



अगर पुराने तौर-तरीके अपनाए जाते, तो आज भी हालत उतनी ही बुरी रहती। लेकिन हम नई सोच, नई अप्रोच के साथ आगे बढ़े। हमने नमामि गंगे मिशन को सिर्फ गंगा जी की साफ-सफाई तक ही सीमित नहीं रखा, बल्कि इसे देश का सबसे बड़ा और विस्तृत नदी संरक्षण कार्यक्रम बनाया

श्री नरेंद्र मोदी, प्रधानमंत्री

माननीय प्रधानमंत्री द्वारा नमामि गंगे परियोजनाओं का लोकार्पण एवं शिलान्यास



15 सितंबर 2020, पटना, बिहार



29 सितंबर 2020, उत्तराखंड



सत्यमेव जयते

राष्ट्रीय स्वच्छ गंगा मिशन

जल संसाधन, नदी विकास एवं गंगा संरक्षण विभाग
जल शक्ति मंत्रालय, भारत सरकार

18वें अंक पर प्रतिक्रियाएँ

नमामि गंगे द्वारा प्रकाशित पत्रिका का 18वाँ संस्करण मुझे प्राप्त हुआ, देखकर काफी खुशी हुई। नेहरू युवा केंद्र, बक्सर के माध्यम से नमामि गंगे परियोजना के तहत चलाये जा रहे सभी गतिविधियों को पत्रिका में पाया, इससे अविरल गंगा हेतु निःस्वार्थ भाव से कार्य कर रहे गंगादूतों के क्रियाकलापों में और तेजी आयेगी एवं वो और उत्साह के साथ कार्य करेंगे।

शैलेश कुमार राय
जिला परियोजना अधिकारी
नमामि गंगे, बक्सर

नमामि गंगे पत्रिका के माध्यम से मंत्रालय और गंगा सहयोगियों द्वारा किए जा रहे सकारात्मक प्रयासों को देखकर प्रसन्नता होती है साथ ही प्रेरणा भी मिलती है। पत्रिका का प्रत्येक अंक पढ़कर हम सभी गंगा सेवकों को और अच्छा करने की ऊर्जा प्राप्त होती है। संपादक समिति का बहुत सुंदर और अदभुत प्रयास है।

डा. संजय सिंह
जिला संयोजक, गंगा विचार मंच
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संपादकीय मंडल

राजीव रंजन मिश्रा,
महानिदेशक, राष्ट्रीय स्वच्छ गंगा मिशन
मुख्य संपादक

रोजी अग्रवाल,
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वरिष्ठ संपादक

बिनोद कुमार
निदेशक (परियोजना)
सह संपादक

संजम चीमा
मीडिया समन्वयक

प्रतिमा मारवा
डिजाइन विकास विशेषज्ञ

पीयूष गुप्ता
डिजाइन विकास विशेषज्ञ

अथर्व राज
संकलन एवं समन्वयक

मेलविन लाकरा
परियोजना समन्वयक

कृतिका मदान
रचनात्मक समन्वयक,
सोशल मीडिया

राजेश कुमार
डिजाइन विकास विशेषज्ञ

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प्रिय पाठको,

नमामि गंगे कार्यक्रम के अंतर्गत गंगा नदी के संरक्षण एवं पुनरुद्धार के लिए विभिन्न परियोजनाओं को समयबद्ध तरीके से क्रियान्वित किया जा रहा है।

मुझे यह बताते हुए अत्यंत खुशी एवं अत्यंत संतुष्टि है कि माननीय प्रधानमंत्री ने 15 सितंबर, 2020 को बिहार में और 29 सितंबर, 2020 को उत्तराखंड में कई परियोजनाओं का लोकार्पण एवं कुछ का शिलान्यास भी रखा है। यह हमारे लिए और भी खुशी और गर्व की बात है कि इससे पहले बिहार की इन्हीं दो परियोजनाओं का शिलान्यास माननीय प्रधानमंत्री ने 2017 में किया था और उन्हीं के करकमलों द्वारा इन परियोजनाओं का लोकार्पण भी हुआ। जो परियोजनाएं पहले अमूमन 6 से 7 वर्ष में पूर्ण होती थी अब ये परियोजनाएं 2 से 3 सालों में ही पूर्ण हो रही हैं। राष्ट्रीय स्वच्छ गंगा मिशन इसी गति से गंगा संरक्षण की परियोजनाओं को पूर्ण करने में पुरजोर तरीके से लगा हुआ है और जिसका असर भी गंगा सफाई, गंगा के पानी की गुणवत्ता और गंगा से जुड़े क्षेत्रों में बदलाव के रूप में दिखाई दे रहा है। उत्तराखंड पर अधिक बल देने की आवश्यकता है जहाँ के गंगा शहरों पर सभी बड़ी परियोजनाओं का लोकार्पण हो चुका है। उत्तराखंड में अब गंगा अवरिल एवं निर्मल हो रही है।

माननीय प्रधानमंत्री ने नमामि गंगे परियोजनाओं के लोकार्पण एवं शिलान्यास के दौरान नमामि गंगे द्वारा किए जा रहे गंगा पुनरुद्धार के कार्यों का उल्लेख करते हुए कहा कि इन परियोजनाओं से गंगा किनारे बसे करोड़ों लोगों को इसका फायदा पहुंचेगा। माननीय प्रधानमंत्री ने यह भी कहा है कि यह कार्यक्रम व्यापक स्तर पर किया जा रहा है और इसके अच्छे परिणाम दिखाई दे रहे हैं। माननीय प्रधानमंत्री के यह आशीर्वाचन न सिर्फ हमारे लिए गर्व का प्रतीक है अपितु हमें दृढ़ विश्वास से कार्य करने के लिए और भी ज्यादा प्रेरित करते हैं।

जैसा कि हमने पिछले अंकों में भी कहा था कि सरकारी परियोजनाओं के साथ-साथ जन-जन का गंगा सफाई के अभियान से जुड़ना बेहद आवश्यक है ताकि आम जनता गंगा के महत्व को समझे और उसकी सफाई तथा शुद्धिकरण के लिए भी अपनी भागीदारी सुनिश्चित करें। हमें इस बात की भी खुशी है कि हमारे साथ न सिर्फ भारत सरकार के विभिन्न मंत्रालय एवं विभाग बल्कि राज्य सरकारों, गैर सरकारी संस्थाएं एवं विभिन्न प्रकार के अनुष्ठान हमारे साथ जुड़ रहे हैं और आम जनमानस तक पहुंचने में हमारी मदद कर रहे हैं। इन प्रयासों की वजह से गंगा के प्रति और गंगा की सफाई के प्रयासों के सकारात्मक प्रभाव दिखाई दे रहे हैं। जहां पहले आम लोग गंगा की सफाई में कुछ भी होने की ओर नकारात्मक दृष्टिकोण रखते थे वहीं अब लोग इस बात को मानने लगे हैं कि गंगा सफाई के अच्छे कदम उठाए जा रहे हैं। यही नहीं अब आम जन खासकर स्कूली बच्चे एवं युवा गंगा सफाई अभियान में अपनी भागीदारी निभा रहे हैं। हमारे अन्य सहयोगी जैसे नेहरू युवा केंद्र संगठन, भारतीय वन्य जीव संस्थान, बनारस हिंदू यूनिवर्सिटी के गंगा मित्र, गंगा विचार मंच के कार्यकर्ता इस मुहिम को जन आंदोलन

बनाने में हमारा भरपूर सहयोग कर रहे हैं। मैं इन सभी संस्थाओं को धन्यवाद देना चाहूंगा कि वे ऐसे ही इस जंग में हमारा साथ निभाते रहें। मैं आप सभी पाठकों एवं जन-जन को भी नमन करता हूँ कि जो हमारे साथ इस नेक कार्य में आगे आकर हमारा सहयोग कर रहे हैं।

बदलाव का एक पहलू यह भी है कि राज्य सरकार एवं राज्य सरकारों के महकमें भी अब हमारे साथ पुरजोर तरीके से जुड़े हुए हैं और हमारे साथ कदम से कदम मिलाकर गंगा सफाई की परियोजनाओं के क्रियान्वयन में लगे हुए हैं। गंगा किनारे के जिलों में बहुत अच्छे कार्य हो रहे हैं। इन कार्यों में विशेष रूप से छोटी नदियों और तालाबों के संरक्षण के कार्य, वनीकरण के कार्य और खासकर जन-जागरण अभियान चलाने के लिए जिलाधिकारियों द्वारा कार्यों का विशेष उल्लेख करना चाहूंगा। यह और भी हर्ष की बात है कि जिलों में गंगा के प्रति संजीदगी दिखाई दे रही है और वे स्वयं ही गंगा से जुड़े कई पहलुओं को अपने स्तर पर क्रियान्वित कर रहे हैं। मुझे आशा है कि केंद्र और राज्य सरकार के विभाग एवं महकमें सुनियोजित तरीके से कार्य करते रहेंगे और गंगा सफाई और उसके संरक्षण के नए मानक स्थापित करेंगे।

हम गंगा सफाई के विभिन्न पहलुओं पर भी कार्य कर रहे हैं जिसके चलते हम व्यापक रूप से गंगा में मछली के संरक्षण एवं उत्पादन की परियोजनाओं को क्रियान्वित कर रहे हैं और साथ ही साथ हम गंगा की ऐतिहासिक धरोहर को संजोने में लगे हुए हैं और गंगा पर स्थित पर्यटक स्थलों को बढ़ावा देने के कार्य भी लगातार कर रहे हैं। आप सब को यह जानकर खुशी होगी कि गंगा किनारे कई नामी-गिरामी कवियों ने न सिर्फ जन्म लिया बल्कि उनकी रचनाओं में गंगा प्रेरणा की स्रोत रही है। हम इन्हीं विशिष्ट कवियों को आपके सामने लाना चाहेंगे जिनका गंगा, जमुना, सरस्वती संस्कृति को बढ़ावा देने में विशेष हाथ रहा है।

जैसा कि आप सबको ज्ञात है कि हमारा देश अभी कोरोना महामारी से जूझ रहा है और इसलिए यह जरूरी है कि हम सब मिलकर इस महामारी से स्वयं और अपने आस-पास के लोगों को बचाए और भारत सरकार द्वारा जारी किए गए सुरक्षा संबंधी नियमों को निरंतर अपनाए जैसे कि मास्क लगाना, 2 गज की दूरी रखना, हाथ समय-समय पर धोते रहना आदि शामिल है। हमारी भी यह कोशिश रही है कि हम जो भी कार्य कर रहे हैं उनमें कोरोना महामारी से बचने के सभी उपाय किए जाएं और समय-समय पर यह चेतावनी हम अपने सहभागियों को भी देते रहते हैं।

आइए हम सब मिलकर कोरोना महामारी को अपने से दूर रखने के लिए वचनबद्ध हों और हरएक को सुरक्षित रखें।

जय हिन्द!

राजीव रंजन मिश्रा

महानिदेशक

राष्ट्रीय स्वच्छ गंगा मिशन

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The Empowered Task Force (ETF) has been set up for Ganga Rejuvenation by River Ganga Authorities order dated 7th October, 2016 which mandates the ETF to coordinate and advice on matters relating to rejuvenation, protection and management of river Ganga and its tributaries. The Empowered Task Force has emerged as a key authority for coordinating actions between various Ministries and Departments of Government of India as well as State Governments for focused action on matters relating to Ganga rejuvenation. The ETF is chaired by the Hon'ble Jal Shakti Minister with Hon'ble Minister of State of Jal Shakti as Vice-Chairman apart from Secretaries of various other Ministries and Chief Secretaries of State Governments.

The 6th meeting of Empowered Task Force was held on 25th September, 2020 under the chairmanship of Shri Gajendra Singh Shekhawat, Hon'ble Jal Shakti Minister and was attended by Shri Rattan Lal Kataria, Hon'ble Minister of State for Jal Shakti, Shri U.P. Singh, Secretary, Jal Shakti Ministry and Shri Rajiv Ranjan Mishra, DG, NMCG. The meeting was also attended by Additional Secretaries and Joint Secretaries from important ministries like Ministry of Agriculture & Farmers Welfare, Ministry of Environment, Forest & Climate Change, Ministry of Housing & Urban Affairs, Ministry of Culture, Ministry of Tourism, Ministry of Rural Development, Ministry of Power, Ministry of Science and Technology and NITI Ayog. This meeting was also well attended by senior officers from State Governments as well as by the Project Directors of State Missions for Clean Ganga. The Empowered Task Force took stock of the achievements which have been made on various important issues since its last meeting held in February, 2020 (see box for outcomes pioneered by ETF).

The ETF took up various important issues which are required to be addressed by line Ministries of Government of India as well as by the State Governments Authorities in Ganga belt. It was reinforced that all Ministries and Departments will form a Ganga Cell and will hold regular meetings of subjects relating to Ganga within their domain. Discussions were also held on solid and liquid waste management in Ganga villages, organic farming and micro irrigation in Ganga Grams for improving water use efficiency, afforestation along Ganga by State Governments through CAMPA funds, taking up conservation of Dolphin in mission mode, conservation of wetland and water bodies, development of Ganga Tourism Circuits and dedicated Ganga galleries in Museum, reuse of treated water in thermal power plants, convergence of activities under MNREGA for Ganga rejuvenation work and using suitable technology for river rejuvenation. The State Governments were also asked for taking up focused action on expediting execution of projects under Namami Gange and to develop plans for rejuvenation of smaller

ivers and issue polices for reuse of treated waste water. The Empowered Task Force also took up discussion on status of Arth Ganga concept and was informed that the concept plan on Arth Ganga has been developed and a Group has been setup under the Chairmanship of VC, NITI Ayog for developing sustainable economic model under Arth Ganga. The ETF was also apprised that a consortium of IIM and IITs has been roped in to develop a model framework and implementation plan for Arth Ganga. The State Governments have also been asked to give their inputs on development of Arth Ganga. The Arth Ganga Model seeks to take up sectoral interventions for sustainable agriculture, afforestation, biodiversity conservation promotion of tourism, developing Inland Waterways on Ganga, promotion of clean energy for sustainable livelihood and rejuvenation of water bodies and small river in the Ganga basin. The ETF was also apprised that various Ministries like Ministry of Agriculture and Farmers Welfare, Inland Waterways, Ministry of Culture & Tourism have begun interventions towards promoting sustainable livelihood across Ganga belt under Arth Ganga concept.

Speaking at the 6th meeting of ETF, Shri Gajendra Singh Shekhawat, Hon'ble Jal Shakti Minister impressed upon all Ministries and Departments of Government of India as well as the State Governments to work in mission mode to take forward the work done in the previous years. The Hon'ble Minister also mentioned that there is change in narrative as the overall perception towards efforts for Ganga rejuvenation are changing and importantly a people-river connect is emerging at various levels. The Hon'ble Minister also reminded everyone to be mindful of the gaps which are still there and there was a need for NMCG, the line Ministries and the State Governments to work in a synthesized manner to scale up the efforts and implementation of projects on the ground.

OUTCOMES PIONEERED BY THE EMPOWERED TASK FORCE

- Organic farming sanctioned for Uttarakhand and Uttar Pradesh
- Ganga Nurseries sanctioned in Uttar Pradesh
- Project Dolphin sanctioned for conservation of Gangetic Dolphins
- Project for promotion of Fisheries in Ganga belt
- Namami Gange category included in PMs Award for Excellence in Public Administration
- Development of Dashboard for monitoring of Projects
- Identification of Archeological sites, natural locations and other locations for promotion of Tourism on Ganga



Shri Gajendra Singh Shekhawat, Hon'ble Jal Shakti Minister chairing the 6th Empowered Task Force Meeting

The World Rivers Day is celebrated on the last Sunday of September every year to draw attention towards the rivers and to keep the rivers clean and healthy. This year the World Rivers Day was celebrated on September, 27th and amidst growing focus and the importance, which rivers are now getting across the world.

Namami Gange celebrated the World Rivers Day by lauding Districts along the Ganga for exemplary work being done by them for rejuvenation of rivers especially small rivers and other water bodies in the Ganga basin. The theme for this year was *'Day for action for Rivers'*.

On this occasion, National Mission for Clean Ganga launched a series of Webinars to be held with District Magistrates giving them an opportunity to showcase their work on rejuvenation of rivers and water bodies in their areas. In the first addition of this series, six districts along Ganga namely - Tehri Garhwal (Uttarakhand), Kasganj (Uttar Pradesh), Farrukhabad (Uttar Pradesh), Mirzapur (Uttar Pradesh), and Vaishali (Bihar) made presentation on the efforts being made for Ganga rejuvenation specially focusing on the work done for rejuvenation of small rivers and water bodies in their districts. It was heartening to note that the District Magistrate are taking personal interest in reviving small rivers, making them green through plantation activities and also developing them as center for promoting tourism. Side by side wetlands, ponds and lakes are also being rejuvenated for protection of environment and ecology. The District Magistrates also highlighted the convergence of various schemes of Central and State Government like MNREGA and others for taking up rejuvenation of small rivers and other

water bodies. More importantly, the District Magistrates also brought out the efforts being made by them to connect general public and communities with these efforts enabling community ownership of such efforts in the region. During the webinar, a brief film also shown on the plantation of around 3600 Rudraksh plants in Uttarakhand taken up jointly by NMCG, INTACH and HCL foundation as a CSR project aimed at conservation of ecology.

Shri Rajiv Ranjan Mishra, DG NMCG said that "if we see the map of small rivers, it looks like network arteries & veins. Hence, for the overall health of ecology, it is extremely important to revive smaller rivers, as rivers are not only water but a complete system which included biodiversity, sediments, spiritual and cultural aspects." The Webinar was also joined by Shri Manu Bhatnagar, Principal Director, INTACH who talked about basin hydrology and water budgeting, e-flows and the impact of small rivers in the entire Ganga basin. Shri Suresh Babu, Director River Basin & Water Policy, WWF appreciated the districts for the work being done particularly on Budhi Ganga and called for a collaborative action for reviving this river which flows across four districts in Uttar Pradesh. The event was concluded by Shri Rozy Agarwal, Executive Director (Finance), NMCG assuring to provide all possible support to the districts including special technical assistance in rejuvenation of small rivers and water bodies.

Earlier, Shri Gajendra Singh Shekhawat, Hon'ble Jal Shakti Minister, released a 'Guide to Preparing River Basin Management Plans for Medium and Minor rivers' compiled by INTACH.



Hon'ble Jal Shakti Minister releasing the guide of INTACH



DG-NMCG chairing the webinar

Rivers and water bodies under rejuvenation in Ganga Basin

- Rejuvenation of Heval River – Tehri Garhwal in Uttarakhand
- Revival of Budhi Ganga – Kasganj and Farrukhabad Districts in UP
- Restoration of Gokhur Wetland and Dariyav ganj Lake – Kasganj, UP
- Rejuvenation of Ban River – Amroha, UP
- Revival of Kuthla Lake – Farrukhabad, UP
- Rejuvenation of Karnavati River – Mirzapur, UP



Participation by District Magistrates

INTRODUCTION:

The District Ganga Committee, Chamoli, headed by Mrs. Swati S. Bhadauria, DM and comprising of Shri Ashutosh Singh, DFO, Chamoli have pioneered exemplary work in rejuvenation of small rivers and water bodies. In the district of Chamoli, Mothugad is a rain-fed river unlike most other streams which are glacial-fed. It flows through the valley of Gairsain which is most water-scarce block. It assumed even more significance since it was declared the Summer Capital of Uttarakhand, thus leading to higher population pressure in the coming times and hence a more stark water shortage.

Over the last year, several works have been taken to revive the river. Based on a scientific study, 12 recharge zones have been marked and plantation, water conservation works are being carried out. The water conservation efforts taken up include digging of infiltration holes, infiltration trenches, bio-percolation barriers, infiltration tanks, checkwalls and ponds, besides taking up plantation works on a large scale.

Mothugad rejuvenation project is based on geographically identifying recharge zones and geo-tagging all works (plantation, water conservation) using latest GIS technology.

Such innovation in implementation of the project has also made the project highly replicable. The project was planned on the basis of community-based participatory approach to turn it into a community movement by making them stakeholders in the project. The benefits of the project include an increase in the plantation cover and water holding capacity and an increased awareness towards water conservation activities in the communities involved.

Due to developmental activities, deforestation and a reducing rainfall pattern, the perennial river Mothugad turned into seasonal as water discharge flow fell. Thus, this project was started with the vision to rejuvenate river Mothugad. The project has also resulted into an increase in plantation cover, water holding capacity of forests and rural barren land and reduction in soil erosion due to slowing down of rain water run-off from steep slopes. With the community involvement, it has turned into a movement as it has created awareness about sustainable practices, environmentally friendly activities and the importance of rainwater-harvesting water conservation structures. A common theme across the region has strengthened the community networks.

PLANNING AND IMPLEMENTATION OF THE PROJECT

A detailed scientific feasibility study was conducted in partnership with Prof JS Rawat, Head of Department, GIS Cell, Kumaun University and Chairperson of National Geospatial Data Management Centre. The flow pattern of the river was studied by a team over a period of time and the permeability of the internal rock structure so that area where intervention needs to be made could be identified. A detailed work plan was then drawn on the basis of this study. The drainage area was divided into 12 recharge zones. The works to be done were mapped on Geographical Information System (GIS) maps with proper latitude and longitude readings.



Fig: GIS- Map of the Mothugad River Catchment

Stream ordering - The stream ordering map depicts that the Mothugad is a fourth order stream which has 376 first order, 93 second order, 20 third order, 3 fourth order streams.

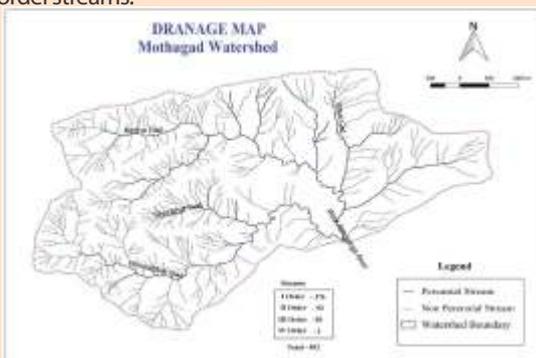


Fig: Drainage Map of Mothugad Watershed

Stream Order	No. of Streams	Present Drainage Type
First	376	Ephemeral
Second	93	Ephemeral
Third	20	Intermittent
Fourth	3	Perennial in dying state

GEOGRAPHIC INFORMATION OF THE MOTHUGAD RIVER

In each recharge zone, the works were classified as:

- (i) Tree Plantation Activities
- (ii) Infiltration holes
- (iii) Check dams
- (iv) Infiltration Trenches
- (v) Chal-Khal
- (vi) Bio Percolation Barriers

Thus, a clear plan was formulated on the activity to be taken up and the area where it was to be carried out, with the GIS map for the same. Depending on whether the activity to be undertaken was in revenue or in forest area, MNREGA and CAMPA funds were utilised for implementation purposes, respectively. The core team was then identified and there were Nodal Officers designated for each recharge zone for implementation.

The works to be taken up were standardised for maximum results, wherever possible scientifically, by a group of experts. For infiltration trenches, the maximum length and breadth was standardised as well as the distance between them. Thus, standard site specific works were planned and taken up for optimum results.

Following were the steps followed for this socio-technical project:

Step 1: Training of the GIS Team as well as the Field Teams.

Step 2: Conduct of Survey and Field Visits by Field Teams.

Step 3: Preparation of GIS Map of each of the recharge zones.

Step 4: Planning the interventions on the basis of geomorphological and geospatial studies, also involving community in the process.

Step 5: Plotting the planned interventions on GIS Maps of the Recharge Zones.

Step 6: Preparation of Model Estimates of the planned activities so as to have uniformity all across and also to reduce efforts needed for preparation of similar estimates again and again.

Step 7: Implementation of the planned activities on the ground.

Step 8: Geo-tagging all the works done so that cross-checking with the planned GIS Maps can be done.

Plotting of Treatment Measures on the GIS Map of the Chorarakhal Zone:

To involve people and encourage community participation, each of the 12 recharge zones were handed over to a department. Each of the plantation area was bounded by barbed wires to prevent them from grazing crops, which was then handed over to the Gram Panchayats, Village Management Committees of schools, NGOs and other institutions for increasing community ownership of the programme and ensure that the programme turns into a self-sustained community movement.

School-children and community were actively engaged in tree plantation activity, where planted saplings were adopted by them. They were made responsible for watering and ensuring their well-being.

Works done:

The following number of structures has been made to hold rainwater and recharge ground water table:

Infiltration Trenches: 96,057 (metres.)

Infiltration Holes: 56,280 (No.)

Chal-Khal: 3510 (No.)

Check dams: 728 (No.)

Plantation: 177000 (No.)

Bio Percolation Barriers: 305 (No.)

Outcomes of the Project:

River Mothugad Rejuvenation Project has also been successful on the following dimensions:

1. Sustainability:

The water harvesting structures created are easy to construct as the villagers already have an expertise in executing these works and the ownership of the assets lies with the community itself. Once the structure fills up, it can be cleaned up easily, thus, making the assets created under the project long-lasting and highly sustainable. Further, the high community involvement in planning and implementation has made the project itself self-sustaining.

2. Cost-effectiveness:

The programme utilises already available funds from MNREGA and CAMPA, which are readily available in all the districts. Hence, no extra funds are required by the districts for implementation of the initiative, making it cost-effective.

3. Transparency:

GIS mapping and tracking has been taken up for all the plantation sites with their latitudes and longitudes including the pictures of each plantation site at the inception and post-implementation. Thus, complete transparency in the implementation has been ensured.

4. Accountability:

The work plan for the village is made in partnership with the villagers themselves, in an open meeting. It makes them accountable for works that they themselves want to take up. Post-implementation, these works undergo through rigorous social and financial audits conducted by a group of expert teams.

5. Scalability and Replicability:

Since, the project consists of works which can be implemented in any area, it is highly scalable. The technologies like geo-tagging and drone monitoring are readily available and hence the project is highly scalable and replicable.



Community Involvement in planning and implementation



Infiltration holes, infiltration trenches, bio-check dams and ponds built for water recharging have been mapped on GIS with the site latitude and longitude



भारत का उच्चायोग लंदन
High Commission of India
London, United Kingdom



Centre for Ganga River Basin Management and Studies
Indian Institute of Technology, Kanpur



Recent collaboration between India and Britain for joint development of the water sector marks the start of a new dimension between the two nations. British Water, which is the UK's leading industry body for water recently signed a collaboration agreement with the Centre for Ganga River Basin Management and Studies, or cGanga, that is a think tank under the Ministry of Jal Shakti and a knowledge partner to the National Mission for Clean Ganga.

A virtual event was held on 22nd September 2020 as part of India-UK Water Partnership which was joined by top decision makers in the Government of India, High Commission of India in UK, experts on Water from UK, Technology Partners and Investors from India and UK. The Agenda of the virtual meet included India-UK collaboration to build better water infrastructure, India's vision towards water security, Opportunities in India Water Sector and River Basin Management, Leveraging UK expertise for development of India's water sector and a dialogue with Investors and Business leaders. The meet was organised jointly by British Water and cGanga.

Speaking at a virtual event, the Secretary of Ministry of Jal Shakti, Mr. U.P Singh gave highlights of the three flagship programmes related to water sector, namely Namami Gange, Jal Jeevan Mission and Swachh Bharat Programme. He added that the learnings from Namami Gange Programme are now being applied for other river basins by various states. Success of Swachh Bharat Programme is globally acknowledged and in Jal Jeevan Mission we have already achieved substantially by accessing the low hanging fruits, though the challenges are enormous for taking it to the last mile.

The Indian High Commissioner to the UK, H.E. Gaitri Issar Kumar witnessed the exchange of the agreement by Dr. Vinod Tare, Founding Head of cGanga and Lila Thompson, Chief Executive of British Water. The High Commissioner highlighted that out of 23 companies selected so far in Namami Gange's Environment Technology Verification (ETV) process, 11 are from the UK. She pointed out that whilst UK is known for its science, research and finance, there is also ample technological innovation taking place that can be of mutual benefit to both nations. The Indian High Commissioner to the UK, H.E. Gaitri Issar Kumar said that India is looking forward to launching an exhibition on water and Namami Gange that will travel across the UK in 2021 and end at the COP 26 meeting in Glasgow. She also put focus on how contemporary water infrastructure requires international collaboration and the new environment technology verification method was introduced to streamline and accelerate the inculcation of new technologies into the Indian water sector.

The partnership comes at a unique time when Britain is trying to find new trading partners around the world. UK's financial services industry has a lot to offer to India's quest for sustainable development. Mr. Alex Imseeh, of London Stock Exchange said that the capital markets of London are deep and liquid and can

provide ample liquidity for India's infrastructure growth. UK can help India develop many cutting edge instruments such as Water bonds, credit enhancement instruments and specialist insurance which will all be very useful for the hundreds of billions needed in the construction of India's water sector, said Ben Crackett, Head of Global Export and Investment, City of London Corporation.

The two signatories of the collaboration agreement, Dr. Vinod Tare and Lila Thompson emphasized the need for bringing circular economy principles into the water sector which are not just needed in India but are necessary for developing as well as developed countries.

Over 100 business leaders from both nations participated in the session that culminated with a business leaders' dialogue with Mr. Rajiv Ranjan Mishra, Director General of the National Mission for Clean Ganga. The CEOs present in the session highlighted the need for bringing more capital into the water sector in India and using cutting edge technologies such as Artificial Intelligence to help policy makers make better decisions.

Responding to their concerns, Mr. Rajiv Ranjan Mishra, Director General NMCG said that India's partnership with the UK will bring significant benefits including Technological know-how and capital. He mentioned that there have been a number of dialogues between the two nations to develop financial vehicles such as Ganga bonds, specialist technology demonstration funds and most importantly project finance pools. He reinforced the point that river rejuvenation is not just the cleaning of the river but is a more holistic process that involves multiple stakeholders. He stressed the importance of open dialogues with relevant industries to create sustainable policies. Mr. Rajiv Ranjan Mishra, Director General NMCG summed up by adding that even though the signing of the MoU is a great start for this partnership, we need to quickly move on to establishing set goals with defined timelines so that real change can be affected.



Glimpses from the Indo-UK Forum Webinar

प्रोजेक्ट डॉल्फिन

अब “गंगा के बाघों” को बचाने की बारी

भारतीय संस्कृति में जैसी गंगा की महत्ता है, कमोबेश इस पवित्र नदी के लिए डॉल्फिन का भी वही स्थान है। भारत की नदी डॉल्फिनों को गंगा से ही गांगेय नाम मिला है। इस करिश्माई मेगाफोना का उल्लेख बाल्मिकि रामायण (शिशुमार) सहित अनेक धार्मिक साहित्यों व ऐतिहासिक प्रलेखों में मिलता है। सम्राट अशोक के पांचवें स्तंभ लेख में इस का उल्लेख उन जीवों में है जिसकी रक्षा करनी चाहिए। हालांकि एक बड़ी आबादी आज भी नदी में डॉल्फिन के होने के बारे में नहीं जानती, ज्यादातर लोग यह मानते हैं कि मनुष्य की अच्छी दोस्त यह केवल महासागरों में पाई जाती है। इस स्वतंत्रता दिवस पर माननीय प्रधानमंत्री जी द्वारा “प्रोजेक्ट डॉल्फिन” की घोषणा के बाद आम लोगों की दिलचस्पी इस ओर बढ़ी है। माननीय प्रधानमंत्री ने 15 सितंबर, 2020 को पटना में नमामि गंगे कार्यक्रम की परियोजनाओं का शिलान्यास एवं लोकार्पण करते हुए इस बात को दोहराया कि प्रोजेक्ट डॉल्फिन से बिहार प्रदेश में डॉल्फिन के संरक्षण से बहुत लाभ होगा। नदी डॉल्फिन संरक्षण की मुहिम को इससे बल मिलेगा। जनभागीदारी के बिना वैश्विक स्तर पर लुप्तप्राय की श्रेणी में सूचीबद्ध इस सुंदर प्रजाति की संख्या में अपेक्षित वृद्धि नहीं की जा सकती।

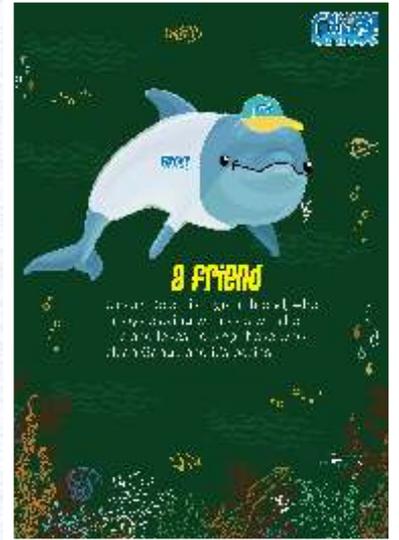
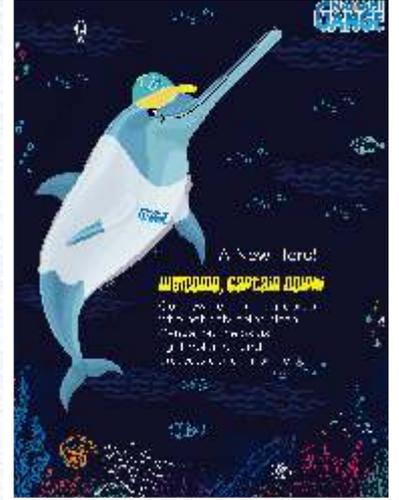
नदी की आहार श्रृंखला में शीर्ष स्थान पर होने की वजह से गांगेय डॉल्फिन को गंगा का बाघ कहा जाता है और यह एक नीतिगत संयोग है कि इनके संरक्षण में भी बाघों को बचाने के तरीकों का इस्तेमाल किया जा रहा है। कंजर्वेशन अश्वोर्ड टाइगर स्टैंडर्ड के मानकों में बाघों का इलाका और उनकी सुरक्षा सर्वाधिक महत्वपूर्ण पहलू होते हैं। नदी डॉल्फिन के बचाव में इन दोनों मानकों के समान ही नीतियां विकसित की जा रही हैं। गंगा और उसकी सहायक नदियों रामगंगा, यमुना, गोमती, घाघरा, राप्ती, सोन, गंडक और कोसी में इनकी बहुलता है। नमामि गंगे परियोजना के अंतर्गत प्रदूषण कम करने के उपायों, आर्द्र भूमि के बचाव और जल प्रवाह बेहतर करने की कोशिशों से गांगेय डॉल्फिनों की आबादी को उपयुक्त पर्यावास मिला है। आज भारत में इनकी संख्या तीन हजार से अधिक होने का अनुमान है, जिनमें से 80 फीसदी से अधिक गंगा और उसकी सहायक नदियों में पाई जाती हैं। इनकी संख्या में बढ़ोतरी गंगा की निर्मलता और अविरलता के अभियान को स्थायी परिणाम तक ले जाएगी।

राष्ट्रीय गंगा नदी बेसिन प्राधिकरण की 5 अक्टूबर 2009 की बैठक में गांगेय डॉल्फिन को राष्ट्रीय जलीय जीव घोषित किया जाना इनके संरक्षण की दिशा में एक बड़ा रणनीतिक कदम था। इसके बाद प्रो. आर के सिन्हा की अध्यक्षता में पर्यावरण एवं वन मंत्रालय की तीन सदस्यीय समिति ने नवंबर 2010 में डॉल्फिन एक्शन प्लान बनाया, जिसके सामने आ रही चुनौतियों को हल करने के लिए राष्ट्रीय स्वच्छ गंगा मिशन और डब्ल्यूडब्ल्यूएफ ने मिलकर एक रोडमैप तैयार किया। इसमें छोटी, मध्यम और बड़ी अवधि की योजनाएं शामिल थीं।

प्रधानमंत्री की अध्यक्षता में वर्ष 2019 में हुई राष्ट्रीय गंगा समिति की बैठक में गांगेय डॉल्फिन के संरक्षण को ध्यान में रखते हुए राष्ट्रीय परियोजना बनाने पर सहमति व्यक्त की गई थी। इसमें दोहराया गया कि प्रोजेक्ट टाइगर की तरह ही लागू किए जाने पर प्रोजेक्ट डॉल्फिन भी लुप्त हो रही प्रजातियों के संरक्षण और संवर्धन के लिए आदर्श बन सकता है।

नमामि गंगे के तहत डॉल्फिन संरक्षण के प्रयासों में प्रोजेक्ट टाइगर की सफलता का प्रभाव है। इस कवायद में स्वच्छ गंगा मिशन ने राज्य सरकारों, विशेषज्ञों, गैर सरकारी संगठनों और स्थानीय लोगों से बेहतर तालमेल बनाने में सफलता पाई है। इसमें सेंट्रल इनलैंड फिशरिज रिसर्च इंस्टीट्यूट के साथ मछुआरों को शिक्षित-प्रशिक्षित करना परिणामदायी साबित हुआ है। मछुआरे अक्सर अनजाने में या कई बार प्रयोजन से डॉल्फिन को नुकसान पहुंचाते हैं।

योजनानुसार स्थानीय समुदायों के बीच जागरूकता बढ़ाने के लिए सेंटर फॉर एनवायरमेंटल एजुकेशन के माध्यम से एक व्यापक कार्यक्रम शुरू किया गया। इससे आम लोगों को प्रेरित करने में सफलता मिली। गांगेय डॉल्फिन की आबादी की स्थिति पर निगरानी रखने के लिए वर्ष 2016 में भारतीय वन्य जीवन संस्थान देहरादून के साथ एक परियोजना की शुरुआत की गई और राज्यों में पुनर्वास केंद्र स्थापित किए गए। इसी प्रकार स्थानीय समुदायों को संरक्षण प्रयासों में भागीदार बनाने के ध्येय से व्याख्या केंद्र बनाकर प्रशिक्षित गंगा प्रहरियों को नियुक्त किया गया। वहीं एटीआरईई, पटना यूनिवर्सिटी, टर्टल सर्वाइवल अलायंस, वर्ल्ड वाइड फंड फॉर नेचर, विक्रमशिला यूनिवर्सिटी, जूलॉजिकल सर्वे ऑफ इंडिया जैसे संस्थानों के साथ-साथ राज्य वन विभाग आदि की मदद से संरक्षण कार्यक्रम को विस्तार दिया जा रहा है। वर्ष 2012 और 2015 के दौरान उत्तर प्रदेश वन विभाग ने डब्ल्यूडब्ल्यूएफ-इंडिया के साथ राज्य की सभी नदियों में डॉल्फिन की गणना के लिए ‘गंगा डॉल्फिन अभियान’ के तहत 3,300 किमी से अधिक के क्षेत्र की पड़ताल की थी। जनजागरूकता की इस कड़ी में पिछले वर्ष 5 अक्टूबर को डब्ल्यूआईआई और डब्ल्यूडब्ल्यूएफ की सहभागिता से गांगेय डॉल्फिन दिवस मनाया गया और वर्ष 2030 तक गांगेय डॉल्फिन की संख्या में स्थिरता और बढ़ोतरी का चार्टर विकसित करने विशेषज्ञों का एक सम्मेलन आयोजित किया गया। इसके अलावा गंगा डॉल्फिन, हाइड्रोलॉजी, ईकोलॉजी, जल गुणवत्ता आदि के विशेषज्ञों व राज्य के वन विभागों, राज्य स्तरीय स्वच्छ गंगा मिशन की इकाइयों, गैर सरकारी संगठनों, स्थानीय समुदायों, गंगा प्रहरियों एवं मित्रों और अलग-अलग एजेंसियों का एक फोरम भी संचालित किया जा रहा है। इन प्रयासों से निश्चित ही गंगा डॉल्फिन की संरक्षण में मदद मिलेगी।



गंगा डॉल्फिन के नजारे

National Mission for Clean Ganga is closely associating with the Corporates and Private sector entities to engage them in Namami Gange Program under the Corporate Social Responsibility (CSR) mandate. A number of Corporates have shown their keen interest in supporting/funding projects for Ganga rejuvenation. Indo Rama Charitable Trust, an arm of Indo Rama group of Companies based in Indonesia has come forward to partner with NMCG for development of Ghats and Crematoria in Uttarakhand.

The Executive Committee of NMCG approved the development of Ghats and crematoria works at Gangotri to be taken up by Indorama Charitable Trust (ICT) under Charitable funding program. A Memorandum of Understanding (MoU) was signed on 24th February, 2020 at New Delhi between National Mission for Clean Ganga (NMCG), State Program Management Group-Uttarakhand (SPMG-UK) and Indorama Charitable Trust (ICT) to work together for renovation/ development of Ghat and Crematoria at Gangotri in Uttarakhand for a total cost of 16.02 Crore. The MoU was signed by Shri Ashok Kumar Singh, Executive Director, NMCG; Shri Rajeev Kshetrapal, Director, Indorama Industries, Delhi and Trust Member of Indorama Charitable Trust, and Shri Uday Raj Singh, Project Director, SPMG, Govt. of Uttarakhand. The MoU was signed in the presence of Shri Gajendra Singh Shekhawat, Hon'ble Minister of Jal Shakti; Shri UP Singh, Secretary, Department of Water Resources, River Development and Ganga Rejuvenation; Shri Rajiv Ranjan Mishra, Director General, National Mission for Clean Ganga; Shri Rozy Agarwal, Executive Director (Finance) and other Seniors officers of Ministry and NMCG.

The activities under the project:

1. Construction of Bathing Ghats and Crematoria
2. Repair and modernization of existing Ghats and Crematoria
3. Providing public amenities on Ghats
4. Bank erosion protection works
5. Operation & Maintenance (O&M) for 5 years

WAPCOS is the executing agency, and a Memorandum of Understanding (MoU) was signed on 15th June, 2020 between and Indorama Charitable Trust (ICT) and WAPCOS Limited. Indorama Charitable Trust (ICT) has released the first Milestone Payment to WAPCOS of Rs. 57,85,780 for the Gangotri Project. 1st mile stone



The Gangotri Temple



Gangotri Bathing Ghat site

tender has been awarded to M/s Satya Sai Builders and Contractors and LOI has been issued on 2nd September 2020. Work has started in September 2020. The MoU is effective upon signature of the parties for duration of 7 years.

PROJECT DETAILS

Gangotri Bathing Ghat and Crematoria

Gangotri Ghat is situated along the bank of river Bhagirathi at Gangotri. One bathing Ghat and one crematoria is to be developed at Gangotri. The total area to be developed at Gangotri Ghat is 2170 m2. The total cost of the project will be 16.02 crore. Development of ghat includes various components like Changing Room, Toilet with bio-digester and reed bed, IWC, water spout, chhatra, platform, signages, horticulture work, railing, solar light pole etc.

Benefits of the Projects:

- Rejuvenated Ghats, along the river, would improve the human-river connect and would also become places that reflect local culture and history.
- Project will significantly improve the visual aesthetics of the area. For Ganga Rejuvenation, improvement in aesthetics is also an important aspect.
- River water quality improvement through reduction in disposal of untreated sewage, solid waste disposal, etc.
- Increase in Tourism which will create opportunities for local employment.
- Prevent the disposal of un-burnt / partially burnt bodies in the river and reduce the pollution due to cremation process (IWC save 200 kg of wood per cremation and 1 tree per 3 cremations).



Gangotri Bathing Ghat
News Paper Press Release



Gangotri Bathing Ghat site



Gangotri Bathing Ghat Conceptual Design View



Bhoomi Pujan at Gangotri, as work has been grounded at site



Site Visit at Gangotri Ghat, survey and Geotech Investigation

About Biomethanation

Biogas is generated by fermenting items like Agriculture Residues, Forage crops, Horticulture waste, Animal waste, De-oiled cakes, Municipal Solid Waste, sludge from Sewage Treatment Plant etc., (Biomethanation Process) in large Digesters. Biomethanation is the process of conversion of organic matter in the Substrate to Biomethane (commonly referred to as biogas) and effluent (good Quality manure) by microbial action in the absence of air, known as "anaerobic digestion". Biogas is a high quality fuel can be used for cooking, lighting, running dual engines for agro-processing, pumping water and generating electricity. Thus the advantages of biogas are good quality fuel and fertilizer, environment pollution control & environment sanitation. Anaerobic digestion thus optimizes WWTP costs, its environmental footprint and is considered a major and essential part of a modern WWTP. The potential of using the biogas as energy source is widely recognized. It is considered an important future contributor to the energy supply of Europe, although upgrading is needed.

Background of Project

18 MLD Sewage Treatment Plant, Jagjeetpur Haridwar, based on ASP Technology was commissioned in the year 1997. After treating the water, treated water is let into the river or canal for irrigation. However, there is a problem of disposal of the sludge that is accumulated after treating the water. Two digesters for treatment of sludge are available in the campus of 18 MLD STP. In the process of treatment of sludge small amount of biogas is generated. Since the quantum of biogas was very small for its meaningful usage, the biogas generated was being flared. The condition of digesters has also deteriorated over the years and one digester had to be shut down few years back.

The Uttarakhand Jal Sansthan (UJS) prepared a proposal for handing over above mentioned facilities for generation of CNG along with running and maintenance on PPP model. UJS received a proposal from a company, who proposed to generate biogas with appropriate changes in the digesters, install an up-gradation plant, refine the biogas to produce Bio CNG & sale CNG in market on revenue sharing basis with Uttarakhand Jal Sansthan. The Government of Uttarakhand approved the proposal and tendering process was taken up in association with NMCG team.

Anaerobic Energy Private Limited emerged winner in the tender and an agreement with the company has since been executed. As per the terms of contract Anaerobic Energy Private Limited will repair some of the facilities, put up an up-gradation plant to convert Biogas to Bio CNG, sale the Bio CNG and share revenue with Uttarakhand Jal Sansthan. Facilities have been repaired from funds provided by 'Namami Gange' project under upgradation works of STP Haridwar.

Uniqueness of the Project:

- The project supports multiple initiatives of Government of India viz. Namami Ganga, Swachhta, Swadeshi, Atmanirbhar Bharat.

- Bio CNG to be produced as per standards set by Bureau of Indian Standards (BIS) – IS 16087:2016
- Certification of organic fertilizer (digested slurry) by an APEDA approved agency

Benefits out of the project

- Revenue earnings of about Rs. 1.51 Crores over a period of seven years
- Savings in O&M expenditure of these facilities including salaries – Rs. 03.50 crore
- GST earnings of about Rs. 1.00 Crores over a period of seven years Considering GST, total benefits are expected to be Rs. 6.00 crore (Approx.)
- Cow dung from a number of Gaushalas flows into sewer. A number of notices have been served on these gaushalas. Since the company has agreed to collect this cow dung, the problem of chocking of sewer lines is likely to reduce to a great extent.
- Once this project succeeds, it can be replicated in the entire Uttarakhand resulting in earnings as well as improvement in quality of environment

Project Cost to be incurred by company – Rs. 431.00 Lakh

Amount spent till date – Rs. 330.85 Lakh.

The project is being funded by **Technology Development Board** – an agency under, Department of Science & Technology, Ministry of Science & Technology. The board's mandate is to promote use of new technologies by providing loans to technology-oriented projects.

The team that appraised this project consisted of one scientist each from three leading institutes of the country viz. IIT Delhi, Institute of Chemical Technology Mumbai and Indian Institute of Science Bangalore. The Project is expected to commence production of CNG with effect from 25 Dec 2020.



Gas Refinery/Purification Section



Gas Digesters' dome with new GSB Membrane



The processing unit

Fish and Fisheries

Declining fish yield in Ganga is serious concern both for the fish dependent economies as well as to the food chain. Species like Dolphin and Ghariyal are also dependent upon various fish species and a declining trend of fish in Ganga reduces the prey base to these iconic species.

To address the issue, NMCG funded a project to ICAR – CIFRI, Barackpore, West Bengal, a leading Institute for Inland fish conservation in India for five years duration (2016-2021).

The objective of the Project was to assess the fish composition, diversity, fish production and habitat alteration in Ganga river system to develop a comprehensive conservation and restoration plan for fisheries in a healthy and clean Ganga. The project came up with a comprehensive plan for restoration of sustainable fisheries for a healthy Ganga river system. The conservation plan also includes seed production of selected fish species and ranching in the depleted river stretches.

The research was carried out all along the River Ganga covering 18 sampling station. A total of 190 fish species was recorded; highest number of fish species has been recorded from upper stretch, namely Bijnor and Narora in the state of Uttar Pradesh. Significant number of fish species was also identified from Farakka in the lower stretch. Among the estuarine stretch, Fraserganj was found to be more diverse with number of species being 68.

The important fish species landed from the river Ganga were identified and commercially important fish grouped as Major carp (IMC), Catfish, Exotics and local major fishes. Catch per unit effort (CPUE) was analysed in station wise. Year-wise CPUE (freshwater fish catch) comparison revealed that catch from river Ganga has increased from 3796.57 ton (2018-19) to 4263.55 ton (2019-20). Based on the CPUE middle stretch (from Allahabad to Farraka) contributing 47.5% of total fish catch from river Ganga in 2019-20.

Spawn prospecting

Qualitative evaluation of wild fish spawn collected from river Ganga represent keystone species like, Tor putitora, Schizothorax richardsonii, Barilius bendalasis and Barbs, minnows and carps with 50% overall survival rate. Flood and inflow of tributaries has an impact on spawn availability. This has resulted low earnings of the fishermen's in the period engaged in the activities.



Spawn collection from river Ganga

Induced breeding of Indian Major carp

Seed production and ranching of native Indian Major Carps (*Labeo rohita*, *Gibelion catla*, *Cirrhinus mrigala* and *Labeo calbasu*) was a vital component of this project, the seed production carried out by induced breeding of the fishes. Around 600 Kg of brooder fishes collected mainly from the lower stretch of the river by using a popular fish-aggregating device named 'Komor Jaal'. The brooder fish maintained in brood stock pond and reared for maturation. Total 320 kg of IMC brooders were bred successfully by producing 2 crore spawn during the period of 2017 to 2020. Freshly hatched spawn were reared upto fingerling and advance fingerling before ranching in river Ganga.



Broodfish selection for induced breeding

Nursery rearing of produced fish seeds

Injecting CPE for induced breeding

Ranching & Awareness

As a comprehensive part of the CIFRI-NMCG project fish ranching programme was initiated in different depleted stretches of river Ganga. More than 30 lakhs of Mahseer and IMC fingerling produced through induced breeding were ranched in order to conserve and restore the IMC & Mahseer fish population in different stretch of river. Under this activity ICAR-CIFRI conducted regular ranching and mass awareness programmes for fishers living along the Ganga river. The fishers

were sensitized on the negative effects of using destructive methods of fishing like mosquito net, toxic chemicals and were advised not to catch the juvenile and brooder fish stocks especially in the breeding seasons (June-August) for their sustenance from the River Ganga.

Beside this awareness on "Conservation of Dolphin and other Aquatic Animals of river Ganga by community based management system" were also conducted regularly along the bank of river Ganga. The initiative under this project has created a positive impact among the local fishers.



Ranching programmes in different stretch of river Ganga

Awareness programmes in different stretch of river Ganga

FISHERIES OF THE GANGA RIVER SYSTEM CONSERVATION AND RESTORATION PLAN

Fish Tagging

ICAR-CIFRI tagged Indian Major Carps and release in river Ganga to study migratory behavior of the fish and to develop a sustainable management plan of the over exploited IMC fish stock in Ganga River system. It is to be noted that the native carp fishery has continuously declined over past few decades due to various man made and environmental factors. During the ranching program, tagging of the fishes was also initiated. During the process of tagging, adult fish more than 500g of Indian Major Carp (*Labeo rohita*, *Labeo catla* and *Cirrhinus mrigala*) popularly known as Rohu, Catla and Mrigal were tagged and released in the river Ganga. The tags of standard size with printed serial numbers were inserted in muscle just below the dorsal fin.

The project result revealed that Ganga River supports considerable diversity of the food fishes, ornamental fishes, sport fishes and its importance in conservation of River Ganga. Eight different exotic fish species namely *Hypophthalmichthys molitrix* (Silver carp), *Hypophthalmichthys nobilis* (Bighead carp), *Ctenopharyngodon idella* (Grass carp), *Cyprinus carpio* (Common carp), *Cyprinus carpio* var. *specularis* (Common carp), *Pterygoplichthys disjunctivus* (Vermiculated

sailfin catfish), *Clarias gariepinus* (African Magur), and *Oreochromis niloticus* (Nile tilapia) were also recorded and their potential risk on the native fish fauna and river ecosystem was also studied. Among all invasive carps reported from the river, common carp is the most ubiquitous as it was recorded in almost all the sites of the middle stretch (Uttar Pradesh and Bihar) of the river. Key pollution points and heavy metal accumulation study were also conducted in relation to fisheries abundance and distribution patterns for commercially important fishes such as Hilsa, Phasa and Murrel fish species. The result of the study indicates that the ranching and awareness activities conducted had a positive impact on the species and production enhancement, which will directly improve the fisher's livelihood.



Fish Tagging Exercise

Socio-economic status of river Ganga

Fishing is an important income source contributing to the economy of fishing communities living on the banks of River Ganga. The study was carried out in 78 villages comprising 1180 fishermen from different stretch of River Ganga with an objective to assess the socio-economic parameters of the fishermen. The result indicates that the fishers were totally depending on the fishery and their economic status is directly related to the abundance of fish availability in Ganga. The study also inferred that River Ganga and its tributary contribute approximately Rs. 7678 crores to fishermen livelihood and support protein supply to Indian populations. Hence, there is urgent need to take measures to conserve and sustain Ganga river fishery to secure the life and livelihoods of the millennia.

Looking at the success of the first phase of the project, NMCG awarded another project to ICAR – CIFRI during this year (2020-2023). The second phase project will focus on restoration of

selected native fish species (Catla, Rohu, Mrigal, Calbasu and Mahseer) in river Ganga and its tributaries through seed production and ranching. This will result in the increase of the native species fish population and ultimately also serve to increase the livelihood of the fisher folk. Constant effort will be made to regain the lost glory of the prized fish Hilsa availability up to Allahabad. The project will also focus on the Hilsa ranching programme across the Farakka. Continued ranching for long duration will enhance the sustainability of the river and the availability of fish there by fisheries. Further, selected detritivore fishes will be used to control the organic pollution (sewage). Awareness and conservation aspects of threatened aquatic species including the Ganges River Dolphin will be done through regular awareness programme with the identified stakeholders. Besides, these impacts and assessment of the ranching will be carried out in relation to catch per unit effort, production and socio-economic status of the fishers.



Socio-economic survey in the banks of river Ganga

On the eve of World Rivers Day, **RAJIV RANJAN MISHRA** makes a plea to revive and conserve the sanctity of the River Ganga

Rivers are not just a source of water; they are deeply interwoven with our culture and tradition. The River Ganga has been a part of the lives of Hindus from birth to death; a dying person is given a few drops of its sacred waters before he breathes his last.

There are interesting legends associated with the birth of Ma Ganga. One is that the river appeared when Vishnu, in his Vamana incarnation, pierced the universe with his left foot. Another story says that Bhagiratha did intense penance to please Brahma and requested him to bring Akash Ganga to earth from its celestial location. His wish was granted, but Ganga's descent was expected to be so powerful that it could sweep away the entire earth. So, Bhagiratha prayed to Shiva who ensured that the Ganga flowed through his own long locks first and then released on earth gently and slowly.

Ma Ganga is invoked at many places in the *Vedas*, *Upanishads* and *Puranas*. There are several instances in the *Valmiki Ramayana* where Rama spent time on the banks of the Ganga or crossed the river during his exile from Ayodhya. The Ganga's glory has been retold many times in almost every Indian language and some foreign languages as well. The quality of the



Ganga's water, according to a description in *Rajanirghanta* is "Cool, sweet, transparent, high in tonic properties, wholesome, potable, removes evils, has ability to resuscitate from swoon caused by dehydration, aids digestion and helps to retain wisdom." A ruthless warrior like Zafar Khan Gazi was so moved by the soothing waters of the Bhagirathi that it inspired him to take to Sufism. Later, he wrote many poems in praise of the Ganga in Bengali language. It is a scientific mystery that despite millions of people converging on its banks and bathing in its waters during festivals like Kumbh Mela, there is no known history of a pandemic breaking out at that time. In fact, folklores abound on the healing powers of the Ganga water.

In the past few decades, this legendary river has been polluted to a very large extent, primarily by toxic industrial effluents and sewage. With the efforts of thousands of our own ground volunteers, independent institutions and state and central governments, efforts are being made under the Namami Gange mission, and slowly, the situation is improving, but it has a

long way to go — to bring back its pristine glory. The question is: How and when did we come to a point where a river, which is venerated as a Mother Goddess, was allowed to become so polluted? We need to reflect on this aspect. More action needs to be taken that will combine cutting-edge science and technology with rich traditional wisdom.

A shloka in the *Brahmapurana* meticulously lists human actions which should be prohibited in the Ganga. These prohibited actions include defaecation, ablutions, discharge of wastewater, throwing of used floral offerings, rubbing off filth, body shampooing, frolicking, acceptance of donations, obscenity, offering of inappropriate praises or even singing hymns in an incorrect way, discharging of garments, bathing and swimming across. But over the years, all these norms got diluted and we ended up doing things which have inflicted a lot of damage to the river.

The Ganga continues to be venerated as a sacred river. This people-river connect has been instrumental in enabling community-led revival of rivers. Cleaning the river is an ongoing project that needs to be continued by succeeding generations. ■

The author is DG, National Mission for Clean Ganga and is in charge of the National River Conservation Directorate

WORLD RIVERS DAY

The World Bank has been supporting efforts to rejuvenate the Ganga river since 2011 with financial assistance of US\$ 1 billion, to help build the infrastructure and institutions needed to make the Ganga a clean and healthy river.

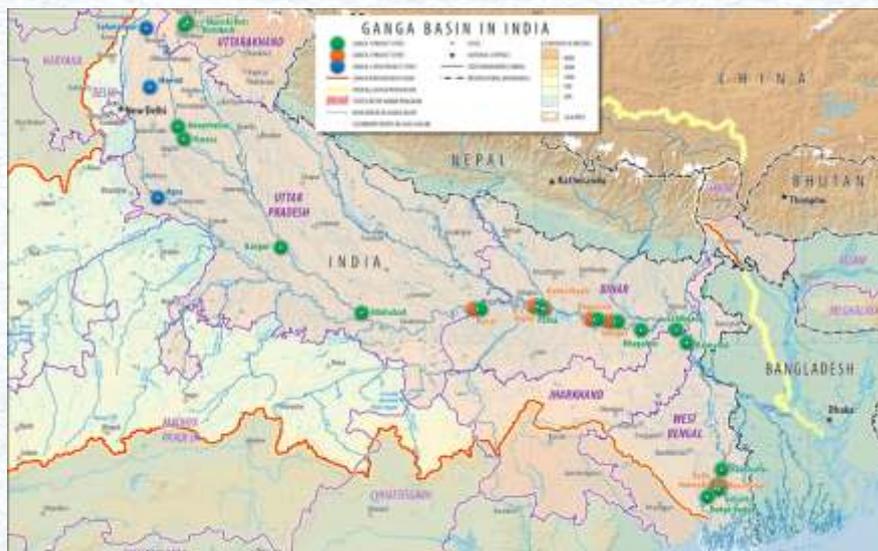
The World Bank Group is a unique global partnership of 189 countries. It is one of the world's leading sources of finance and knowledge for development. It has two over-arching mission objectives: To end extreme poverty, and to promote shared prosperity in all countries. The World Bank provides low-interest loans, interest-free credit, and grants to member countries to support their development agenda. The World Bank today has a global portfolio of over 12,000 projects worth \$ 45.9 billion.

India is one of the World Bank's oldest partners, having joined the institution in 1944. Over the decades the World Bank has supported the Government of India's evolving development agenda and has had the privilege of partnering some of India's biggest development initiatives, starting with the first loan to India aimed at helping expand the Indian Railways. Today, India is the World Bank's largest partner, with a portfolio of \$26 billion and 100 projects. In the face of COVID-19, the World Bank pivoted its operations immediately to support India's efforts to address the challenges posed by the pandemic. It provided India with immediate support of US\$ 3 billion to help India ramp up its health sector response, provide enhanced social protection to those made more vulnerable by the impacts of the pandemic, and to help small and medium enterprises survive the pandemic-induced slowdown.

The Ganga Basin covers a quarter of India's landmass, and is a critical economic and environmental resource for the country. It provides over one-third of India's surface water, includes the country's largest irrigated area and is key to India's water and food security. Over 40 percent of India's GDP is generated in the densely populated basin. But the Ganga river is today facing increasing pressures from human and economic activity that impact its water quality and flows.

Starting 2011, the World Bank-funded National Ganga River Basin Project (NGRBP) has supported the National Mission for Clean Ganga (NMCG) to build its institutional capacity as the nodal agency to manage the iconic river. **NMCG today has emerged a well-functioning program management institution, ably working with State Missions for Clean Ganga and various Executing Agencies to implement a wide range of activities, some of which with NGRBP support.**

Domestic sewage from the towns and cities along the banks of the Ganga account for about 70 percent of the organic pollution load in the river. The



Map of Bank supported investments in the Ganga River Basin

World Bank financed NGRBP is supporting the construction of sewage collection and treatment infrastructure in 20 towns in the five main stem states of the Ganga - Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal. It has helped build 2,360 km of sewage network and create 171 MLD of additional sewage treatment capacity, preventing 13,110 tons/y of BOD to be discharged into the river. Another 1,240 km of sewage network and 622 MLD of treatment capacity is currently under construction or advanced procurement stage. These sewage networks will also help improve public and environmental health in the cities, which is all the more important in the context of the COVID-19 global pandemic. Under the World Bank NGRBP, large cities like Prayagraj and Patna, and smaller riverside towns such as Anoopshahr and Narora in UP, Begusarai in Bihar, Sahibganj and Rajmahal in Jharkhand, and Barrackpore, Budge Budge and Halishaher in West Bengal have reached, or will soon reach total sewage coverage for their municipal areas. The focus is now on ensuring that all households in these urban areas are connected to the sewer networks to substantially reduce wastewater discharge into the Ganga, while also making the cities healthier for their inhabitants.

World Bank has also supported the **Hybrid Annuity Model (HAM) of PPP** to help ensure that the wastewater infrastructure constructed is operated and maintained according to applicable standards and that their benefits can continue to be availed in the long run. Under this model, the government pays a private operator 40 percent of the capital cost to build a sewage treatment plant during the construction period; the remaining 60 percent is paid as performance-linked payments over 15 years to ensure that the operator runs and

maintains the plant efficiently. The HAM model has today emerged the option of choice for investments involving sewage treatment in the Ganga Basin.

The World Bank Project has also helped upgrade 16 ghats in Patna city (3 more are underway) and build a riverside promenade to improve people's access to the river. The NGRBP also supported the development of a mass media awareness campaign - the "Kartavya Ganga" campaign - that aims at reminding us that cleaning the Ganga is a shared responsibility requiring all of us to change our actions and behaviors vis a vis the river, be it avoiding littering on the ghats, not disposing puja waste in the river, or making sure household sewage flows into sewers and not into drains.

A new project, the **Second National Ganga River Basin Project**, further enhances World Bank support to the Namami Gange program by improving wastewater treatment in towns along the tributaries of the Ganga. It will create an additional 512 MLD of sewage treatment capacity. The second project will also help NMCG develop critical tools needed to inform decision-making at the river-basin level and strengthen its approach to river basin management. It also introduces IBRD Guarantee mechanism of up to \$19 million to backstop the government's payment obligations for HAM-PPP investments to treat wastewater in the cities of Agra, Meerut and Saharanpur. This is **the first-ever IBRD Guarantee for wastewater treatment and the first IBRD Guarantee in the water sector in India**. It will help free up public resources which can fund more activities under the Namami Gange program.



Xavier Chauvot De Beauchene
Task Team Leader
World Bank

बिहार की परियोजनाएं



“बिहार के शहरों का गंगा से गहरा नाता है। इसके 20 महत्वपूर्ण शहर गंगा किनारे बसे हैं। गंगा की स्वच्छता का सीधा प्रभाव इन करोड़ों लोगों पर पड़ता है! इन करोड़ों लोगों को ध्यान में रखते हुए ही 6 हजार करोड़ रुपये से अधिक की 50 से अधिक परियोजनाएँ स्वीकृत की गई हैं। बेउर व करमलीचक योजना से इस क्षेत्र के लाखों लोगों को लाभ होगा—
श्री नरेंद्र मोदी, प्रधानमंत्री”

15 सितंबर 2020, नई दिल्ली में माननीय प्रधानमंत्री श्री नरेंद्र मोदी ने बिहार में नमामि गंगे अभियान के अंतर्गत शहरी बुनियादी ढाँचों की 3 महत्वपूर्ण परियोजनाओं का डिजिटल माध्यम से उद्घाटन और शिलान्यास करते हुए राज्य को एक बड़ी सौगात दी है। इस दौरान प्रधानमंत्री श्री नरेंद्र मोदी ने पटना नगर निगम के अंतर्गत आने वाले बेऊर क्षेत्र में नमामि गंगे प्रोजेक्ट के तहत बनाए गए 43 एमएलडी सीवरेज ट्रीटमेंट प्लांट के उद्घाटन के साथ ही करमलीचक में नमामि गंगे योजना के अंतर्गत बनाए गए एक अन्य 37 एमएलडी के सीवरेज ट्रीटमेंट प्लांट का भी उद्घाटन किया। पूरे पटना नगर की सीवरेज व्यवस्था के लिए नमामि गंगे मिशन के द्वारा 11 परियोजनाओं को मंजूरी दी गयी है। इन दोनों एसटीपी बेऊर और करमलीचक के समेत दो अन्य परियोजनाओं का शिलान्यास माननीय प्रधानमंत्री ने अक्टूबर 2017 में किया था। इन दोनों के पूरा होने के साथ-साथ 60 एमएलडी सैदपुर एसटीपी का कार्य भी समापन की ओर है।

इसके अलावा, नमामि गंगे योजना के तहत माननीय प्रधानमंत्री ने मुजफ्फरपुर रिवर फ्रंट डेवलपमेंट योजना का भी शिलान्यास किया। इस योजना के तहत मुजफ्फरपुर शहर के तीन घाटों (पूर्वी अखाड़ा घाट, सीढ़ी घाट, चन्दवारा घाट) का विकास किया जायेगा। रिवर फ्रंट पर कई प्रकार की मूलभूत सुविधायें उपलब्ध होगी, जैसे:- चेंजिंग रूम, पाथवे, वाच टावर, इनफार्मेशन कियोस्क, शौचालय आदि, घाटों पर आकर्षक साईनेज, सुरक्षा व्यवस्था और पर्याप्त लाइटिंग भी उपलब्ध होगी।

कार्यक्रम में बिहार के माननीय मुख्यमंत्री श्री नीतीश कुमार, माननीय केन्द्रीय जल शक्ति मंत्री श्री गजेंद्र सिंह शेखावत, माननीय केन्द्रीय विधि एवं न्याय मंत्री श्री रविशंकर प्रसाद और माननीय केन्द्रीय आवास एवं शहरी मामलों के मंत्री श्री हरदीप सिंह पुरी भी मौजूद रहे। इस दौरान कार्यक्रम में नमामि गंगे द्वारा बिहार में परियोजनाओं के विकास के रोडमैप पर बनाई गई फिल्म को भी प्रदर्शित किया गया।

कार्यक्रम के दौरान माननीय प्रधानमंत्री ने अपने संबोधन में कहा कि अब केंद्र और बिहार सरकार के साझा प्रयासों से बिहार के शहरों में पीने के पानी और सीवर जैसी मूल सुविधाओं में निरंतर सुधार हो रहा है। नमामि गंगे को लेकर उन्होंने बताया कि गंगा से सटे गांवों को गंगा ग्राम बनाया जाएगा, साथ ही नाले के जरिए जाने वाले गंदे पानी को रोका जाएगा। माननीय प्रधानमंत्री ने कहा कि प्रचीन भारत में गंगा घाटी के इर्द-गिर्द आर्थिक, सांस्कृतिक और राजनीतिक रूप से समृद्ध और सम्पन्न नगरों का विकास हुआ। गंगा जल की स्वच्छता का सीधा प्रभाव करोड़ों लोगों पर पड़ता है। अपनी बात को विस्तार देते हुए उन्होंने बताया कि आने वाले दिनों में मुजफ्फरपुर रिवर फ्रंट को पटना रिवर फ्रंट की तर्ज पर ही विकसित किया जाएगा। आज जो बेऊर और करमलीचक की योजना का उद्घाटन हुआ है, उससे इस क्षेत्र के लाखों लोगों को लाभ होगा। नमामि गंगे मिशन के तहत बिहार सहित पूरे देश में 180 से अधिक घाटों के निर्माण का काम चल रहा है, जिसमें 130 को पूर्ण किया जा चुका है। उन्होंने बताया कि अभी हाल ही में सरकार ने प्रोजेक्ट डॉल्फिन की घोषणा भी की है। इस मिशन का बहुत बड़ा लाभ गंगा डॉल्फिन को भी होगा। गंगा नदी के संरक्षण के लिए गांगेय डॉल्फिन का संरक्षण बहुत जरूरी है। पटना से लेकर भागलपुर तक का गंगा जी का पूरा विस्तार डॉल्फिन का निवास स्थान है। बिहार के मुख्यमंत्री श्री नीतीश कुमार ने कहा कि ये हमारी जिम्मेवारी है कि गंगा नदी के पानी को स्वच्छ रखें। इसके लिए नमामि गंगे के सीवरेज प्लांटों की स्थापना होना बहुत जरूरी था।

मिशन के तहत, अबतक बिहार के लिए कुल 54 परियोजनाओं को मंजूरी दी गयी है। जिसमें सीवरेज इंफ्रास्ट्रक्चर, घाटों, श्मशान और रिवर फ्रंट डेवलपमेंट, वनरोपडू, बायो रिमेडिएशन, ग्रामीण स्वच्छता और नदियों की सतह की सफाई जैसे मुख्य परियोजनाएँ शामिल हैं। इन विभिन्न योजनाओं के कार्यान्वयन के लिए अब तक कुल 6245 करोड़ रुपये स्वीकृत किए जा चुके हैं।



कार्यक्रम की झलकियाँ

बिहार में लोकार्पण और शिलान्यास परियोजनाओं का विवरण	
परियोजना	लागत करोड़ में
43 एमएलडी एसटीपी बेऊर, पटना	78.00
37 एमएलडी एसटीपी करमलीचक, पटना	73.00
घाटों का निर्माण, मुजफ्फरपुर, पटना	10.77

उत्तराखंड की परियोजनाएं

माननीय प्रधानमंत्री नरेंद्र मोदी ने 29 सितम्बर, 2020 को गंगा को अविरल और निर्मल बनाने की दिशा में उत्तराखंड में नमामि गंगे मिशन के तहत 521 करोड़ रुपये की लागत वाली छह मेगा परियोजनाओं का उद्घाटन किया। जिसमें उन्होंने हरिद्वार, ऋषिकेश सहित अन्य क्षेत्रों में स्थित कई सीवेज ट्रीटमेंट प्लांट और उनके अपग्रेडेशन परियोजनाओं का उद्घाटन किया। इसके अलावा हरिद्वार के चंडी घाट पर नदी के कायाकल्प गतिविधियों और इसकी जैव विविधता का प्रदर्शन करने के लिए एक गंगा संग्रहालय का भी माननीय प्रधानमंत्री ने उद्घाटन किया। माननीय राज्यपाल उत्तराखंड श्रीमती बेबी रानी मौर्य, माननीय मुख्यमंत्री उत्तराखंड श्री त्रिवेन्द्र सिंह रावत, माननीय केंद्रीय मंत्री श्री गजेंद्र सिंह शेखावत, माननीय केंद्रीय मंत्री डा0 रमेश पोखरियाल निशंक, माननीय राज्य मंत्री श्री रतनलाल कटारिया सहित अन्य ने भी इस कार्यक्रम में भाग लिया।

इन परियोजनाओं में जगजीतपुर के 68 एमएलडी की क्षमता वाले एक नए एसटीपी के निर्माण के साथ ही एक अन्य 27 एमएलडी क्षमता वाले एसटीपी का अपग्रेडेशन, सराय में 18 एमएलडी वाले एसटीपी का अपग्रेडेशन, ऋषिकेश में लक्कड़घाट पर 26 एमएलडी के एक एसटीपी का निर्माण, मुनि की रेती कस्बे के चंद्रेश्वर नगर में बना 7.5 एमएलडी क्षमता का एसटीपी, चोरपानी में 5 एमएलडी क्षमता के एसटीपी निर्माण के साथ ही बद्रीनाथ में 1 एमएलडी और 0.01 एमएलडी क्षमता के बने नए एसटीपी का उद्घाटन किया गया।

देश के इतिहास में यह पहली बार होगा जब किसी प्रधानमंत्री द्वारा गंगा नदी पर अपनी तरह के पहले गंगा संग्रहालय 'गंगा अवलोकन' का उद्घाटन किया गया हो। साथ ही साथ उन्होंने एक पुस्तक 'रोइंग डाउन गंगेस' और जल जीवन मिशन का नया लोगो भी जारी किया। माननीय प्रधानमंत्री ने इस अवसर पर जल जीवन मिशन के अंतर्गत ग्राम पंचायतों और जल समितियों के लिए उपयोगी 'मार्गदर्शिका' भी जारी की। 'रोइंग डाउन गंगेस' पुस्तक के बारे में बात करते हुए उन्होंने कहा कि यह गंगा नदी को हमारी संस्कृति, विश्वास और धरोहर की गौरवशाली प्रतीक के रूप में स्थापित करती है।

कार्यक्रम को संबोधित करते हुए माननीय प्रधानमंत्री ने कहा, गंगा हमारी विरासत का प्रतीक है, गंगा देश की आधी आबादी को समृद्ध करती है। पहले भी गंगा की सफाई को लेकर बड़े अभियान चलाए, लेकिन उनमें न तो जन भागीदारी थी और न ही दूरदर्शिता। केवल कुछ ही बड़े शहरों पर काम किया जा रहा था। अगर वही तरीके अपनाते तो गंगा साफ ना होती, लेकिन नमामि गंगे के अंतर्गत हमने चौतरफा विजन अपनाते हुए काम किया है। पहला – सीवेज ट्रीटमेंट प्लांट की बड़ी संख्या में स्थापना, जो गंगा नदी में जाने वाले दूषित जल एवं मल को शुद्ध कर सके। दूसरा – इन संयंत्रों का निर्माण आगामी 10-15 वर्षों की जरूरतों को ध्यान में रखते हुए किया जाना। तीसरा – गंगा नदी के पास वाले 5000 गांवों और 100 शहरों/कस्बों को खुले में शौच से मुक्त करना। चौथा – गंगा की सभी सहायक नदियों में आने वाले प्रदूषण को रोकने के लिए समग्रता से प्रयास किया जाना। माननीय प्रधानमंत्री ने रेखांकित किया कि नमामि गंगे मिशन के अंतर्गत 30,000 करोड़ रुपए से अधिक की परियोजनाएं या तो पूर्ण हो चुकी हैं या प्रगति पर हैं। उन्होंने कहा कि इन्हीं परियोजनाओं में उत्तराखंड में सीवेज ट्रीटमेंट प्लांट भी शामिल है जहां बीते 6 वर्षों में उत्तराखंड में सीवेज ट्रीटमेंट प्लांट की क्षमता 4 गुना बढ़ी है। इनमें चंद्रेश्वर नगर में बना एसटीपी भी शामिल है, जहां देश का पहला 4 मंजिला एसटीपी शुरू हो चुका है। उत्तराखंड में गंगा में गिरने वाले ज्यादातर नालों को बंद कर दिया गया है।

माननीय केंद्रीय जल शक्ति मंत्री श्री गजेंद्र सिंह शेखावत ने कहा कि हम गंगा के कायाकल्प के लिए जन भागीदारी पर जोर दे रहे हैं। इसके अलावा हमने लोगों के साथ जुड़ने और स्थानीय लेवल पर प्रशिक्षित स्वयं सेवक तैयार करने के लिए गंगा प्रहरी और गंगा मित्र जैसी योजनाएं शुरू की हैं, ताकि ग्राउंड पर बेहतर कार्य किया जा सके।



“सिर्फ 6 सालों में ही उत्तराखंड में एसटीपी की क्षमता करीब 4 गुणा हो चुकी है। 130 से अधिक नालों को रोक दिए जाने से गंगा में राफ्टिंग व गंगा दर्शन जैसे पर्यटन क्षेत्रों पर सकारात्मक प्रभाव पड़ा है।”
- श्री नरेंद्र मोदी, प्रधानमंत्री



कार्यक्रम की झलकियाँ

उत्तराखंड की लोकार्पण की परियोजनाओं का विवरण	
परियोजना	लागत करोड़ में
68 एमएलडी एसटीपी, जगजीतपुर, हरिद्वार	230.00
27 एवं 18 एमएलडी अपग्रेडेड एसटीपी, हरिद्वार	33.00
26 एमएलडी एसटीपी, ऋषिकेश	158.00
7.5 एमएलडी एसटीपी, मुनि की रेती और 5 एमएलडी एसटीपी, चोरपानी	80.00
1.01 एमएलडी एसटीपी, बद्रीनाथ	18.00
गंगा अवलोकन संग्रहालय, हरिद्वार	1.00

STATUS OF PROJECTS UNDER NAMAMI GANGE PROGRAMME

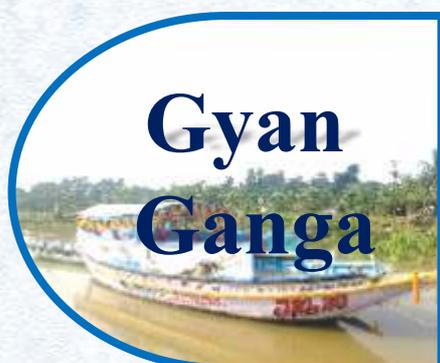
Sector	Total Projects	Sanction Cost (Cr.)	Completed	Ongoing
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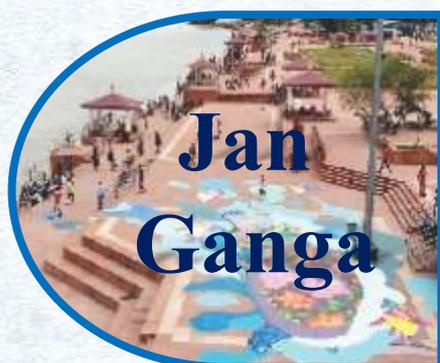
Sewage Infrastructure	151	23,218.02	54	97
Modular STPs Decentralized Treatment	1	410.00	0	1
River Surface Cleaning	1	33.53	0	1
Industrial Pollution Abatement	15	1,267.37	0	15
Rural Sanitation	1	1,421.26	0	1



Biodiversity Conservation	9	164.05	4	5
Afforestation	21	306.31	15	6
Bioremediation	13	242.23	0	13



Ganga Knowledge Center	6	143.95	1	5
Ganga Monitoring Center	1	46.69	0	1
Research and Development	13	165.39	5	8



Ghats & Crematoria	76	1089.31	52	24
River Front Development	1	336.73	0	1
Ghats Cleaning	3	45.54	0	3
District Ganga Committee	1	2.30	0	1
Composite Ecological Task Force	4	198.50	3	1

Grand Total	317	29,091.18	134	183
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श्री राजीव रंजन मिश्रा महानिदेशक, रा.स्व.ग.मि. के साथ प्रमाणपत्र वितरण समारोह में गंगामित्र

राष्ट्रीय स्वच्छ गंगा मिशन महामना मालवीय गंगा शोध केंद्र काशी हिंदु विश्वविद्यालय के साथ मिलकर ईको-स्किल्ड गंगामित्रों को गठित करने का एक व्यापक कार्यक्रम क्रियान्वित कर रहा है। इस प्रोजेक्ट का मुख्य उद्देश्य एक ऐसी शिक्षित और समर्पित स्वयं सेवकों की सेना संगठित करना है जो जन-जन को गंगा संरक्षण के मिशन से जोड़ने के साथ-साथ पर्यावरण एवं जैव-विविधता के संरक्षण पर भी लोगों का ध्यान आक्रांशित कर सके। ये प्रशिक्षित गंगा मित्र धार्मिक स्थानों पर जन भागिदारी बढ़ाने में मदद कर रहे हैं, और साथ-साथ गंगा में होने वाले प्रदूषण के रोकथाम के लिए भी जन मानस को जागृत कर रहे हैं। ये गंगा मित्र गंगा घटों और किनारों पर सफाई के अभियान, वर्षा जल संचयन की तकनीकों का प्रदर्शन, वृक्षारोपण, कार्बनिक खेती और कई ऐसे गंगा संरक्षण के कार्यों में जुटे हैं। इस प्रोजेक्ट के पहले चरण में 400 गंगा मित्रों को विशेष प्रशिक्षण दिया गया है और इन मित्रों ने करीब 10,000 लोगों को जन संरक्षक बनने के लिए प्रेरित किया। करीब 12.5 करोड़ लिटर वर्षा जल को वाराणसी में संचयन करने में विशेष सहयोग दिया। इसके अतिरिक्त इन गंगा मित्रों ने कोरोना महामारी के दौरान एक अहम भूमिका निभायी, खास तौर पर स्कूली बच्चों को इस महामारी से बचने के उपाय सिखाए। ये प्रोजेक्ट प्रा0 बी.डी. त्रिपाठी, अध्यक्ष महामना मालवीय गंगा शोध केंद्र, काशी हिंदु विश्वविद्यालय के समन्वय में किया जा रहा है।



गंगा मित्रों द्वारा किया गया श्रमदान

गये विभिन्न शोधन संयंत्रों के अवलोकन के साथ-साथ गंगामित्रों को ठोस एवं द्रव अपशिष्ट प्रबंधन, गंगा घाट की सफाई, गंगा में मनुष्य एवं जानवरों के शवों के प्रवाह, श्मशान घाटों से अधजल मांस का निस्तारण, जानवरों के स्नान, कपड़ा धुलाई, आसपास के खेतों से बहकर आनेवाला जहरीला कीटनाशक तथा कारखानों से निस्तारित अपशिष्टों इत्यादि की जानकारी दी जाती है। इतना ही नहीं उनको गंगाजल गुणवत्ता के परीक्षण हेतु व्यवहारिक ज्ञान भी दिया जाता है। प्रशिक्षणोपरान्त गंगा मित्र गंगा निर्मलता हेतु लगातार विभिन्न घाटों पर जाकर उपर्युक्त पहलुओं पर लोगों को जागरूक करते हैं। साथ ही गंगामित्र गंगा घाट के किनारे गंगा पाठशाला का भी आयोजन करते हैं एवं आस पास के स्कूलों में जाकर बाल गंगा मित्र बनाने एवं उनके अन्दर गंगा का संस्कार डालने का कार्य कर रहे हैं।



वृक्षारोपण में हाथ बटाते गंगा मित्र

गंगा की अविरलता को बढ़ाने के लिए गंगा मित्रों द्वारा विभिन्न तालाबों के माध्यम से वर्षा जल संचयन, भूजल पुनर्भरण एवं संचित वर्षा जल के विभिन्न उपभोगों के बारे में आम लोगों के बीच जागरूकता पैदा किया जा रहा है। जिससे प्रभावित होकर माननीय प्रधानमंत्री के संसदीय क्षेत्र में बहुत से लोग तालाबों, कुओं एवं ग्रामसभाओं की नालियों की सहायता से जल संचयन तथा वृक्षारोपण करना प्रारम्भ कर दिये हैं।

गंगा मित्रों द्वारा व्यवहारिक रूप से कुछ ग्रामसभाओं को माँडल के रूप चयनित कर ग्रामीणों के सहयोग से वर्षा जल संचयन, भूजल पुनर्भरण, तालाबों में मत्स्य पालन, सिंचाई एवं मखाना की खेती के साथ-साथ संचित वर्षा जल का उपयोग कार्बनिक खेती एवं सब्जी पैदा करने हेतु किया जा रहा है। गंगा मित्रों द्वारा आस-पास के स्कूलों में फलदार एवं अधिक आक्सीजन देने वाले वृक्षों का वृहद वृक्षारोपण भी किया जाता है।

इसके अतिरिक्त ईकोस्किल्ड गंगा मित्रों द्वारा 'कम्युनिटी कनेक्ट' कार्यक्रम के अन्तर्गत व्यापक जागरूकता एवं जल संरक्षण हेतु 10 हजार से अधिक लोगों को 'जल संरक्षक' बनाया गया है। कोविड-19 के संक्रमण काल में गंगा मित्रों ने कोरोना योद्धा की भूमिका निभाते हुये ग्रामीण क्षेत्रों एवं गंगा घाटों पर कोरोना से बचाव हेतु जागरूकता करते हुये करीब 3500 स्वयं से निर्मित मास्क भी वितरित किया है।

ईको-स्किल्ड गंगा मित्र राष्ट्रीय स्वच्छ गंगा मिशन हेतु जमीनी स्तर पर कार्य करने वाले समर्पित तकनीकी कार्यकर्ता हैं। गंगा मित्रों द्वारा कम समय में किये गये सर्वाधिक सफल प्रयास को देखते हुये राष्ट्रीय स्वच्छ गंगा मिशन के कार्य समिति ने हाल ही में इसी प्रकार का तकनीकी प्रशिक्षण नेहरू युवा केन्द्र, गंगा प्रहरी, गंगा विचार मंच तथा अन्य गंगा सेवी संस्थाओं के सदस्यों को भी प्रदान करने हेतु अपनी संस्तुति दी है। यह तकनीकी प्रशिक्षण प्राप्त ईको-स्किल्ड गंगा मित्र आने वाले वर्षों में अपने तकनीकी ज्ञान से सबसे पहले आगे आकर गंगा से जुड़े सभी लोगों को एक साथ लेकर उनका नेतृत्व करते हुये भारत सरकार की महती परियोजना नमामि गंगे के उद्देश्यों की पूर्ति में अपना सहयोग देंगे।



प्रोफेसर बी डी त्रिपाठी

चेयरमैन,
महामना मालवीय
गंगा शोध केंद्र
काशी हिन्दू विश्वविद्यालय,
वाराणसी



श्री रोजी अग्रवाल, कार्यकारी निदेशक राष्ट्रीय स्वच्छ गंगा मिशन एवं प्रा0 बीडी त्रिपाठी के साथ प्रशिक्षण लेते गंगामित्र

ईको-स्किल्ड गंगामित्रों का तकनीकी प्रशिक्षण गंगा के गौरवशाली अतीत को वापस लाने एवं गंगा बेसिन के 45 करोड़ लोगों के जीवन रक्षा हेतु संकल्पित नमामि गंगे परयोजना का एक सार्थक पहल है। यह प्रशिक्षण पर्यावरण एवं विज्ञान के क्षेत्र में अन्तर्राष्ट्रीय ख्याति प्राप्त काशी हिन्दू विश्वविद्यालय के महामना मालवीय गंगा शोध केंद्र द्वारा संचालित किया जा रहा है। गंगामित्रों के प्रशिक्षण का मुख्य उद्देश्य राष्ट्रीय स्वच्छ गंगा मिशन द्वारा किये जा रहे कार्यों को आमजन से जोड़कर गति प्रदान करने का एक अतुलनीय प्रयास है।

ईको-स्किल्ड गंगामित्रों के प्रशिक्षणकाल में सर्वप्रथम प्रशिक्षणार्थियों को पारिस्थितिक सिद्धान्तों पर आधारित ईको-स्किल्ड की विशेष तकनीक द्वारा उनके शारीरिक एवं मानसिक स्वास्थ्य, आत्म-जागरूकता एवं सम्पूर्ण व्यक्तित्व का विकास किया जाता है। इस तकनीक में गंगामित्रों को गंगा एवं उसकी सहायक नदियों के प्रति भावनात्मक लगाव हेतु विशेष प्रशिक्षण दिया जाता है। प्रशिक्षण के माध्यम से गंगामित्रों में गंगा के प्रति भावात्मक लगाव एवं उनके संवाद कौशल व सम्पूर्ण व्यक्तित्व का विकास करके उनको ऐसा प्रशिक्षित किया जाता है कि वे राष्ट्रीय स्वच्छ गंगा मिशन, भारत सरकार द्वारा चलाये जा रहे गंगा संरक्षण के सभी कार्यक्रमों को जनता के बीच में ले जाकर उनको उन्हीं की भाषा में जागरूक कर सकें तथा सरकार के अन्य कार्यक्रमों में भी सार्थक सहयोग दे सकें।



प्रो.बी डी त्रिपाठी गंगा मित्रों को प्रशिक्षण देते हुए

तत्पश्चात प्रशिक्षणार्थियों को गंगा के पांच महत्वपूर्ण पहलुओं जैसे-आध्यात्मिक गंगा, निर्मल गंगा, अविरल गंगा, अर्थ गंगा एवं पारिस्थितिक गंगा के विभिन्न चुनौतियों एवं उसके समाधान हेतु सैद्धान्तिक एवं व्यवहारिक रूप में तकनीकी ज्ञान प्रदान किया जाता है। गंगा निर्मलीकरण हेतु राष्ट्रीय स्वच्छ गंगा मिशन द्वारा लगाये

River Ganga is considered sacred for providing life sustenance to the people of India. Anthropogenic activities, however, have generated huge transformations in the river ecosystem during the past few decades. Advancement of technology in the form of a rise in the number of industries and the subsequent discharge of untreated and semi treated wastes into the river is matter of serious concern. The river water pollution due to industrial wastes is one of the major concerns in most of the metropolitan cities of Ganga basin as Kanpur. These wastes discharged from diverse industries entering the water system lead to changes in the physicochemical and biological properties of riverine ecology and may further lead to bioaccumulation and bio magnification in the bodies of aquatic organisms and hence can enter the food web. The exposure to such water bodies can result in diverse health disorders in the living organisms and can affect the aquatic diversity and as a whole it deteriorates the riverine ecosystem.

There are 1072 grossly polluting industries (GPIs) in the main stem of Ganga and major tributaries including Kali-East and Ramganga. Out of which, 908 industrial units are in UP, followed by 56 in Bihar, 54 in Uttarakhand, 48 in West Bengal and 6 in Jharkhand. The industrial pockets in the catchments of Ramganga and Kali tributaries and in Kanpur city are significant sources of industrial pollution. The major contributors are tanneries in Kanpur; and distilleries, paper mills and sugar mills in the Kosi, Ramganga and Kali river catchments. Several initiatives on industrial pollution front such as inventorisation of Grossly polluting industries and annual inspection by independent institutions, improvement in technology to reduce effluent etc have led to improvement in compliance. A modern integrated 20 MLD capacity Common Effluent Treatment Plant (CETP) at Jajmau, Kanpur is in progress addressing the long pending problem of pollution of Ganga from Tanneries. Several other industries also are being attended. Upgradation of CETPs at Unnao and Banthar Tanneries cluster has also being sanctioned by NMCG.

Common effluent treatment plants (CETPs) are treatment systems specifically designed for collective treatment of effluent generated from industrial facilities in an industrial cluster. Individual effluent treatment plants (ETPs) generally face problems from lack of space, resources, capital cost, and specialized manpower for operation and maintenance, which are especially exacerbated for small-scale industrial facilities. These problems are reduced by collective treatment of effluent from a large number of small-scale facilities at a single site where the effluent undergoes similar treatment to what it would be subjected to individually. This helps in terms of land conservation, better treatment at one location, easy operation and maintenance, and shared expenses.

Tanneries and leather industry has been operational in Jajmau Cluster since 1880's. The cluster is a major recognized leather cluster in India catering to the domestic as well as international market. Presently, the cluster provides more than 1.5 lacs direct employment

and has more than Rs. 1800 crore annual turnover. Presently, about 400 tanneries (90% SSIs) are situated in the cluster and has been a major environmental concern for last few decades due to it's poor management of wastewater and perceptively acknowledged as a major polluter in River Ganga Basin.

Jajmau has 36 MLD CETP (1994), operated by Uttar Pradesh Jal Nigam (UPJN) having capacity for 9 MLD tannery wastewater and 27 MLD Sewage wastewater which presently caters to 380 tannery units. CETP has been non-complying to the stipulated norms since long (early 2000) due to various reasons like -

- a) Inadequate treatment technology
- b) In-sufficient treatment capacity
- c) Lack of accountability on polluters
- d) Non-dedicated effluent collection and conveyance system
- e) Lax environmental regulatory measures and supervision

Various efforts and measures have been made in last 15 years including compliance measures of various directions/order issued by Hon'ble High Court of Allahabad, but fragmented approach couldn't extend a sustainable solution. Hon'ble National Green Tribunal had dealt the issue in detail and provided some guidelines for regulatory and technological intervention required for a sustainable solution to the menace of Pollution from the Cluster. Parliamentary Committees in their observation have also highlighted the problem of Jajmau and has suggested that Government

Advantages of providing CETP

- Saving in Capital and operating cost of treatment plant. Combined treatment is always cheaper than small scattered treatment units.
- Availability of land which is difficult to be ensured by all individual units in the event they go for individual treatment plants. This is particularly important in case of existing old industries which simply do not have any space.
- Contribution of nutrient and diluting potential, making the complex industrial waste more amenable to degradation.
- The neutralization and equalisation of heterogeneous waste makes its treatment technoeconomically viable.
- Professional and trained staff can be made available for operation of CETP which is not possible in case of individual plants.
- Disposal of treated wastewater & sludge becomes more organised.
- Reduced burden of various regulatory authorities in ensuring pollution control requirement.

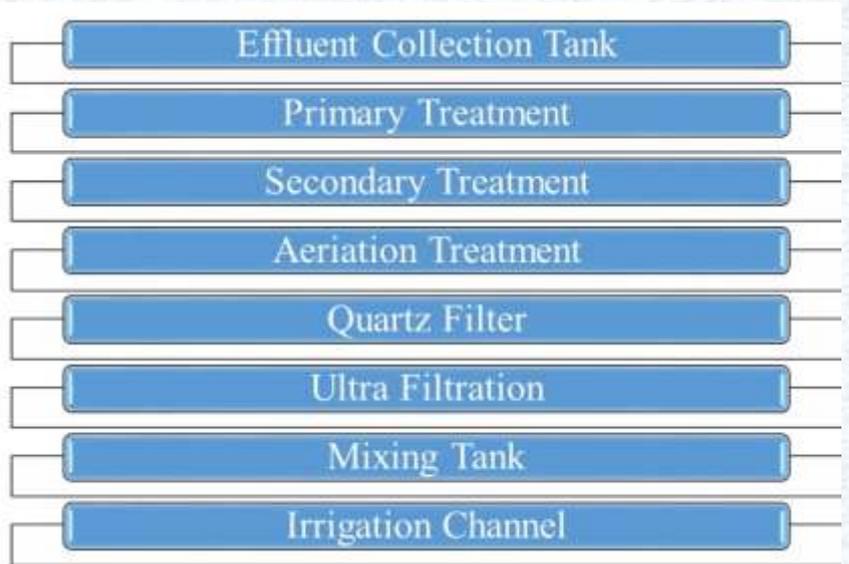
should extend all necessary help including financial and technical capacity of the cluster to manage the environment in sustainable manner without compromising the business mortality.

NMCG under its Abatement of Industrial Pollution component of Namami Gange program, identified the constraints and limitation of the existing pollution prevention and abatement infrastructure and measures in practices in association with the tanneries operating in the cluster, with sole objective to extend capacity building of cluster and stakeholders through financial, infrastructural and technical inputs.

A project for integrated industrial wastewater management system comprising of collection and conveyance system, adoption of clean technology and incorporating an institutional framework for comprehensive waste management has been approved by NMCG at an estimated cost of Rs.617 Crores.

Salient features of project:

- 20 MLD capacity Common Effluent Treatment Plant (CETP) based on primary assessment of existing production capacity and infrastructure of tanneries
- First time Odour control & management measures adopted in wastewater management system for Tannery sector
- SCADA based online qualitative and quantitative assessment of water requirements and wastewater management
- Chrome liquor to be treated separately and chrome cakes to be sold back to the industry
- 200 KLD state-of-the-art ZLD based demonstrative



Common Effluent Treatment Plant Block Diagram

plant for recovery of marketable salt and re-usable water from wastewater

- 900 KLD capacity Common Chrome Recovery (CCR) facility to recover usable chrome chemical for reuse in the process, thereby reducing its consumption and pollution load
- All Individual tanneries will upgrade their PETPs and adopt the cleaner technologies for reduction of pollution at source.
- The treated effluent after dilution will be reused in irrigation through irrigation channel.

Co-operation and assistance from national (CLRI, NEERI, ITRC, IIT-BHU, IIT-Kanpur and MNNIT) and international expert organization (UNIDO, Solidaridad, BASF) is extending technological and financial assistance for product and process improvement.



Stakeholder meeting for adoption of cleaner technologies



Project review Meeting with Commissioner, Kanpur



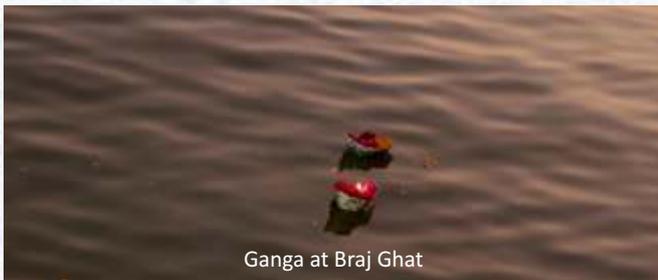
CETP construction started at site

Festivals and Fairs along the Ganga

Festivals are an expressive way to celebrate glorious heritage, culture and traditions. We are all familiar with Kumbh Mela, Magh Mela, Ganga Dussehra. But our project of documenting heritage along Ganga has shown that there are several significant festivals at places along the Ganga which host major festivals which are so far not so well known or publicized.

The Ganga touches the plains at Haridwar where the Uttarayani Mela is generally held in the second week of January every year on the holy occasion of Makar Sankranti. The fair is held for a week. During the Mela, as per the belief systems and references from the holy scriptures, the sun moves from Southern Hemisphere to Northern Hemisphere, it is reckoned auspicious to take a dip in the river.

At Garhmukteshwar (Hapur district, UP) at Braj Ghat, Ganga Dussehra is held. According to Ganga Mahatamya, Ganga reached Lord Shiva's matted hair from Swarg Loka on the day of Vaishakh Shukla Paksha Saptami or seventh day of Vaisakh month (April/May). Hence, this day is celebrated as Ganga Jayanti or Ganga Saptami. The day on which Ganga descended on earth is known as Ganga Dussehra. It is celebrated in the month of Kartik (November). Early morning dips in river Ganga during this festival and performing holy rituals is believed to eradicate all sins and brings fame, happiness.



Ganga at Braj Ghat

Ganga Saptami also sees the ceremony of Deep Daan — donation of earthen lamps during evening. A large fair is also organized near the banks of the holy river on the day of Ganga Saptami at Khadar (alluvial soil) of Garhmukteshwar organised by district Panchayat which includes exhibitions of traditional crafts, animals, poultry, wrestling, Ragini, magic shows, puppetry, and other cultural activities. The Mela also witnesses the sale of world famous Modha (cane furniture). The Mela witnesses not only participation from the area of Garhmukteshwar but also from nearby town and if its statistics are to be believed, around 25 lakhs devotees, visitors (inclusive of foreigners) from Haryana, Rajasthan, Uttarakhand and Delhi visited the Mela in 2019. In Pre-independence era, a timber fair which was believed to be the largest in India of such nature also used to be organized here according to the District Gazetteer of Ghaziabad.

Further downstream at Farukhabad, the famous Ramnagariya Mela is held during the Magh month at Panchal Ghat. During this Kalpavas is performed in the fair from Paush Purnima to Maghi Purnima. It is believed that the worship of Bhajan on the banks of the Ganges this month also has an impact on the upcoming life of the devotees. During the Magh Mela, Kalpavasis attain undue virtue.

At Prayagraj, Veni (Braid) Daan is an interesting ritual performed at Triveni Sangam where women offer a part of their hair to the river as a prayer for the long life of their husbands and peace and prosperity of their families. The ritual requires the husband to comb and braid the wife's hair, decorate it with flowers, put vermilion (mark of a woman being married) on her forehead, and cut the tip of the plaid as offering. The hair is then smeared with turmeric and placed on the prayer plate. The Pinda Daan revering the ancestors form an important aspect of Hindu philosophy which finds many customs



Ganga Dussehra at Braj Ghat, Garhmukteshwar

and rituals surrounding it. It is believed that if the ritual isn't carried out properly, the soul goes through many difficulties. Ganga, being the most sacred river, provides the soul the path to this higher plane. Kalpavas is another sacred form of activities held during Magh Mela at Prayagraj.

From Prayagraj Ganga flows further downstream and at Varanasi where a very interesting festival is held during the month of Kartik at Dashavasamedh Ghat. Dev Deepawali (the Diwali of Gods or Festival of lights of the Gods) is celebrated on Kartik Purnima (full moon of the Hindu month of Kartik) in Varanasi. On this occasion, the Ghats are completely lighted with Diyas. It is believed that Gods descend to Earth on this day. Another myth suggests that, on this day, the demon Tripurasur was killed by the Gods, and hence the name, Dev Deepawali, the day the Gods won victory. The program starts with Lord Ganesha's prayer, after which 21 Brahmins and 41 girls chant the Vedic mantras. After the prayers, the Maha aarti is held at the Dashashwamedh Ghat, which is a grand celebration.

Further east at Patna Chhat Puja is one of the major festivals. Chhat is also celebrated with great reverence in places such as Uttar Pradesh, Bihar, West Bengal, and even in Nepal, over the span of four days in the month of Kartik. This event is dedicated to the Surya, the Sun God, and to his sister Chhathi Maiya, who is worshipped for sustaining life on earth. About 40 kms further east, Sonepur Cattle Fair is held on Kartik Purnima over the months of November and December at Sonepur on the Ganges. It is also known as Harihar Kshetra Mela and it attracts attracts visitors from all over Asia.

At the confluence of Ganga with the sea at the Bay of Bengal the Gangasagar Mela which is the second-most important fair after Kumbh Mela. This event takes place on the island of Gangasagar, or Sagardvipa. Gangasagar Mela takes place on the day of Makar Sankranti, when the sun makes a transition to



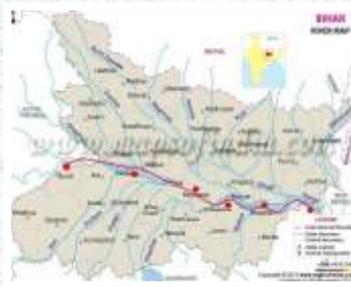
Dev Deepawali at Varanasi Ghats

Capricorn from Sagittarius. It is believed that taking a bath in the waters of Ganga on this day becomes a source of salvation. A vast number of pilgrims make their way to this island to take part in the 10-day long event. They start the festivities by taking a dip in the confluence of the holy waters of Ganga and the Bay of Bengal. This is followed by a visit to the temple of Kapila Muni, a well-known sage from ancient India who is known for cursing the sons of King Sagara, and becoming a crucial part of the legend of how Ganga made her descent from the Heavens to the earth. In this way festivity keeps moving along with river Ganga & binding together people with love, care & brotherhood.

Harish Benjwal
INTACH

Tourist Attractions along Ganga

The Ganga is more than just a flowing stream of water. It is a cultural stream as well. NMCG is conducting a mapping of Ganga on certain aspects which though exist but not have been documented at one place. The entire Ganga belt is replete with various socio-cultural and historical facets which need to be catalogued and told. NMCG project is documenting the Intangible Cultural Heritage, Architectural Heritage and Natural Heritage in a corridor of 5 km width on either bank of the main stem. From the districts covered so far, a picture of rich content, hitherto vaguely known, is emerging. The information uncovered exhibits plentiful opportunities in the field of tourism and culture.



The opportunities presented are multi-dimensional and will require several departments to act in a symbiotic manner over a sustained period to develop tourism along Ganga in a meaningful manner which will also promote several livelihood opportunities to the people living on the banks of Ganga.

Tourism Potential along Ganga

Boat Tourism Circuits Several boat based tourism circuits are possible of varying lengths and destinations. These could be:

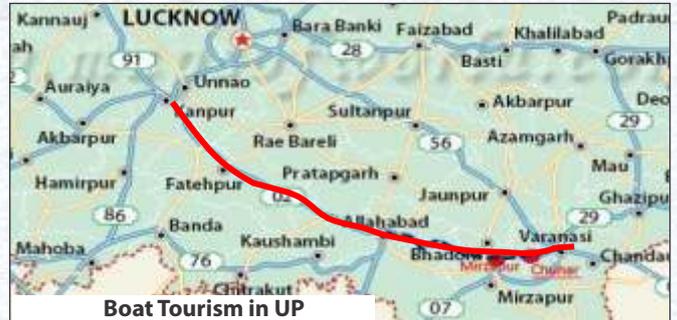
- i. Varanasi-Chunar-Mirzapur-Prayagraj [200 km by river]
- ii. As above upto Kanpur [another 200 km]
- iii. As above integrated with Bihar reach [or Bihar separately]
- iv. As above Bengal reach

The Bugyal is the site of origin of two important tributaries of river Bhagirathi namely the Papad Gad and Swari Gad. Both the streams not only provide drinking and irrigation water to the downstream villages of Raithal, Kyark and Barsu but also maintain the geo-hydrological system of the entire area.

The deployment of flat bottomed barges with cabins would enable a close experience of the river and an alternative view and approach to the river cities. The attractions could include Archaeological sites like Sringerapur 1st BC water harvesting site, Nishad Raja's Fort, Chunar fort, Mirzapur Ghats and cultural performances, carpet shopping at Bhadohi, crafts emporiums in abandoned heritage buildings at Mirzapur, eco-tourism possibilities in large floodplain lakes, forts at Monghyr and Buxar, island temples at Bhagalpur, matti-ittr shopping at Kannauj, camping en-route on riverine islands, Chet Singh Ghat at Varanasi and Bitthoor [Kanpur] associated with Nana Fadnavis

The vast number of heritage buildings would be conserved for adaptive reuse as heritage hotels, museums, emporiums, cultural infrastructure.

While rejuvenating river banks, the initiative would translate into livelihoods and incomes for the river bank communities with increased opportunities in boat industry, guides, hospitality, crafts sector, religious activities etc.



Mahabharat Circuit Several places in Uttarakhand are associated with the Mahabharat story. The circuit lies both in the Ganga valley as well as Yamuna valley with locations such as Pandav cave, Swargrohini Peak, Guptkashi, Gaurikund, Pandukeshwar, Tungnath, Vyas Gufa and many more

Revival of the Old Foot Pilgrimage Routes to Kedarnath and Gangotri These routes are millennia old but have been abandoned in favors of rapid vehicular transport. Old dharamshalas and libraries lie abandoned and in ruins. However, the routes are very stable and if rejuvenated they would play a significant role in trekking tourism, home stays, camping and also provide evacuation routes during emergencies.

Floodplain Lakes as Eco-Tourism Sites/ Sailing/Canoeing Sites A very large number of floodplain lakes are present along the route. These are winter bird habitats and present various sporting opportunities.

Crafts Several traditional arts are fading either for lack of patronage or otherwise frozen in time. These need fresh inputs by way of design and contemporary products, apart from being organized around digital information platforms.

Fairs and Festivals galore take place at various times along the river steeped in local traditions. Even other than Sonapur there are livestock fairs in other places. These can all be melded into the circuit and otherwise highlighted. With greater tourist interest, these can be better organized and presented. The backwash effect of tourist's money into the local economy can well be expected.

Architectural Heritage: The settlements along the Ganga hold a vast amount of heritage buildings. These need conservation and can be put to many an adaptive reuse.

The list is long and still expanding – hidden gems abound in every district – waiting to be discovered and rejuvenated with attention.

River Ganga has been the lifeline of the country since ages and has many a story to tell. It is a complete system in itself and has weathered many storms during its journey. It carries many facets of the life on its bank which need to be re-discovered, documented and told. It has many interesting sites along its bank which have great attraction for variety of tourists – from historical to cultural to religious to adventure and many more. The Tourism potential along Ganga is huge which is being tapped for generating livelihood opportunities leading to sizable accretions to the overall GDP from the Ganga basin.



Abandoned Colonial Warehouse (Mirzapur)



Ancient Naag Kund



Bithoor Ghat, Kanpur



Hazardwari Palace, Murshidabad

Places of Tourist attraction along Ganga

INTRODUCTION

Alpine meadows in Uttarakhand are locally known as Bugyals. The alpine zone occupies nearly 33% of geographical area in the Indian Himalaya, of which 25.88% is vegetated and 7.22% is snow Bound area. In Uttarakhand, the Alpine zone forms about 24.11% of the total geographical area. The zone is known to be a rich repository of medicinally important plants; it contributes significantly to the drainage system of rivers that trace their origins to the Himalayas and they have immense cultural significance, tourism and recreational value and many lies on the Pilgrim trails to the revered Char Dham sites. The conservation and restoration of high value alpine meadows is thus very important in the Indian Himalayan system.

District Uttarkashi is known for its extensive Bugyals in the state of Uttarakhand and Dayara Bugyal, the most important among all, is famous for its serene beauty and pristine resources. The total area of the Bugyal is 406 Hectare and is the most popular destination in terms of nature tourism on account of its open glades, vast expanse and easy accessibility.

It is noteworthy that the local economy is also built around the Bugyals. Members of the local community benefit from the thriving tourism industry by being employed as tourist guides, porters and operating Home stays etc. Therefore, they are

important stakeholders and partners in the efforts to restore the Ecosystem.

The Bugyals typically have rich biodiversity and are endowed with the highest herb density among all the habitat types of the region. The ecosystem has more than 185 reported species of vascular plants and more than 55 species of Medicinal and Aromatic Plants (MAP), of which, 14 species fall in the threatened category of IUCN like the *Aconitum balfourii*, *Aconitum heterophyllum*, *Nardostachys jatamansi* etc. The Medicinal plants in the area have been traditionally used since time immemorial for curing over 50 diseases by the local community. Different alpine herbs are also used in religious events, and, are therefore, deeply valued as objects of reverence and used in the propitiation and worship of the local deities. Consequently, the Dayara Bugyal is locally valued beyond its obvious environmental functions.

The Bugyal is the site of origin of two important tributaries of river Bhagirathi namely the Papad Gad and Swari Gad. Both the streams not only provide drinking and irrigation water to the downstream villages of Raithal, Kyark and Barsu but also maintain the geo-hydrological system of the entire area.

WHY TO CONSERVE DAYARA ALPINE MEADOW

Dayara Bugyal with immense ecological, economic and cultural importance has however, faced continuous degradation with decade long human activities like increasing tourism, overgrazing etc. along with the of climate change. The nomadic tribe known as Gujjars seasonally migrate to this pasture with the onset of spring and stay there till autumn. The unattended cattle of the adjacent villages also occupy the area in spring and summers resulting in habitat degradation. High grazing pressure was recorded in Dayara Bugyal with 500-600 Buffaloes of Gujjars and 3500-4000 cattle in a study of the Wildlife Institute of India (WII) published in 2012 (Singh G., I.D. Rai and G. S. Rawat 2012).

The Bugyal has also seen an unprecedented rise in number of tourists of late which has led to increase in solid waste, trampling due to night camps and other activities. Apart from these the ecosystem has experienced the adversities of climate change like heavy rainfalls, flash floods, cloudbursts etc leading to disasters in the lower catchment of Bhagirathi valley. Different threats as above have cumulatively resulted in intense degradation of Bugyal in the form of rampant soil erosion, deepening of gullies across the habitat, vegetation loss and severe floods and landslides in the lower inhabited villages leading to the loss of life and property.

Honorable High court, Uttarakhand in PIL no. 12/2014 vide its order dated 21.08.2018 has also acknowledged the conservation need of Bugyals in Uttarakhand and has among others directed a control on grazing and night camping on tourists. Similar directions were issued by state Human Right Commission also. In Compliance of the above directions and acknowledging the importance of the Alpine ecosystem and realizing the ill effect of the threats, Uttarakhand Forest department constituted a state level Bugyal Sangrakshan Samiti with PCCF (HoFF) Uttarakhand as its chairman. The committee directed Uttarkashi Forest Division to plan and prepare a restoration plan as per field conditions.

Keeping in mind the above aspects of Dayara alpine ecosystem, A team led by Sandeep Kumar, IFS, DFO Uttarkashi accordingly surveyed and planned an innovative Eco restoration project for the treatment of the degraded catchment area of Dayara Bugyal. The



The innovative technique used biodegradable Coir-geotextile, locally available pine needles and bamboo to treat soil erosion, bank erosion and augment regeneration of endemic vegetation. All the works were executed engaging local villagers. Preventive measures like control on grazing, ban on night camping and solid waste management were also included in the plan. Technical guidance was taken from Institutions like Coir Board of India, State bamboo Board, members of the State Bugyal sangrakshan Committee etc. However, the suggestions of the front-line staff and locals proved worth for the planning and execution of this project. The use of biodegradable locally-sourced material and engaging local villagers in this endeavor is in keeping with the Honorable Prime Minister's call for an "Atma Nirbhar Bharat" and the mantra of "vocal for local" vision of the nation so relevant in these tumultuous times. The vision and the statement of purpose of the project is also in perfect harmony with the declaration of the UN General Assembly declaration 2021-2030 "The UN Decade on Eco-system Restoration".

Objectives of the Project

1. To treat soil erosion and gully formation in 12000 sq mt. area of the ecologically frail Dayara bugyal through an innovative Eco-restoration technique using biodegradable coir geo-textile, Pine needle and bamboo in the project.
2. To bring close to 4867-hectare area under the sustainable land management through eco-restoration in the coming 2 years.
3. To remarkably reduce anthropogenic pressures by 70-80% in Dayara Bugyal catchment through community participation.
4. To engage the local community and provide direct and indirect livelihood opportunities to close to 700 households.
5. To control flash flood and subsequent landslides in Swarigad and Papadgad streams by abating the speed of water through check dams in the catchment area

Approach and Methodology

An innovative approach has been used in the eco restoration of Dayara alpine meadow in which bio-degradable coir geo-textile, locally available pine needle along-with bamboo has been roped in to create a series of check dams and channels to control soil erosion, gully formation and vegetation loss. An area of 6600 sq. mt. of the total degraded area of 11000 sq. mt. in the 112.3-hectare Swarigad catchment was taken for treatment in phase one in FY 2019-20 with a cost of 27.03 lakhs. After due consultation with institutions like the Coir board of India, the Wildlife Institute of India and the state level Bugyal Sanrakshan samiti a roadmap for effective implementation was conceived at the division level by a team led by Mr. Sandeep Kumar, DFO Uttarkashi. Frequent Field visits coupled with extensive desk work conducted by a team headed by DFO Uttarkashi helped in informed planning and execution of treatment work at field level. Successful implementation of the project harped upon effective community participation and thus several consultative meetings

were held with villagers of Raithal and Barsu. A total 6600 Sq. Mt. area of Swarigad micro watershed was taken for treatment in which following works were undertaken.

The following steps were primarily involved in the treatment of open denuded areas, deep and wide gullies:

1. Covering of eroded areas with Coir Geo-textile:-

Prior to commencement, the leveling of uneven surfaces was done before laying of the Geo-textile. The open degraded sites in different patches of the Bugyal, the eroded lateral sites of the gullies were then covered with Geo-textile and fixed with 1.5 ft long bamboo pegs.

2. Creation of Channel and Check dam:

A total of around 62.2 hectare of the catchment area that constituted the water shed of the gullies treated, brings large volumes of water during monsoon thereby deepening and widening the gullies further every year. The channels of Pirul logs supported with Bamboo pegs were created all along 4-5 gullies totaling a length of 600 meters. Pairs of bamboo pegs fixed opposite to each other at regular intervals were tied with coir rope all along the channel so as to provide strength and durability. The channels so formed not only acted as a barrier between the running water and the bank of the gully thus controlling bank cutting but also reduced the speed of water due to lateral friction. A series of check dams all across the channel were built to prevent the debris loss and further reduce the speed of water. Each check dam measuring around one-meter in height is constructed by stacking Pirul logs one above the other supported by bamboo stumps fixed 1.5 ft deep on either side of the Pirul logs tied with coir ropes to keep the structure intact and stable.



COMMUNITY PARTICIPATION – VOCAL FOR LOCAL

The area under treatment lies in the fragile Himalayan eco-system. Owing to immense anthropogenic pressure exacerbated further by changing climatic conditions the local community, herders are the most vulnerable amongst all and are therefore a vital part of the stakeholder fraternity along with the forest and tourism department. The eco-restoration technique using locally sourced material like Pine needle and Bamboo and involving local community has not only resulted in reduction of cost by close to 20% but has also generated direct and indirect livelihood opportunities for 700 households. The project has been instrumental in actively engaging the not so vocal Bio diversity Management Committees thus ensuring sustainability. Regular meetings conducted with villagers since 2018 has resulted in significant reduction in the number of un- attended cattle. High satellite population of 300-400 cattle head had been reported in latest study based on discussions with villagers. This is much less than what was eight years ago. The execution of the project by the locals have helped to generate a sense of goodwill and ownership towards forest which will help in conservation of this fragile eco-system in future as well.



Community participation in the project



The fifth meeting of the Monitoring Committee was organised through VC under the Chairmanship of Shri Rajiv Ranjan Mishra, DG-NMCG on 1st September 2020 to review the progress of project related to generation of high resolution DEM and GIS ready database for a part of river Ganga and Pilot Project on Spring Rejuvenation in Tehri Garhwal District of Uttarakhand.



Shri Rajiv Ranjan Mishra, DG-NMCG, participated in the first episode of IUCN India webinar on 'Bonn Challenge and Forest Landscape Restoration: Showcasing Initiatives' on 1st September 2020. The webinar was joined from experts from world over and was also attended by the renowned spiritual Leader Sri Sri Ravi Shanker.



On 3rd September, 2020 Shri Rajiv Ranjan Mishra, DG-NMCG felicitated the schools with maximum participation in Ganga Quest 2020. Shri Rozy Agarwal, ED(F), NMCG, Bhawna Badola, CEO, Tree Craze Foundation and Officials from GIZ and other stakeholders were also present during the event during which interaction was held with Top 10 schools with maximum eligible registrations.



On 8th September 2020 a virtual meeting of the Monitoring Committee to review the project on 'GIS-based Mapping of Microbial Diversity across the Ganga for Ecosystem Services' begins' was held. "There has been a considerable amount of work done on improving the quality of the river water and restricting the flow of sewage into the river", said Shri Rajiv Ranjan Mishra, DG-NMCG.



Shri Rajiv Ranjan Mishra, DG-NMCG chaired the virtual meeting on 9th September 2020, with Shri Sanjay Kumar, Commissioner, Saharanpur and officials of WII, WWF and others on the development of Haiderpur Wetland and for launching Dolphin Safari on Ganga.



A Virtual meeting was held on 10th September 2020 with Shri Rajiv Ranjan Mishra, DG-NMCG in chair with World Bank to review the progress of projects aided by World Bank for rejuvenation of River Ganga basin. Shri Ashok Singh, ED- Project, Shri. Rozy Agarwal, ED – Finance and Task Team Leader, World Bank leader Shri Xavier Chauvot also took part.

GANGA - FROM THE NEWS DESK



On 14th September, 2020, Shri U. P. Singh, Secretary Jal Shakti Ministry chaired a virtual meeting organized by Ganga Rejuvenation project (GIZ-SGR) & the India-EU Water Partnership (IEWP) to discuss developing a policy on Treated Wastewater reuse. Various experts shared their views on reuse policies of countries across the Globe.



On 15th sept 2020, Shri Rajiv Ranjan Mishra, DG-NMCG chaired the 4th NMCG-WII Project Monitoring Committee meeting, which was joined by Dr. Dhananjai Mohan, Director WII, Sh. Basanta Kumar Das, Director - ICAR-CIFRI, and Environmentalist, Shri Anil Joshi. During the meeting Dr. Ruchi Badola, Nodal Officer and Dr. S.A.Hussain, Principal Investigator presented the progress on the activities covered under Phase I and II of the project.



On 17th Sept 2020, Shri Rajiv Ranjan Mishra, DG-NMCG and other officials of NMCG released the 18th edition of the #NamamiGange magazine. This edition showcased the journey of Ganga from Gaumukh to Ganga Sagar and other important activities. It also featured various new interventions & projects taken by NMCG under the Namami Gange Program.



A virtual meeting was held on 18th sept 2020 under the Chairmanship of Shri Rajiv Ranjan Mishra, DG-NMCG with the officials of World Bank and GIZ to discuss the transformation of NMCG to a River Basin Management Authority and the joint efforts towards water use efficiency, reuse policy and institutional development. Various experiences and recommendations for exchange within the RBM cycle in Ganga towns were shared by the international experts.



On 18th September, 2020 the RBM Cycle Training Series Webinar 7 by GIZ was held for discussing solutions through exchange, information flow and cooperation. A panel of stakeholders from across various demographics were present. Shri Rajiv Ranjan Mishra, DG-NMCG emphasised on the crucial role of information flow amongst various stakeholders for effective river basin development.



On 30th September 2020, Shri UP Singh, Secretary, Jal Shakti Ministry chaired the 6th meeting of Central Monitoring Committee on the NGT order to review the progress of sewage infrastructure in various states. Shri Rajiv Ranjan Mishra, DG-NMCG, Shri DP Mathuria, ED(T)-NMCG and other officials of NMCG and the state government were also present.

नमामि गंगे योजना पुरस्कार के टॉप-6 जिलों में बुलंदशहर भी

बुलंदशहर | हरिद्वार संवाददाता

देहरादूर के इन छह जलाशयों के डीएन देगो प्रस्तुति

उत्तर प्रदेश के बुलंदशहर, मेरठ और कानपुर के डीएन प्रस्तुति हैं। उत्तराखण्ड के उत्तरकाशी और चम्पौर तथा बिहार के दरभंगा जलाशय के डीएन को प्रस्तुति के लिए चुना गया है।

के उपसचिव कमल कुमार राजगुरु ने डीएन के मुख्य अधिकारी अशोक शिखरी और सहायक अधिकारी कुमर को प्रदर्शित करने को कहा होने की सूचना पर चेन्नई में है। डीएन को सर्वोत्तम पर में बताया गया है कि



श्याम चंद्र कुमार।
उत्तराखण्ड के लिए सर्वोत्तम कामेटी नंबर-2 के अंक 10 विलम्बर को टैग 2.30 के 3.45

नमामि गंगे के अंतर्गत जलाशयों में हुए कार्य

बुलंदशहर। नमामि गंगे योजना के अंतर्गत जलाशयों में संपन्न किए गए कार्य का वीडियो बुलंदशहर के लिए चुना गया। जिले के 36 गांवों में डीएन प्रस्तुति के लिए चुना का सबसे बड़ा काम है। जिले में 100 गांवों में डीएन प्रस्तुति के लिए चुना गया है। जलाशयों में संपन्न किए गए कार्य 80 गांवों को प्रभावित और पर्यावरण सुधारा की योजना है। जलाशयों के जल को सफाई प्रदान करने का काम है।



बुलंदशहर में संपन्न किए गए कार्य का वीडियो।

Development Of More Than 180 Ghats Going On Under Namami Gange Mission: PM Modi

Under the Annuh Yojna about 12 lakh families are being targeted to be provided with clean drinking water connection. In these six lakh families have already got this facility.

7:07
Tweent
NIC Video Conferencing Service
Hon'ble PM inaugurated six mega development projects in Uttarakhand under #NamamiGange Mission, via NIC Video Conferencing Service. Its the largest integrated river conservation mission which aims at cleanliness of River Ganga & also focuses on its comprehensive upkeep. #NICMeety

15 September, 2020
14:00
47 Retweets
177 Likes (14:02)

Prime Minister [Narendra Modi](#) on Tuesday said that under the Namami Gange mission development work on more than 180 ghats is going on in the country.

PM Modi Inaugurates Projects Worth Rs 521 Cr Under Namami Gange Mission In Uttarakhand

The Prime Minister inaugurated several sewage treatment plants and their upgradations today located in Haridwar, Rishikesh, among other regions.

29 September, 2020
14:00
47 Retweets
177 Likes (14:02)

Prime Minister [Narendra Modi](#) on Tuesday inaugurated six mega projects amounting to Rs 521 crore under the Namami Gange Mission in Uttarakhand.

दैनिक भास्कर
पटना 15-09-2020

नमामि गंगे परियोजना • पहली दो परियोजनाओं का आज पीएम करेंगे उद्घाटन, अभी हाउस कनेक्शन का काम बाकी

बेउर और करमलीचक सीवरेज ट्रीटमेंट प्लांट में साफ होकर पुनपुन नदी में जाएगा 24 हजार घरों का पानी

दोनों एसटीपी से जुड़ा 275 किमी सीवरेज नेटवर्क बिछेगा

बेउर व करमलीचक सीवरेज ट्रीटमेंट प्लांट अलावा नदी के तट पर स्थित 24 हजार घरों का सीवरेज का काम पूरा हो जाएगा। नदी को साफ करने के लिए नमामि गंगे परियोजना के अंतर्गत बेउर और करमलीचक सीवरेज ट्रीटमेंट प्लांट में साफ होकर पुनपुन नदी में जाएगा 24 हजार घरों का पानी।

उत्तराखण्ड के लिए बजट में 100 करोड़ रुपये का काम है। नमामि गंगे परियोजना के अंतर्गत बेउर और करमलीचक सीवरेज ट्रीटमेंट प्लांट में साफ होकर पुनपुन नदी में जाएगा 24 हजार घरों का पानी।

उत्तराखंड को नमामि गंगे में मिल सकती है 22 करोड़ की सौगात, NMCG भेजे गए आठ प्रस्ताव

उत्तराखण्ड को नमामि गंगे में मिल सकती है 22 करोड़ की सौगात, NMCG भेजे गए आठ प्रस्ताव।

First-of-its-kind museum on river Ganga to be inaugurated by PM Modi on Tuesday

NEW DELHI: A first-of-its-kind museum in India on river Ganga, taking visitors to a journey along the river from its origin in the Himalayas to extensive floodplains, mangrove forest and finally to the sea where it merges with Bay of Bengal, will be dignally inaugurated by the Prime Minister Narendra Modi at Chandi Ghat, Haridwar on Tuesday. Besides, six sewage treatment plants (STP) in Uttarakhand will also be



सुमित्रानंदन पंत

गंगा और कवि

गंगोत्री से बंगाल की खाड़ी तक अपने विशाल वैभव को बिखेरती राष्ट्रीय नदी कहलाने वाली गंगा को मोक्षदायिनी मान कर पूजा जाता है। गंगा का जितना धार्मिक महत्व है उतना ही महत्वपूर्ण स्थान आर्थिक, सांस्कृतिक और साहित्यिक जगत में भी प्राप्त है। ऋग्वेद, महाभारत, रामायण, संस्कृत के कवि जगन्नाथ रचित गंगा लहरी जैसे अनेकों लोकप्रिय ग्रंथों में कवियों ने गंगा को पुण्य सलिला, पाप नाशिनी, मोक्ष प्राणदायिनी, महानदी के रूप में वर्णित किया है। आदिकाल के सुप्रसिद्ध कवि जगन्निक ने आल्हा खंड में त्रिवेणी को पाप नाशक बताया है।

विद्यापति, कबीर, मलिक मुहम्मद जायसी, तुलसीदास, सूरदास, सेनापति, रसखान, अब्दुरहीम खानखाना जैसे महान कवियों ने अपने काव्य में गंगा की महीमा के अपार महात्म्य को वर्णित किया है। आधुनिक काल के महान कवियों सुमित्रानंदन पंत, जगन्नाथदास रत्नाकर, भारतेन्दु हरिश्चंद्र, श्रीधर पाठक तथा रामधारी सिंह दिनकर ने गंगा जैसी पतित पावनी नदी की प्राकृतिक छटा के सौंदर्य को अपने काव्य में रमणीय स्थान दिया है।

गंगा

अब आधा जल निश्चल, पीला,
आधा जल चंचल और, नीला—
गीले तन पर मृदु संध्यातप
सिमटा रेशम पट—सा ढीला!

ऐसे सोने के साँझ प्रात,
ऐसे चाँदी के दिवस रात,
ले जाती बहा कहाँ गंगा
जीवन के युग—क्षण — किसे ज्ञात!

विश्रुत हिम पर्वत से निर्गत,
किरणोज्ज्वल चल कल उर्मि निरत,
यमुना गोमती आदि से मिल
होती यह सागर में परिणत।

यह भौगोलिक गंगा परिचित,
जिसके तट पर बहु नगर प्रथित,
इस जड़ गंगा से मिली हुई
जन गंगा एक और जीवित!

वह विष्णुपदी, शिवमौलि ररुता,
वह भीष्म प्रसू और जह्न सुता,
वह देव निम्नगा, स्वर्गगा,
वह सगर पुत्र तारिणी श्रुता।

वह गंगा, यह केवल छाया,
वह लोक चेतना, यह माया,
वह आत्मवाहिनी ज्योति सरी,
यह भू पतिता, कंचुक काया।

वह गंगा जन मन से निरुसृत,
जिसमें बहु बुदबुद युग निर्रित,
वह आज तरंगित संसृति के
मृत सैकत को करने प्लावित।

दिशि दिशि का जन मन वाहित कर,
वह बनी अकूल अतल सागर,
भर देगी दिशि पर पुलिनो में
वह नव नव जीवन की मृदु उर्वर!

गंगा किनारे वाले कवि: सुमित्रानंदन पंत

परिचय— बीसवीं सदी का पूर्वार्द्ध छायावादी कवियों का उत्थान काल था। उसी समय अल्मोड़ा निवासी सुमित्रानंदन पंत उस नये युग के प्रवर्तक के रूप में हिंदी साहित्य में अभिहित हुए। इस युग को जयशंकर प्रसाद, महादेवी वर्मा, सूर्यकांत त्रिपाठी निराला और रामकुमार वर्मा जैसे छायावादी प्रकृति उपासक, सौंदर्य पूजक कवियों का युग कहा जाता है। सुमित्रानंदन पंत का प्रकृति चित्रण अत्यंत श्रेष्ठ था। उनका जन्म ही बर्फ से आच्छादित पर्वतों की अत्यंत आकर्षक घाटी अल्मोड़ा में हुआ था। छायावादी कवियों का प्रकृति वर्णन हिन्दी साहित्य में उल्लेखनीय है। सुमित्रानंदन पंत ने 'नौका विहार' में ग्रीष्मकालीन तापस बाला गंगा का जो चित्र उकेरा है, वह अति रमणीय है। उन्होंने गंगा नामक कविता भी लिखी है, जो गंगा के साथ उनका अटूट गहन संबंध स्पष्ट दृष्टिगोचर करता है। निसर्ग के उपादानों का प्रतीक व बिम्ब के रूप में प्रयोग उनके काव्य की विशेषता रही। उनका व्यक्तित्व भी आकर्षण का केंद्र बिंदु था। गौर वर्ण, सुंदर सौम्य मुखकृति, लंबे घुंघराले बाल वाले इस कवि का प्रतीक समा शारीरिक सौष्ठव उन्हें सभी से अलग मुखरित करता था।

कार्य— मैट्रिक उत्तीर्ण करने के बाद वे इलाहाबाद चले गये। यहां म्योर कॉलेज में उन्होंने इंटर में प्रवेश लिया। अगले वर्ष उन्होंने कॉलेज छोड़ दिया और घर पर ही हिंदी, संस्कृत, बंगला और अंग्रेजी का अध्ययन करने लगे। सुमित्रानंदन सात वर्ष की उम्र में ही जब वे चौथी कक्षा में पढ़ रहे थे कविता लिखने लग गए थे। सन् 1907 से 1918 के काल को स्वयं कवि ने अपने कवि जीवन का प्रथम चरण माना है। इस काल की कविताएँ वीणा में संकलित हैं। सन् 1922 में उच्छवास और 1928 में पल्लव का प्रकाशन हुआ। सुमित्रानंदन पंत की कुछ अन्य काव्य कृतियाँ हैं— ग्रंथि गुंजन, ग्राम्या युंगात, स्वर्ण किरण, स्वर्णधूलि कला और बूढ़ा चाँद लोकायतन, निदेबरा, सत्यकाम आदि। उनके जीवनकाल में उनकी 28 पुस्तकें प्रकाशित हुईं जिनमें कविताएँ, पद्य, नाटक और निबंध शामिल हैं। श्री सुमित्रानंदन पंत अपने विस्तृत वाङ्मय में एक विचारक दार्शनिक और मानवतावादी के रूप में सामने आते हैं किंतु उनकी सबसे कलात्मक कविताएँ पल्लव में संकलित हैं जो 1918 से 1925 तक लिखी गई 32 कविताओं का संग्रह है।

कृतियाँ— अनुभूति, महात्मा जी के प्रति मोह, सांध्य वंदना, वायु के प्रति, श्री सूर्यकांत त्रिपाठी के प्रति, आज रहने दो यह गृह काज, चंचल पग दीप—शिखा—से, संध्या के बाद, वे आंखें, विजय, लहरों का गीत, यह धरती कितना देती है, मैं सबसे छोटी होऊँ, मछुए का गीत, जीना अपने ही में, बापू के प्रति, ग्राम श्री, जग के उर्वर आंगन में, काले बादल, तप रे, आजाद, द्रुत झरो जगत के जीर्ण पत्र, गंगा, अमर स्पर्श, आओ — हम अपना मन टोवें, परिवर्तन, जग जीवन में जो चिर महान, पाषाण खंड, नौका विहार, भारतमाता, आत्मा का चिर धन, धरती का आंगन इटलाता, बाल प्रश्न, ताज, बांध दिये क्यों प्राण, चींटी, याद, वह बुड्ढा, घंटा, बापू प्रथम रश्मि, दो लड़के, पर्वत प्रदेश में पावस, छोड़ द्रुमों की मृदु छाया, धेनुए, पन्द्रह अगस्त उन्नीस सौ सैंतालीस, गीत विहग।

उपाधि— हिंदी साहित्य की इस अनवरत सेवा के लिए उन्हें पद्मभूषण 1961, ज्ञानपीठ 1968 तथा सोवियत लैंड नेहरू पुरस्कार जैसे उच्च श्रेणी के सम्मानों से अलंकृत किया गया। सुमित्रानंदन पंत के नाम पर कौशानी में उनके पुराने घर को जिसमें वे बचपन में रहा करते थे, 'सुमित्रानंदन पंत वीथिका' के नाम से एक संग्रहालय के रूप में परिवर्तित कर दिया गया है। उनका देहांत 1977 में हुआ। आधी शताब्दी से भी अधिक लंबे उनके रचनाकर्म में आधुनिक हिंदी कविता का पूरा एक युग समाया हुआ है।



MARBLED TOAD

Marbled toad (*Duttaphrynus stomaticus*) is widely distributed in Afghanistan, Iran, Pakistan, Nepal, Bangladesh and India. The upper elevation limit of this species is 4500 m. It is widely distributed throughout India. In the context of the Ganga River, the species has been recorded from the upper stretch covering Uttarkashi, Tehri, Pauri, Garhwal Srinagar and Rishikesh; all through the Gangetic plains in the middle stretch and; from Calcutta and southern West Bengal in the lower stretch.

It is a light brown, moderately large bodied toad with a size of 76 mm. Tympanum is distinct, first finger longer than the second. The skin may be smooth with a few flattened tubercles. Male has a singular vocal sac. During the breeding season, the skin colour changes to yellow in both the sexes, with the males brighter than the females.

The species inhabits a wide variety of habitats such as open plains, grasslands, shrubland, forest, agricultural land and human habitations. It is a highly adaptable species and can survive under varying climatic conditions. Breeding occurs in permanent and seasonal pools, seasonal streams and slow-flowing streams.

The species is vulnerable to loss of habitat due to infrastructure development, agricultural intensification, pollution of wetlands and land by agrochemicals, traffic-related mortality, and droughts.

SCIENTIFIC NAME

Duttaphrynus stomaticus

IUCN RED LIST

Least Concern

INDIAN WILD LIFE (PROTECTION) ACT, 1972-
Not listed

BIOGEOGRAPHIC PROVINCES

Upper & Lower Gangetic Plains (7A & 7B)

कोरोना का कहर है जारी सावधानी बरतें, कर लें तैयारी नहीं तो चुकानी पड़ सकती है कीमत भारी



हाथ धोएं बार बार

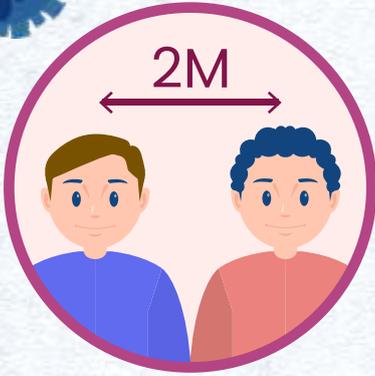


सही से मास्क पहनें



निभाएं दो गज की दूर

जब तक दवाई नहीं
तब तक ढिलाई नहीं



एक दूसरे से 2 गज की
दूरी बनाकर रखें



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से संपर्क करें



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और मुँह को रुमाल से ढक कर रखें



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को बिना हाथ धोये हाथ ना लगायें



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