Ganga Gyan Dhara: Samgra Samvaad (Workshop for Clean Ganga)

Eminent environmentalists, scientists, revered spiritual-religious leaders, dedicated members of the civil society and esteemed members of administration came together in a conference organized by Ganga Action Parivar, Parmarth Niketan, India in collaboration with Institute of Public Administration (IIPA) and the Global Interfaith WASH Alliance-India, under the flagship project entitled 'Ganga Gyan Dhara' an initiative of National Mission for Clean Ganga (NMCG) to create a comprehensive database of all organizations, institutions, urban local bodies and everyone directly connected to or serving Mother Ganga.

The prime objective was to bring together all stakeholder, especially from Uttarakhand, to call their inputs on pertinent issues related to the conservation and restoration of the sacred River Ganga and to work out an action and participation plan to sensitize, engage and involve local communities and mobilize the stakeholders. The event endeavored to identify the major gaps in Ganga restoration and come up with a way forward to address these issues.

The event was initiated, led, guided and blessed by H.H. Pujya Swami Chidanand Saraswatiji, President of Parmarth Niketan, Founder of Ganga Action Parivar and Co-Founder/Chairman of GIWA-India. Amongst the numerous leaders, dignitaries, scientists and key institutes present in this important conference were:

Central Committee Member of Namami Gange, Senior BJP leader and member of the National Party Executive,

Former Cabinet Minister of Uttarakhand, Shri Trivendra Singh Rawatji

Indian Institute of Public Administration, Prof. Vinod Sharmaji

Former Chairman of CPCB and Adviser to IIPA, Shri Paritosh Tyagiji

Convenor of Yamuna Jiye Abhiyan, Shri Manoj Mishraji

Former Justice of National Green Tribunal, Justice Shri GK Pandeyji

Chairman of Vrindavan, Shri Mukesh Guatum

Chairman of Mathura

As well as many other NGOs and activists from Uttarakashi, Tehri Garhwal, Rudraprayag and many other districts of Uttarakhand

2 Pujya Swamiji, inaugurating the conference urged participants: "Let us transform our Gyan Dhara into a Jan Dhara and Karma Dhara, share our information and knowledge with the masses and inspire them into action. Let us serve together to protect a lifeline for millions and a source of inspiration for billions. Let us work as one family, as one Ganga Parivar, as one team with one theme to serve our

Mother Ganga and ensure that She flows free and pristine for this generation and many generations to come."

Shri Trivendra Singh Rawatji said, "Hon'ble Prime Minister, Shri Narendra Modiji, initiative of Namami Gange has illustrated to the whole nation that cleaning and restoring the River Ganga and Her tributaries is of vital national importance. The Ganga Rejuvenation Ministry has submitted a detailed and comprehensive plan for cleaning the River Ganga and now its just our job to inspire everyone to get connected to this mission and do our part."

Shri Paritosh Tyagiji said, "Its great that we have declared Mother Ganga our National River but without legislation to protect the National River we will never be able to maintain and sustain its cleanliness and purity. I strongly believe that a rights based approach is crucial to protect our sacred lifeline."

Justice GK Pandeyji said, "There is much that is being done through the judicial systems but the need of the hour is to prevent any and all sewerage waste, whether treated or untreated from going into the river, instead this water must be recycled and reused. Additionally, 100 metres on both sides of the river must be declared a no construction zone where the use of chemical fertilizers, pesticides as well as open defecation is strictly prohibited."

Stakeholder's dialogue from the workshop came up with recommendations and suggestions for bridging the gaps encountered on way of Ganga Rejuvenation. It will also explore strategies, pressing needs and opportunities, as well as identify potential partner institutions, organizations and individuals as well as identify their roles and responsibilities in the vital and crucial task of Ganga Rejuvenation. The workshop will be organized in the form of an interactive roundtable discussion on specific themes around the challenges, opportunities, collaboration, project possibilities and comprehensive action as well as participation plan.

During the event people from many countries and all around the nation participated in the discussions and activities and submitted their suggestions and ideas for a Clean and Free-Flowing River Ganga.

Namami Gange Programme

★ ‘Namami Gange Programme’, is an Integrated Conservation Mission, approved as ‘Flagship Programme’ by the Union Government in June 2014 with budget outlay of Rs.20,000 Crore to accomplish the twin objectives of effective abatement of pollution, conservation and rejuvenation of National River Ganga.

★ Main pillars of the Namami Gange Programme are:-

Sewerage Treatment Infrastructure

River-Front Development

River-Surface Cleaning

Bio-Diversity

Afforestation

Public Awareness

Industrial Effluent Monitoring

Ganga Gram

★ Its implementation has been divided into Entry-Level Activities (for immediate visible impact), Medium-Term Activities (to be implemented within 5 years of time frame) and Long-Term Activities (to be implemented within 10 years).

The key achievements under Namami Gange programme are:-

1. Creating Sewerage Treatment Capacity:- 48 sewage management projects are under implementation and 99 sewage projects have been completed in the states of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, West Bengal, Delhi, Himachal Pradesh, Haryana, and Rajasthan. 27 sewage projects are under tendering and 8 new sewage projects launched in these states. Work is under construction for creating a sewerage capacity of 5658.37 (MLD).

2. Creating River-Front Development:- 71 Ghats/Crematoria projects for construction, modernization, and renovation of 270 Ghats/Crematoria and Kunds/Ponds have been initiated.

3. River Surface Cleaning:-River Surface cleaning for collection of floating solid waste from the surface of the Ghats and River and its disposal are afoot and pushed into service at 11 locations.

4. Bio-Diversity Conservation:- One of NMCG’s long-term visions for Ganga rejuvenation is to restore viable populations of all endemic and endangered biodiversity of the river, so that they occupy their full historical range and fulfil their role in maintaining the integrity of the Ganga river ecosystems. To address this, Wildlife Institute of India (WII), Dehradun, Central Inland Fisheries Research Institute (CIFRI), Kolkata & Uttar Pradesh State Forest Department has been awarded projects to develop science - based aquatic species restoration plan for Ganga River by involving multiple stakeholders along with conservation & restoration of aquatic biodiversity.

As per the field research conducted by WII, high biodiversity areas have been identified in river Ganga for focused conservation action, rescue & rehabilitation centers have been established for the rescued aquatic biodiversity, cadre of volunteers (Ganga Praharis) have been developed and trained to support conservation actions in the field, floating interpretation centre "Ganga Tarini" and interpretation centre "Ganga Darpan" have been established for developing awareness on biodiversity conservation and Ganga rejuvenation, key ecosystem services of Ganga river have been identified and an assessment framework developed to strengthen the environmental services in the river basin.

CIFRI has carried out the assessment of fish and fisheries in the basin to record the available fish species and has mapped it in GIS platform to understand the status and distribution of fishes in Ganga. Tagging procedures has also been initiated to see the migration pattern of identified fish like Hilsa. CIFRI is also conducting ranching and awareness programmes at various locations in the river basin for conservation and restoration of Indian Major Carps (IMC) & Mahseer in Ganga.

Further, the Uttar Pradesh State Forest Department is implementing the 'Expansion of conservation breeding program of freshwater turtles and Gharial at Kukrail Gharial Rehabilitation Centre, Lucknow' which will help in revival and restoration of Gharials and turtles in the Ganga basin.

5. Afforestation:- One of the major components of Ganga rejuvenation is 'forestry interventions' to enhance the productivity and diversity of the forests in head water areas and all along the river and its tributaries. Accordingly, Forest Research Institute (FRI), Dehradun prepared a Detailed Project Report (DPR) for afforestation in an area of 1,34,106 hectares in the Ganga river bank states of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal at an estimated cost of Rs. 2293.73 Crores. The FRI DPR provides for taking up works under four major heads viz. Natural landscape, Agriculture landscape, Urban landscape and Conservation interventions.

The main purpose of the proposed forestry interventions is to contribute towards holistic conservation of river Ganga, including improving the flow in the river (Aviralta) by adopting a multi-pronged approach throughout the pre-defined Ganga riverscape. The project of "Forestry Interventions for Ganga" is being implemented by State Forest Departments of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, and West Bengal as per the FRI DPR since year 2016-17, for which NMCG is providing financial support to the respective State Forest Departments.

6. Public Awareness:- A series of activities such as events, workshops, seminars and conferences and numerous IEC activities were organized to make a strong pitch for public outreach and community participation in the programme. Various awareness activities through rallies, campaigns, exhibitions, shram daan, cleanliness drives, competitions, plantation drives and development and distribution of resource materials were organized and for wider publicity the mass mediums such as TV/Radio, print media advertisements, advertorials, featured articles and advertorials were published. Gange Theme song was released widely and played on digital media to enhance the visibility of the programme. NMCG ensured presence at Social Media platforms like Facebook, Twitter, You Tube etc.

7. Industrial Effluent Monitoring:- The number of Grossly Polluting Industries (GPIs) in April, 2019 are 1072. Regulation and enforcement through regular and surprise inspections of GPIs is carried out for compliance verification against stipulated environmental norms. The GPIs are also inspected on

annual basis for compliance verification of the pollution norms and process modification, wherever required through third party technical institutes. First round of inspection of GPIs by the third-party technical institutes has been carried out in 2017. Second round of inspection of GPIs has been completed in 2018. Out of 961 GPIs inspected in 2018, 636 are complying, 110 are non-complying and 215 are self-closed. Action has been taken against 110 non-complying GPIs and are issued closure directions under Section 5 of the E(P) Act. Online Continuous Effluent Monitoring Stations (OCEMS) connectivity established to CPCB server in 885 out of 1072 GPIs.

8. Ganga Gram:- Ministry of Drinking Water and Sanitation (MoDWS) identified 1674 Gram Panchayats situated on the bank of River Ganga in 5 State (Uttarakhand,Uttar Pradesh,Bihar,Jharkhand,West Bengal). Rs. 578 Crores has been released to Ministry of Drinking Water and Sanitation (MoDWS) for construction of toilets in 1674 Gram Panchayats of 5 Ganga Basin States. Out of the targeted 15, 27,105 units, MoDWS has completed construction of 8, 53,397 toilets. Consortium of 7 IITs has been engaged in the preparation of Ganga River basin Plan and 65 villages has been adopted by 13 IITs to develop as model villages. UNDP has been engaged as the executing agency for rural sanitation programme and to develop Jharkhand as a model State at an estimated cost of Rs. 127 Crore.

National Mission for Clean Ganga, endeavors to deploy best available knowledge and resources across the world for Ganga rejuvenation. Clean Ganga has been a perennial attraction for many international countries that have expertise in river rejuvenation. Countries such as Australia, United Kingdom, Germany, Finland, Israel etc. have shown interest in collaborating with India for Ganga rejuvenation. Memorandums of Understanding (MoUs) were signed with various Central Ministries viz.- Ministry of Human Resource Development, Ministry of Rural Development, Ministry of Railways, Ministry of Shipping, Ministry of Tourism, Ministry of Ayush, Ministry of Petroleum, Ministry of Youth Affairs and Sports, Ministry of Drinking Water & Sanitation and Ministry of Agriculture for synergizing the Government schemes.

About NMCG

National Mission for Clean Ganga(NMCG) was registered as a society on 12th August 2011 under the Societies Registration Act 1860.It acted as implementation arm of National Ganga River Basin Authority(NGRBA) which was constituted under the provisions of the Environment (Protection) Act (EPA),1986. NGRBA has since been dissolved with effect from the 7th October 2016, consequent to constitution of National Council for Rejuvenation, Protection and Management of River Ganga (referred as National Ganga Council) vide notification no. S.O. 3187(E) dt. 7th October 2016 under EPA 1986. >> (Amendment) Order, 2nd September 2019

The Act envisages five tier structure at national, state and district level to take measures for prevention, control and abatement of environmental pollution in river Ganga and to ensure continuous adequate flow of water so as to rejuvenate the river Ganga as below;

1. National Ganga Council under chairmanship of Hon'ble Prime Minister of India.

2. Empowered Task Force (ETF) on river Ganga under chairmanship of Hon'ble Union Minister of Jal Shakti (Department of Water Resources, River Development and Ganga Rejuvenation).

3. National Mission for Clean Ganga(NMCG).

4. State Ganga Committees and

5. District Ganga Committees in every specified district abutting river Ganga and its tributaries in the states.

NMCG has a two tier management structure and comprises of Governing Council and Executive Committee. Both of them are headed by Director General, NMCG. Executive Committee has been authorized to accord approval for all projects up to Rs.1000 crore. Similar to structure at national level, State Programme Management Groups (SPMGs) acts as implementing arm of State Ganga Committees. Thus the newly created structure attempts to bring all stakeholders on one platform to take a holistic approach towards the task of Ganga cleaning and rejuvenation.

The Director General(DG) of NMCG is a Additional Secretary in Government of India. For effective implementation of the projects under the overall supervision of NMCG, the State Level Program Management Groups (SPMGs) are, also headed by senior officers of the concerned States.

Aim & Objective of NMCG

The aims and objectives of NMCG is to accomplish the mandate of National Ganga River Basin Authority (NGRBA) of

1.To ensure effective abatement of pollution and rejuvenation of the river Ganga by adopting a river basin approach to promote inter-sectoral co-ordination for comprehensive planning and management and

2.To maintain minimum ecological flows in the river Ganga with the aim of ensuring water quality and environmentally sustainable development.

Vision and Key Function

The Vision for Ganga Rejuvenation constitutes restoring the wholesomeness of the river defined in terms of ensuring “Aviral Dhara” (Continuous Flow”), “Nirmal Dhara”(“Unpolluted Flow”), Geologic and ecological integrity.

Key Functions

To achieve the objectives, NMCG shall carry out the following key functions namely:

(i) Implement the work programme of National Ganga River Basin Authority(NGRBA).

(ii) Implement the World Bank supported National Ganga River Basin Project.

(iii) Coordinate and oversee the implementation of projects sanctioned by Government of India under NGRBA.

(iv) Undertake any additional work or functions as may be assigned by MoWR,RD &GJ in the area of conservation of river Ganga.

(v) Make rules and regulations for the conduct of the affairs of the NMCG and add or amend, vary or rescind them from time to time.

(vi) Accept or to provide any grant of money, loan securities or property of any kind and to undertake and accept the management of any endowment trust, fund or donation not inconsistent with the objectives of NMCG.

(vii) Take all such action and to enter all such actions as may appear necessary or incidental for the achievements of the objectives of the NGRBA.

The River Ganga is important not only for its cultural and spiritual significance but also because it hosts more than 40% of the country’s population. Addressing the Indian community at Madison Square Garden in New York in 2014, the Prime Minister had said, “If we are able to clean it, it will be a huge help for the 40 per cent population of the country. So, cleaning the Ganges is also an economic agenda.”

To translate this vision, the Government launched an integrated Ganga conservation mission called ‘Namami Gange’ to arrest the pollution of Ganga River and revive the river. The Union Cabinet approved the action plan proposed by Centre to spend Rs 20,000 Crores till 2019-2020 on cleaning the river, increasing the budget by four-fold and with 100% central share – a central sector scheme.

Recognizing the multi-sectoral, multi-dimensional and multi-stakeholder nature of the Ganga Rejuvenation challenge, efforts have been made to improve the inter-ministerial, and centre-state coordination with increased involvement in preparation of action plan and increased monitoring at central and state levels.

The implementation of the program has been divided into entry-level activities (for immediate visible impact), medium term activities (to be implemented within 5 years of time frame), and, long-term activities (to be implemented within 10 years).

Entry-level activities includes river surface cleaning to address the floating solid wastes; rural sanitation to arrest the pollution (solid & liquid) entering through rural sewage drains and construction of toilets; renovation, modernization, & construction of crematoria that prevents the disposal of un-burnt/ partially burnt bodies in the river; repair, modernization & construction of ghats to improvise the human-river connect.

Medium-term activities will focus on arresting the municipal and industrial pollution entering into the river. To address the pollution through municipal sewage, 2500 MLD additional treatment capacity is to be created in next 5 years. Major financial reforms are underway to make the program efficient, accountable, and sustainable in the long term. Hybrid Annuity based Public Private Partnership model for project implementation is currently being considered by the Cabinet. If approved, Special Purpose Vehicle will manage concessionaires in all major cities, market will be developed for treated water, and long term sustainability of assets will be assured.

For managing the industrial pollution, efforts have been initiated to improvise the compliance through better enforcement. Grossly Polluting Industries located along Ganga have been directed to reduce the effluent quality & volume or implement zero-liquid discharge. Action plan for the implementation of these directions by Pollution Control Boards are already prepared and timelines have been assigned for each category of industry with detailed consultations. All the industries have to install real-time on-line effluent monitoring stations.

Apart from these activities, biodiversity conservation, afforestation, and water quality monitoring are also being taken up under the program. Programmes for conservation of key iconic species such as Golden Mahaseer, Dolphins, Ghariyals, Turtles, Otters, etc. have been already initiated. Similarly, under 'NamamiGange' 30,000 hectares of land will be afforested for increased recharge of the aquifers, reduced erosion, and improved health of river ecosystem. The afforestation programme is set to begin in 2016. Also, comprehensive water quality monitoring will be done with installation of 113 real-time water quality monitoring stations.

Under the long-term, providing adequate flow to the river is envisioned through determination of e-flow, increased water-use efficiency, and improved efficiency of surface irrigation.

It is worth mentioning that cleaning river Ganga is extremely complex due to its socio-economic & cultural importance and yet, exploitation for various uses. Never in the world such a complex program has been implemented and will require participation across sectors and each and every

citizen of the country. There are various ways in which each one of us can contribute to the cause of cleaning river Ganga:

• Contribution of funds: Restoring the quality of a river with the length and population as large as that of Ganga requires huge investments. Government has already increased the budget by four-fold but still may not be enough to the requirements. Clean Ganga Fund has been established that provides a platform to all for contributing funds to clean river Ganga.

• Reduce, Reuse and Recovery: Majority of us do not realize that used water and filth of our homes can end up in the rivers if not disposed properly. Sewerage infrastructure is already being constructed by the Government but citizens can reduce the usage of water and generation of waste. Reusing and Recovery of used water and organic waste & plastics can greatly benefit the program.

Develops Bhuvan Ganga geo-portal and Bhuvan Ganga Mobile App in collaboration with ISRO's National Remote Sensing Centre Survey of India uses drones to capture 360 degree view of Kumbh Mela area to identify pollution sources IIT Kanpur working on project for reconstructing the Ganga of the past using Corona Archival imagery

National Mission for Clean Ganga (NMCG) organized a brainstorming session on World GIS Day 2018 in New Delhi yesterday, with the theme 'G-Governance of Namami Gange programme through Geospatial Technology'. The objective of the session was to share the knowledge on use and application of geospatial technology for monitoring and management of various activities being undertaken under Namami Gange Programme, and also provide feedback on the current use of this technology with reference to Ganga Basin. The brainstorming session brought together decision makers, technocrats and implementing agencies for an engaging discussion.

Speaking on the occasion Shri U.P Singh, Secretary, Ministry of Water Resources River Development & Ganga Rejuvenation said that the lack of reliable data is the biggest challenge in the water sector. Geospatial technology can give vital information about the river basin for better monitoring, planning and feedback about programmes for river cleaning and rejuvenation, he said.

Geographical Information System (GIS) technology is widely used in river basin management. The Namami Gange programme has high priority for research and evidence based decision making, and has special place for the use of new technology including Geospatial technology. NMCG is already executing a number of research projects based on Geospatial technology.

In his opening remarks, Shri. Rajiv Ranjan Mishra, DG, NMCG said “The use of GIS technologies has improved our ground level understanding of the Ganga River Basin and we have been able to evolve evidence based policies and develop projects that are bringing about tremendous changes at the ground level. The GIS cell of NMCG has brought about paradigm shift in visualisation of all crucial spatial and non spatial information of Ganga basin as it is a robust, scalable and standards-based dissemination framework. GIS mapping becomes extremely important at NMCG to achieve its objective of effective abatement of pollution in river Ganga because of its limitless potential.”

NMCG has signed an MoU with National Remote Sensing Centre (NRSC) in the use of geospatial technology in June 2015. They have developed Bhuvan Ganga Geoportal and Bhuvan Ganga Mobile Application .

Bhuvan Ganga Geoportal is available for water quality monitoring, hydrological monitoring, geomorphological monitoring, bio-resources monitoring, and comprehensive geospatial database. Speaking on the occasion Shri Santanu Chowdhury,Director, National Remote Sensing Centre said that the Bhuvan Ganga mobile application is a user-friendly application to enable user/public to collect and report information on various pollution sources that affect water quality of River Ganga. The mobile application has provision to collect information regarding urban sewage, semi-urban/rural sewage, natural drains/nallas, industrial waste water, solid waste disposal or any other pollution source. The application is available for download from the Bhuvan Ganga web portal as well as Google Play store.

Speaking on the occasion Surveyor General of India Lt.General Girish Kumar VSM informed that the use of Drones and vehicles with cameras have captured 360 degree panoramic views of the Kumb Mela areas, which have also helped in identifying polluted Nalas joining the river Ganga. Lt.General. Girish Kumar also talked about the Sahyog Mobile App which will improve content with the help of citizens. NMCG has also collaborated with Survey of India to facilitate the Ganga rejuvenation task by using Geographic Information System (GIS) technology for mapping the Ganga basin in high resolution generating Digital Elevation Models (DEM). These models will provide valuable information for use not only in making urban river plans, but also for identifying the baseline of river flood plains and regulating them for their restoration and preservation. This technology enables identification of entire topography of an area making it easy for policy makers to analyse the available data and improve decision-making process. Critical pollution hotspots are also easily identified through this technology. In addition, the high resolution GIS enabled data will help in regulating the proposed protected and regulatory zones along the banks of river.

IIT Kanpur is executing a project on ‘Reconstructing the Ganga of the Past from Corona archival imagery’ Deliverables of Corona project would be to make all processed Corona images available for upload on public portal such as Bhuvan, develop an Atlas of the Ganga River showing a comparison between 1960s and the present, establish the reference condition of the Ganga river and quantify the changes in morphological characteristics and land-use/land-cover within the Ganga valley between 1960s and present, propose a policy document on ‘desirable’ land-use within the Ganga

valley, capacity building for Corona image processing through training workshops including development of a working manual.

Another project under execution is on ‘Generation of Digital Elevation Model/ Digital Terrain Model using suitable sensors on airborne platform for a corridor along the main stem of River Ganga’ by Survey of India. Deliverables of mapping would be Digital Elevation Model/ Digital Terrain Model (The bare earth model has vertical accuracy better than 50 cm), contour of 1.0 m, ortho-photos (25 cm Ground sampling distance or better), GIS ready dataset, outlet/vent of sewerage and other discharge from all dwelling units, industrial, commercial and all type of other institutions mapping from the sources outlet to the public drainage network, the entire public network integrated with the present project mapping, crematoria, ghats, solid waste disposal sites, STP/ETP/CETP etc for defined project area of interest.

River Ganga is not only the cultural
and spiritual mainstay for lndia but
also provides economic sustenance,
water and food security to more than
43 percent of country's population. A part of
the collective consciousness of lndia, Ganga can
easily be considered the most revered river across
the world. As a representation of lndia's identity
and culture, it became important to restore the
river to its clean and pristine glory. Considered
as the lifeline for millions of people, River Ganga
has been facing several challenges on one hand
from pollution of river frcm different sources with
growing urbanisation and industrial growth, and
on the other from excess abstraction of water
from river for agricultural, industrial and drinking
needs.
Namami Gange programme, implemented
by National Mission for Clean Ganga (NMCG) is an

integrated mission for conservation of Ganga and its tributaries. A comprehensive Ganga River Basin Management Plan (GRBMP) was developed by a consortium of seven llTs The vision is to restore the wholesomeness of the River by ensuring Aviral and Nirmal Dhara, and maintaining its geo-hydrological and ecological integrity. This approach differentiates this from earlier attempts. lntegrated River Basin Management (IRBM) approach is followed with

multi-sectoral and multi-agency interventions such as (l) pollution abatement (Nirmal Ganga), (ll) improving ecology and flow (Aviral Ganga), (ttt) strengthen people river connect (Jan Ganga) and (lV) facilitate diversified research, scientific mapping, studies and evidence based policy formulation (Gyan Ganga).

The holistic approach and innovative features in policy making, project management, financial planning, sustainability of investment, scientific research, knowledge management, institutional development, basin management and planning has helped Namami Gange program to evolve as a pioneering river rejuvenation programme. A total of 315 projects have been sanctioned under Namami Gange programme at a cost of Rs. 28,854 crores. 130 projects have been completed and the remaining are in progress. Pace of execution and consequently the expenditure has increased many folds with the expenditure for FY 2019-20 being Rs. 2673.09 crores as compared to Rs. 170.99 crores

in FY 2014-15.

Pollution Abatement {Nirmal Ganga)

Pollution abatement measures comprehensively tackle all sources of pollution such as municipal sewage, industrial effluents, municipal solid waste, rural sanitation, non-point sources of pollution such as agricultural runoff, open defecation, un-burnt dead bodies etc.

(a) Sewerage lnfrastructure-The largest source of pollution in Ganga is flow of untreated municipal sewage. The goal of achieving Nirmal Dhara is impossible without building sufficient infrastructure to prevent untreated waste water entering into the river. Under Namami

Gange, a total of 151 sewerage infrastructure projects have been sanctioned to create/ rehabilitate 4814 MLD treatment capacity in the Ganga basin. ln addition, the mission has done conditional assessment and feasibility study of old infrastructure and taken steps to rehabilitate and upgrade, wherever feasible. The scaled up and assured funding under Namami Gange enabled comprehensive and aggressive interventions. The Figure I indicates the magnitude of scaling up under this mission with a sense of urgency to bridge the past gap between sewage generation and sewage treatment capacity. Not only the number of projects have increased from 28 to 151 but the treatment capacity has increased from 462.85 MLD by almost ten times. 5L projects have been

completed. For main stem of Ganga, treatment capacity of 2100 MLD is now available against sewage generation of 2950 MLD from 97 Ganga towns.

More than 80 major drains falling into Ganga have been intercepted and diverted to STPs -new and old.

Ihtal l5l Sewerage lnfrastructure Projerh (Ganga and ih tributarie,

Stopping discharge of 140 MLD sewage from 120-year-old Sisamau Nala at Kanpur, Kasawan Nala in Haridwar and Chandreshwarnagarnala at Rishikesh are notable examples.

Most of the STPs in Uttarakhand are complete including all projects in Haridwar- Rishikesh area. Core Prayagraj is fully covered with sewerage network and STPs. Varanasi saw completion of 140 MLD Dinapur STP and 120 MLD at Goitha, and 50 MLD STP at Ramana would be ready this year. ln Bihar, treatment capacity is being increased by 10 times from about 60 MLD to 650 MLD. ln Jharkhand also works are almost complete and several projects in West Bengal too are making good progress.

Learning from past, 15 years long term Operation and Maintenance (O&M) has been included in project cost. Mission has introduced a PPP approach in Hybrid Annuity Mode (HAM) to sewerage infrastructure sector. Under this, 40 percent of capex is paid

during construction and balance 60 percent paid in 15 year annuity along with interest with separate payment for O&M. This is to encourage performance based payments and efficient execution. Further, the approach of 'One City-One Operator' has been adapted by integrating the construction of new STPs , rehabilitation of old STPs, if needed and O&M of all for 15 years to improve accountability and governance with city wide contract. This helps meet better performance standards, attracts sound players due to bigger size, opportunity to explore the possibility of reuse of treated waste water and ultimately better service.

Wastewater is one of the most underexploited resources. lt is actually a valuable resource from which energy, water, organics, phosphates, nitrogen, and other resources can be extracted. NMCG is actively pursuing the development of a model policy framework for re-use of treated waste water. ln Mathura, 20 MLD treated waste water has been tied up for use in Mathura refinery, which will meet the costs of TTP, O&M and pay for water. Similarly, efforts are being made to tie up with thermal power plants as per power tariff policy. These are also being used for agricultural purposes and states like Bihar have mandated it, Haryana is developing a state policy. Specific a rra nge ments for d ischa rge lines for agricu ltu re use are being made in all new projects like

Ramana at Varanasi or Jagjeetpur in Haridwar. The circular economy principles can help turning sanitation a sustainable option.

FaecalSludge Management - While improving sewerage systems, the constraints have also been understood from the way our cities and towns are. Faecal sludge and Septage treatment is good option in developing a mix of solutions with centralised and decentralised STPs. While working with several institutions from National Faecal Sludge and septage management alliance such as CSE, ASCI; capacity building of States and ULBs is being done. NMCG has adopted co-treatment in its all under construction STPs. Such practice is already undergoing in important towns such as Haridwar, Kanpur, Prayagraj, Lucknow etc.

lndustrial Pollution- To control the industrial pollution in Ganga, all the Grossly Polluting lndustries (GPls) were identified and annual inspection undertaken by independent expert institutions such as llTs, NEERI, NlTs leading to improved compliance by industries. A Common Effluent Treatment Plant (CETP) is under construction for Jajmau Tannery Cluster, Kanpur, addressing a very long standing problem. Upgradation of existing CETPs has been undertaken for tannery and textile clusters. lndustry specific charters were developed to promote greener technology, reduce effluent generation and

reuse/recycle which led to improvement in several industries. Black liquor discharge in paper & pulp industries has been stopped' Online continuous effluent monitoring system has been installed. Similar approach is being extended to tributaries.

(d) Solid Waste Management- Solid Waste is the most visible form of pollution. The mission has directed its focus on solid waste on ghats and in the vicinity of the river with regular cleaning of river banks, installing screens/filter to trap solid waste, ban on single-use plastics and periodical third-party inspections. Trash skimmers have been installed at important places for surface cleaning. Projects for ghat cleaning have been taken up at Haridwar, Kanpur- Bithoor, Mathura-Vrindavan, Prayagraj and Varanasi.

(e) Rural Sanitation-NMCG facilitated construction of around 11 lakh household toilets in 4465 identified Ganga bank villages. They were declared open defecation free (ODF) early and solid, liquid waste management in Ganga Grams is priority in SBM Grameen.

(f) Water Quality - Central Pollution Control Board monitors water quality of River Ganga through 97 manual stations. Forthe first time in lndia, RealTime Water Quality Monitoring has been introduced with 36 stations set up along Ganga with 40 more in pipeline. Community monitoring is also promoted. The impact of the program is reflected in the improving trend

of water quality. The important parameter of Dissolved Oxygen (DO) to be more than 5mg/liter is now met throughout the river length. There is improvement in meeting Biological Oxygen demand (BOD), to be less than 3mg/liter at several stations. The Kumbh at Prayagraj in 2019 was witness to improved water quality and cleanliness.

Ecology and Flow (Aviral Ganga)

Drastic reduction in flow of river has a huge ecological cost with long term adverse lmpact. A river is not a river without good flow. NMCG is working on improving flow and overall ecology through a mix of supply as well as demand side management of water.

(a) Ecological Flow-For the first time, ecologica I flow was notified for River Ganga in October 2018, formally establishing the right of river over its own water with far reaching implications for river health. This has become a major component of river rejuvenation study and studies are ongoing for other rivers like Yamuna, Ramganga etc.

Wetland Conservation -Wetlands are important for Nirmalta, Aviralta and also for economy, ecotourism, ground water recharge and supporting biodiversity. Mission is working for their protection and conservation and integrating to basin level. Toolkits for urban wetlands protection are also being developed with special attention to flood plain wetlan ds. 226 wetlands within 10 kms from Ganga in 27 districts in UP have been taken up for development of an

integrated management plan.

Afforestation: For the first time, mission got a scientific plan for afforestation along entire length of Ganga developed by Forest Research lnstitute and started its implementation. Natural, urban and agricultural riverscapes are covered in this plan. Taking it as a model approach, MoEF&CC is extending similar approach for 13 more rivers in the country.

Biodiversity Conservation - A comprehensive project is under implementation with Wildlife lnstitute of lndia (Wll) to map biodiversity hotspot for the entire length of Ganga and scientific improvement of habitat, species. NMCG spearheaded campaign for conservation of Gangetic Dolphin, the National Aquatic Animal leading to announcement of Project Dolphin. A comprehensive scientific program for fisheries resource and their conservation has been taken up in association with Central lnland Fisheries Research lnstitute (ClFRI).

(e) Sustainable Agriculture: NMCG promotes this through organic farming, eco agriculture and medicinal plantation. Organic farming corridor along Ganga has been proposed at the National Ganga Council meeting for sustainable development. Promotion of cultivation of medicinal plants has been taken up in 10 districts of UP. Ministry of Ayush and National Medicinal Plantation Board is supporting development of herbal corridor

along Ganga. lmproving water use efficiency in agriculture is aimed through awareness campaign, promoting micro-irrigation, policy interventions for cropping pattern etc.

(f) Small River Rejuvenation: A GIS based district wise inventory of small rivers is being created along with district level interventions with convergence with MGNREGA. Small rivers rejuvenation is key to Aviral and Nirmal Ganga.

People River Connect (Jan Ganga)

River Rejuvenation is a continuous process which needs involvement of the people. The people river connect needs to be established so that they feel the need to join these efforts and are committed to maintaining her splendour and cleanliness. Namami Gange mission accords prime importance to this and is taking several steps for making it a people's movement.

(a) Ghat and Crematoria-They play a crucial part in people's relation with river Ganga and hence attempt is made to improve amenities and sanitation. 138 Ghats and 38 Crematoria have already been constructed with River Front development at Patna and Haridwar, making them important public space.

(b) Jan Bhagidari-Community and stakeholder groups have been developed such as Ganga Vichar Manch, Ganga Praharis, NYK Ganga Doots, Ganga Mitras, Ganga Task Force with ex-serviceman, NCC, NSS etc. They undertake several activities continuously to connect

people.

(c) Ganga Amantran Abhiyan-This was largest social outreach program through adventure sports connecting people from Deoprayag to Ganga Sagar last year through 35-daylong rafting expedition. A similar successful expedition up to Patna from Haridwar was led by Mountaineer Bachendri Pal in 2018.

National cadet corps (NCC)

(d) NMCG regularly conducts several activities to connect youth and others such as 'Great Ganga Run', a marathon which was attended by around 20,000 PeoPle and regular Cleanathons on river banks.

(e) Ganga Quest: During lockdown, an innovative online national quiz on Ganga to connect schooUcollege students drew overwhelming response with 11.5 lakh participants. Ganga Utsavs, Ganga Bal Mela, Cultural programmes and other activities are organised suitably connecting different group of people.

(f) CIean Ganga Fund is another innovative step to create an avenue for people and corporates to donate and take up specific projects for this national cause.

Research, Policy and Knowledge Management (Gyan Ganga)

Mission has given priority to evidence based policy decisions and to get authentic data and information backed by scientific research. lt started

with a comprehensive basin management plan prepared by consortium of llTs followed by setting up of a Centre for Ganga Management and Studies (cGanga) at llT, Kanpur. Some of the initiatives are outlined.

(a) LIDAR Mapping-A landmark project with Survey of lndia is progressing for Generation of high-resolution DEM and GIS ready database for 10 kms on both sides of Ganga using LiDAR which will for the first time provide data on drainage, flood plains etc. This will enable better p roject form u lation, mon itori ng, regu lation a nd conservation.

(b) Microbial Diversity Mapping - NamamiGange in partnership with CSIR-NEERI is studying Water Quality and Sediment Analysis to understand the Special Property of Ganga River and also impact of human intervention on microbial diversitY.

(c) Cultural mapping of entire length of Ganga for natural, built and intangible heritage, taken up through INTACH, has the potential for protection of rich heritage and development of tourism and traditional livelihood opportunities.

(d) Climate Scenario Mapping-Partnering with llT, Delhito map out high resolution long term climate scenarios to improve understanding and scientifically estimate impact of climate change on water resources in the lndoGangetic Plain for basin-scale water resources management

(e) Spring Rejuvenation-Namami Gange is leading spring rejuvenation projects with llT, Roorkee and Survey of lndia to assess the impact of land use-land cover change or impact of natural or anthropogenic precipitation variability and mapping of sources of springs for taking up their rejuvenation. lt is likely to be base for a major program for Himalayan Spring Rejuvenation by NlTl Aayog.

(f) A project in collaboration with CGWB and National Geophysical Research lnstitute (NG Rl) for aquifer mapping has been started with focus on paleo-channels in parts of GangaYamuna doab in Kausambi-Kanpur stretch. This will help in planning for aquifer recharge with potential for increasing the flow of river Ganga during lean season'

(g) New Paradigm of Planning for River Cities - Project to mainstream river health in urban pla n n ing a nd develop f ra mework for lntegrated Urban Water Management (IUWM) has been initiated with National lnstitute of Urban affairs. lnnovative urban river management plan (URMP) framework is being developed with a temPlate for KanPur.

(h) Namami Gange is collaborating with different i nternationa l orga n isations li ke I ndia-E U water partnership and German collaboration for the technology and knowledge transfer for River Basin management, E-flow assessment and Policy for Reuse of treated wastewater.

(i) Arth Ganga- Namami Gange is now leading

to the development of Arth Ganga model linking economic development of Ganga Basin with ecological improvement and Ganga Rejuvenation.

The nature has capacity to rejuvenate itself if human interventions are controlled and the same was witnessed during the national lockdown period. The lesson to be learnt is that we need to have a better enforcement and also keep working for behavioural change as everything cannot be achieved by regulatory approach only. People's participation is key to transformation. Sustainable development increasingly depends upon successful management of urban growth and water resources' Ganga Rejuvenation is critical for implementation of 2030 agenda of Sustainable Development Goals (SDGs). Namami Gange has developed a framework for river rejuvenation which is now being followed for several rivers beyond Ganga basin'

Ganga is in the heart of millions who have been drawn to it since time immemorial. In essence, Ganga represents all rivers and several river streams are also named after Ganga. It has always been and will remain a great unifying force. Its rejuvenation requires the efforts of all and its rejuvenation is needed by all.