timely dam/lakes/river silt monitoring and its management be emphasized.

2- Mapping of all rivers from zero order stream onwards and work on remediation accordingly, starting with deepening and widening (desiltation), and ensure ecological restoration of river Basins.

3- Free blue line and flood plains of encroachments for Ecosystem sustainability with flow regulation. Bank stabilization with phytoremediation and tree plantation

4- Identify all sewage discharge points and divert to agriculture lands and use for other purposes after treatment

5- Incorporate separate pipeline laying for storm, black, grey water and urine in the town planning. The sewer and industrial waste (solid & liquid) shall not be allowed to enter the river.

6- Regular daily real time data monitoring devices be installed in the waterbodies where companies erected in the vicinity

8- A core team of microbiologists, CPCB members, manufacturers association/industry, water resources engineers and experts be formed and quarterly review meetings/workshops be conducted for learning and mitigation measures

9- Handholding between local administration and community along with Education institutions and research centres be encouraged and funded, to engage jointly for collectively work towards Awareness, education, capacity building, stewardship development and carryout research for baseline data procurement and implementation of corrective action

10- Unnat Bharat Abhiyan, Jal Jeevan Mission, Swach Bharat Abhiyan, Namami Gange, and such other schemes be orientated with the concentration on water conservation and rehabilitation of waterbodies, forest & soil biodiversity

11- For Encouraging Sewage literacy, Forest, water and waste management, interdisciplinary studies be made compulsory and curriculum with 20% theory and 80% practical in Action labs be designed and implemented to realize lab to land concept of education. Integrating it

with NEP 2020 norms of Community oriented research participation for all grades. For baseline data generation, regular monitoring and corrective actions.

12 - River experts, microbiologist representation be ensured in every State River Rejuvenation Committees formed by the directions of NGT since 2018, and fix accountability on the task force created by every district, through adoption of a qualitative and quantitative performance index criterion (improvement in green cover, water conservation practices (ground water recharge and RWH), unique innovative ideas for solutions implemented, livelihood created, education training and awareness programs conducted by engaging stakeholders)

12- Only Natural Biological Solutions with zero sludge and energy conditions be applied to sewage treatment process, with prior detailed study based on survey and analysis of water air and soil microbes/pathogens and pollutants.

13- Working on Dewats (decentralized wastewater system) principles for the sewage or effluents treatment process along with composite method.

As wastewater is the future water resources, applying Science and downsize administration. All rivers, soil with microbes, once gone do we have a design to recreate or recover them? And an illusion that a solution would come from funding is the ultimate form of poverty. Understanding sewage will ease treat aquatic systems.

Hence as second phase of this exercise of Yamuna Manthan-II initiative, a 2 day workshop and core team formation is suggested for discussing/learning/understanding scientific sewage degradation process, laying guidelines for regular monitoring and evaluation of the sewage treatment and corrective plans for effective implementation and outcome.

Suggestions for Core Team building:

- 1- River experts/Environmentalists/sustainability expert
- 2- Microbiologists and Molecular biologist
- 3- Hydrogeologists
- 4- Experienced Sewage treatment solution provider
- 5- CPCB members
- 6- NCGM members
- 7- Research and academic institution representatives
- 8- Media
- 9- NGO's
- 10- Structural design engineer /Environmental engineer/Hydraulics/Process engineer

V. Yamuna Manthan phase 1 Themes were focused on:

1. A Yamuna Manthan had concluded with a four-fold declaration:
 - To evolve our River Basin Understanding individually and collectively

- To repair and to heal our individual and collective relationship of inter-dependence with the River and the River Basin
- To weave a comprehensively inclusive people to people River Basin Wide grass-roots Networking
- To institutionalize the regular interactions between civil society and governance institutions

The Yamuna Manthan outcome note went on to declare the intention that the “Ganga champions” will take forward the above fourfold resolutions and all details therein and address specified reforms and initiatives ahead - by forming and evolving a co-ordination between action groups.

VI. Yamuna Manthan phase 2 : recommend an action oriented initiative to conduct a pilot project in collaboration with SRM Delhi-NCR for Nature Based Solution for Sewage Treatment

In Namami Gange Project 80% of the amount is being utilized for STPs infrastructure facility development. However, the outcome of such an initiative is negligible. Also the treated water is again released in the same polluted Ganga river, after so much of operational cost. The STPs (SBR/MBR/MBBR) treated water quality test analysis reports of the inlet and outlet samples reveal meagre difference. CPCB recent reports and NGT as well as SC orders have point out the ineffectiveness of the STPs established to clean the rivers. The current standards of parameters are focused on carbon (BOD/COD) pollutants ignoring the inorganic toxic elements and microbial ecology.

Hence it is felt that a Pilot project be conducted by team formed by SKECT-MSI & SRM which will include microbiologist, molecular biologist, hydrogeologist, river experts, hydraulics and experts in social and digital mapping, for showcasing a model of efficient and effective scientific Natural Biological Solutions for sewage treatment.

In order to contribute with a spirit of stewardship we agree to co-operate on the objectives of rejuvenating the Rivers and natural biological treatment of sewage, and share all possible solutions (site specific) along with educating masses about the science of sewage degradation and River Basin restoration.

The realities of climate change demand a new urban paradigm. With knowledge, perspective, and resolve, we can regenerate our landscapes in partnership with nature, setting an equitable path for ourselves and future generations. We must take action now to prepare communities for acting on global warming and climate change issues, with genuine efforts through engagement, planning, and outreach programs to combat river pollution and exploitation.

The world that we have made as a result of the level of thinking that we have done so far has created problems we cannot solve at the level of thinking at which we created them ... We shall require a substantially new manner of thinking if humankind is to survive.

– Albert Einstein