



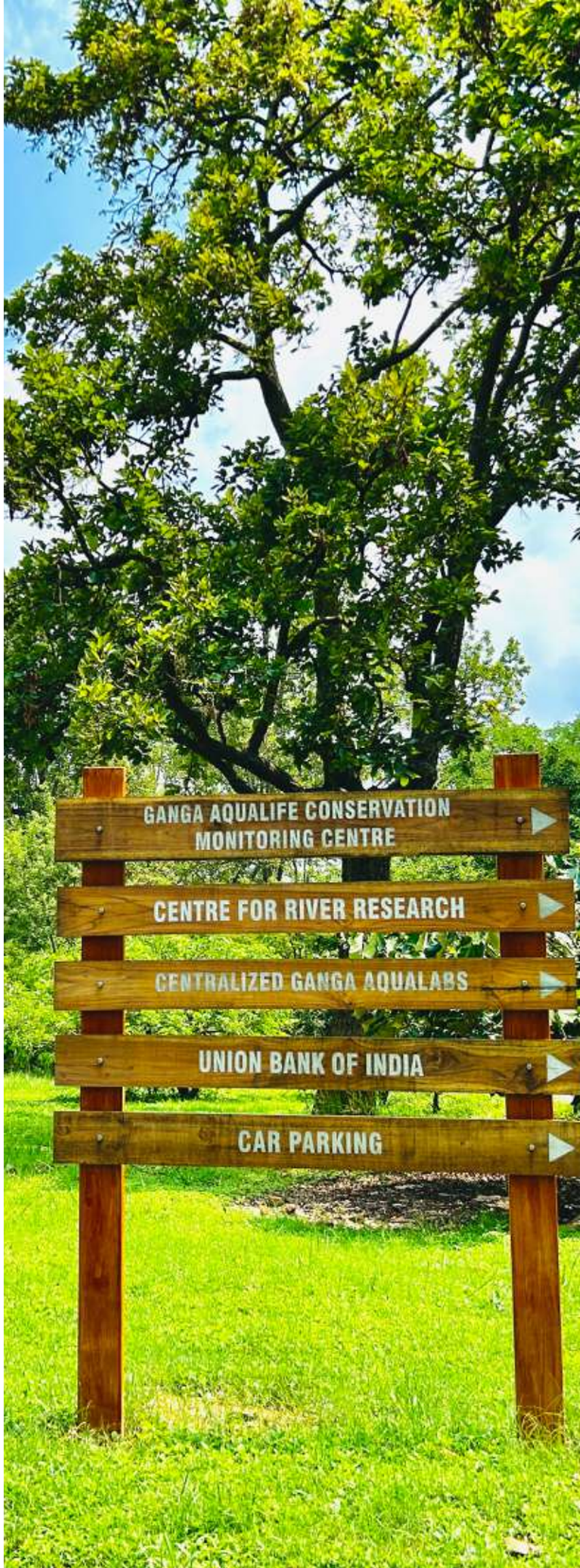
DRAFT PROPOSAL FOR
ADOPTION OF
NATIONAL CENTRE
FOR RIVER RESEARCH



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CONTEXT

The present note seeks approval for the adoption of the Ganga Aqualife Conservation Monitoring Centre (GACMC) created through the financial support from the National Mission for Clean Ganga (NMCG) and the National River Conservation Directorate (NRCD), Ministry of Jal Shakti, Government of India as the '**National Centre for River Research**'. During the review meeting of the project "Assessment of the ecological status of select Indian Rivers for conservation planning" held on 28th March, 2023, the Secretary, Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti advised Wildlife Institute of India (WII), Dehradun that a proposal may be submitted to the Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti for adopting the GACMC as National Centre for River Research to ensure its future sustainability.

2. BACKGROUND

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In 2016, the Government of India launched the Namami Gange programme - a flagship programme for the rejuvenation and conservation of the Ganga River with the twin objectives of achieving its 'Aviral and Nirmal Dhara'. The Ministry of Jal Shakti through NMCG developed a holistic multifaceted approach to address the challenges being faced by the Ganga River system, which recognised the conservation of aquatic biodiversity and the importance of stakeholder engagement for ecological restoration of large landscapes. As a part of this initiative, the NMCG initiated the project "Biodiversity Conservation and Ganga Rejuvenation" in collaboration with the Wildlife Institute of India (WII), Dehradun. This project was spearheaded by the Ganga Aqualife Conservation Monitoring Centre (GACMC) which was virtually established as the data repository and information dissemination centre at the campus of WII.

The policy recommendations of the "Biodiversity Conservation and Ganga Rejuvenation" project emphasised the urgent need for accounting the basin scale natural and anthropogenic processes, and upscaling the project efforts to the basin level to ensure sustainable and effective Ganga conservation efforts. In view of this, NMCG extended funding to WII for the phase II of the project, for a period of five years from 2020 to 2024. The phase II of the project aimed to intensify conservation efforts in identified ecological hotspots along the Ganga mainstem and upscale the conservation efforts to basin level for ecological restoration and maintenance of ecosystem services for a clean Ganga. In the second phase of the project, in addition to the Ganga mainstem, the project is being implemented in select tributaries of the Ganga River, namely Ramganga, Gomti, Ghaghra, Gandak, Kosi, Yamuna, Son, Ajay, Damodar Rupnarayan, and Chambal.

During a consultative meeting chaired by Smt. T. Rajeswari, Additional Secretary, Ministry of Jal Shakti, held at the National River Conservation

Directorate (NRCD), Ministry of Jal Shakti, on 16th December 2019, to identify the major Indian rivers for conservation prioritization, it was suggested that the Biodiversity Conservation and Ganga Rejuvenation model implemented by WII under the NMCG project, should be replicated nationwide. Subsequently, the Hon'ble Minister for Jal Shakti Shri Gajendra Singh Shekhawat on 11th April 2020, through a video conference directed WII to replicate the river conservation model to other Indian rivers with priority on Cauvery, Godavari, Periyar, Mahanadi and Narmada which was mentioned by the Hon'ble President of India in his speech in Parliament on 20th June, 2019. As the Northeast India was left out, the NMCG suggested to include Barak river in the programme which passes through the five northeast Indian states. In the follow-up meeting on 23rd April, 2020, the Director General, NMCG and the Project Director, NRCD, recognized WII as an umbrella agency to spearhead the biodiversity conservation in Indian rivers under the aegis of National River Conservation Plan (NRCP) and suggested that Narmada, Mahanadi, Godavari, Cauvery, Periyar and Barak rivers to be taken up under this programme.

Subsequently, NRCD initiated the project "Assessment of the ecological status of select Indian rivers for conservation planning" in collaboration with WII under the centrally sponsored programmes National River Conservation Plan (NRCP) and National Plan for Conservation of Aquatic Ecosystems (NPCA), for a period of two years and six months from 2020 to 2023. The project aimed to "spearhead aquatic biodiversity conservation in identified Indian rivers" through intensive ecological studies, identification of conservation priority zones, capacity building of identified regional institutions/organizations for long term involvement in river conservation, and strengthening of GACMC created by WII to cater to the requirements of other Indian rivers for conservation planning.

The GACMC, has been established as a centralized knowledge centre in the WII campus in Dehradun, Uttarakhand, to develop a resource repository on freshwater biodiversity and aid the Government of India as a decision support institution for planning and conservation of freshwater sources, such as rivers and wetlands, and its biodiversity. The Centre covers an area of approximately 1,000 sq. metre, and houses laboratories for eco-toxicological research, conservation biology and spatial analysis in respect to aquatic biodiversity. The Centre also has a classroom with a seating capacity of 20, a library and an auditorium to facilitate the capacity building of young professionals in the field of freshwater ecology.



3. PROPOSAL

It is proposed that GACMC may be adopted as the 'National Centre for River Research' by the Ministry of Jal Shakti, Government of India, which may serve as a decision support institution for water resources management in the country, to ensure the sustainability of the Centre. The Centre will provide technical inputs to Ministry of Jal Shakti on water resource management vis a vis river biodiversity conservation. The Centre shall nurture and promote excellence in education, research and training in the field of freshwater ecology and conservation, creating a new generation of researchers and ecologists to carry forward water resource development and river conservation in the country.



4. JUSTIFICATION

India is among the most water stressed regions in the world, with only 4% of the global water resources and 2.4% of landmass supporting nearly 18% of the world's population. The intended and unintended consequences of tending to this largest population of the world, has imposed a dire strain on the country's limited freshwater resources, creating a severe water crisis with far reaching implications for its agricultural and energy production.

The water-food-energy nexus - the inextricably interlinked water resources, food production and electricity generation, underpins human wellbeing, economic growth and sustainable development. Given that the sustainable supply of water is rooted in the status and health of the country's freshwater ecosystems, it becomes even more imperative to design and invest in smart nexus solutions i.e., solutions that "benefit more than one sector, including interventions that reduce the pressure on ecosystems".

Freshwater ecosystems are among the most endangered biomes globally. Drivers and pressures such as an increased demand for food, energy and water, expansion of human habitation, water pollution etc. have led to changes in the freshwater ecosystems, visible through altered hydrology and water chemistry. In the current era, climate change is acting as an overarching threat that is impacting the multiple aspects of the ecosystem level processes, particularly in the context of freshwater ecosystems.

Freshwater conservation needs to be rooted in scientific evidence-based effective and efficient management. This is especially important in the face of rising pressures due to competing demands for freshwater resources and availability due to the climate and land use changes. Improving effectiveness and efficiency of conservation actions in freshwater ecosystems faces important challenges that must become a priority to reverse the steep decline that freshwater ecosystems and biodiversity are now experiencing. Given the dramatic declines in global freshwater biodiversity, which far exceed

those observed in terrestrial or marine ecosystems, it is pertinent to understand the aquatic ecosystem level processes, their biodiversity and pinpoint the problematic areas that need ameliorative measures.

Effective conservation of freshwater ecosystems must be supported by adequate and sufficient knowledge on the status of freshwater biodiversity, drivers of its decline and the effectiveness of different management options to address the impacts of those drivers. There are currently large gaps in all these different arenas that need to be addressed to enhance the effectiveness of conservation action in the future. One of the hurdles in scientific conservation planning is lack of adequate knowledge on freshwater ecology, particularly in the tropical and sub-tropical freshwater ecosystems. The emergency recovery plan for the freshwater ecosystems calls for urgent actions through a set of measures, for which a workforce of freshwater researchers and ecologists is needed. The recovery plan urges integration of biodiversity inventory and basic ecosystem science, stressor assessment, systematic restoration and protected area management with links to terrestrial realms.

The research on freshwater ecosystems, including its associated aquatic fauna, is scattered across various domains. There is no centralized repository and nodal agency in India that is collating, managing and disseminating this vital intellectual resource, to facilitate informed decision making and policy planning in the management and conservation of the country's freshwater sources.

Under the Namami Gange programme, a Centralized Knowledge Centre known as 'Ganga Aqualife Conservation Monitoring Centre' has been established at the Wildlife Institute of India, Dehradun to cater to the need for conservation and management of the freshwater resources, in wake of the country's growing demand for freshwater. Initially, GACMC was working to cater to the demands of Ganga Basin, which is now been upscaled to cater to the need of river conservation at the country level as a 'National

Centre for River Research', with an additional financial support by the NRC, Ministry of Jal Shakti through the project "Assessment of ecological status of select Indian river for conservation planning".

The GACMC is one of its kind in the country, which will provide technical inputs to the Ministry of Jal Shakti and the Ministry of Environment, Forest & Climate Change, Government of India on water resource management and river biodiversity conservation.

The Centre is equipped to conduct advanced ecological and eco-toxicological research and systematic conservation planning for rivers in the face of increasing anthropogenic pressures and climate change impacts. The fully operational National Centre for River Research will collect, collate and disseminate information on the ecology and conservation of freshwater ecosystems and will also develop a cadre of young professionals for science-based management of freshwater ecosystems in India.

Apart from the advanced technical capabilities of the Centre, there is a dedicated team of over 100 researchers who have been working to meet the aims and objectives of the NMCG and NRC funded projects. These researchers have not only been conducting research with respect to the ecological attributes of select rivers across the country, but have also been actively engaged in capacity building of key stakeholders such as frontline forest staff, field veterinarians, local community in freshwater ecology and first responder training with respect to species in distress, developing and disseminating awareness material, and creating a grassroots level movement for the conservation of freshwater ecosystems and its associated biodiversity through an effective awareness and sensitization campaigns, rooted in continuous engagement with the riverside communities and their livelihood skill enhancement. This workforce has also created a pool of volunteer trained cadre from within the local community who have emerged as the leaders of the grassroots river and biodiversity conservation movement.

The establishment of a specialized river research institute is crucial for addressing the water security challenges facing the country. Given the advanced technical capabilities of the Centre, and the immense human and social capital amassed, it is proposed that the 'National Centre for River Research' may be adopted the Ministry of Jal Shakti, Government of India, to ensure the sustainability of the conservation efforts and enhance the returns on the investments already made. The Institute can ensure the efficient and equitable use of its freshwater resources by conducting scientific research, aiding evidence-based policy and decision-making, and garnering support for conservation and instilling a sense of stewardship at all levels, particularly at the grassroots. The Institute will be committed to meeting the knowledge, expertise and capacity building requirements that are vital for sustaining the health of our freshwater ecosystems, and the services they supply. Through the establishment of a 'National Centre for River Research' as an autonomous institute, India can demonstrate its commitment to water security, sustainable development, and environmental stewardship, setting an example for the world to follow.

5. VISION

To nurture and advance scientific knowledge and understanding of freshwater ecosystems, and translate it into practical solutions and evidence-based policy and decision making in water resource development.

6. MISSION

To be a globally recognized 'centre of excellence' in river research and conservation.



7. AIMS AND OBJECTIVES

The National Centre for River Research aims to contribute significantly to the scientific knowledge base, promote sustainable river management, and facilitate the conservation and protection of freshwater ecosystems by pursuing the following objectives:

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- 1 Build up scientific knowledge on freshwater ecosystems, such as rivers and wetlands.
- 2 Develop and implement comprehensive monitoring programmes to assess the health and ecological integrity of river systems.
- 3 To build capacity among relevant stakeholders for the conservation and management of freshwater ecosystems and their associated biodiversity.
- 4 Engage stakeholders in participatory research, consultative processes, and knowledge exchange activities to incorporate diverse perspectives, and foster stewardship of freshwater ecosystems.
- 5 Provide scientific expertise and evidence-based recommendations to inform policy development, planning and decision-making processes related to freshwater ecosystems.
- 6 Develop effective outreach programmes to raise public awareness about the conservation significance of freshwater ecosystems and their associated biodiversity.

8. EXISTING FACILITIES

The proposed 'National Centre for River Research' is spread over an area of 1,000 sq. metre in the WII campus in Dehradun, Uttarakhand, and is equipped with three research laboratories, library, auditorium and classroom for research and capacity building. Additionally, it has a team of trained personnel to fulfil the objectives of the Centre. The details of which are as follows:

8.1 LABORATORIES

The Centre has three laboratories for ecotoxicology, aquatic ecology and spatial analysis and research with respect to freshwater ecosystems and their associated biodiversity.

The **ecotoxicology laboratory** is equipped to conduct qualitative and quantitative estimation and monitoring of emerging and traditional toxic organic contaminants, determination of elements and their species in various kinds of aquatic samples, and quantitative estimation of diverse physical-chemical parameters related to environmental surveillance and management, which include water-quality indicators such as pH, dissolved oxygen, temperature, turbidity, conductivity and nutrient concentrations.

The **ecology laboratory** with infrastructure for monitoring of aquatic biodiversity and molecular studies.

The **GIS laboratory** capable of conducting cutting-edge research pertaining to the application of geospatial tools for conservation of freshwater ecosystems.





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8.2 EQUIPMENT

The Centre is equipped with the latest technology to conduct ecological surveys, including monitoring of geomorphological characteristics of rivers and its floodplains, flow dynamics, species assemblage, movement ecology, impact of policy initiatives.

8.3 LIBRARY

The library in the Centre is a comprehensive resource centre dedicated to the study of freshwater ecosystems, their biodiversity, ecological processes, and the intricate interconnections that sustain these fragile habitats. The library harbours an extensive collection of books, journals, periodicals, and research papers, carefully curated to cover a wide array of topics related to freshwater ecosystems. Additionally, it offers access to digital resources including online journals, databases and research portals accessible from dedicated computer terminals.

The library also contains the collection of over 220 documents published under the "Biodiversity Conservation and Ganga Rejuvenation" project (Phase I and II), which includes outreach material in both English and Hindi, technical or research reports, research articles published in journals of international repute, books, and Protected Area Management Plans (Annexure I).



8.4 AUDITORIUM

The auditorium in the Centre is dedicated to fostering knowledge sharing, collaboration, and transformative discussions in the field of freshwater research. The auditorium has a seating capacity of 60, and is equipped with advanced audio-visual facilities, including high-definition projection screens and immersive sound systems, offering a dynamic platform for presentations, lectures, seminars, symposiums, conferences and workshops.

8.5 CLASSROOMS

The Centre houses a classroom with a seating capacity of 20, to support the Centre's capacity building programme for young professionals in the field of freshwater ecology viz., a Master's programme and a Diploma on Freshwater Ecology and Conservation.



8.6 RESEARCHERS' ROOM

The Centre harbours a researchers' room with a capacity to seat 30 researchers having computer and internet facilities which was thoughtfully designed with an ambience of scholarly tranquillity.

8.7 HUMAN CAPITAL

There is a dedicated team of 150 people who have been working tirelessly over the span of 8 years, in various capacities, to meet the aims and objectives of the NMCG and NRCD funded projects. These researchers have been conducting research in river ecology, capacity building of key stakeholders, community engagement and public outreach. There are currently 20 PhD holders engaged in the projects with different specializations in the fields of freshwater ecology, monitoring of aquatic biodiversity and engaging multiple stakeholders, especially local communities in rivers and wetlands conservation. The Centre is linked with around 3500 Ganga Praharis, a trained network of motivated volunteers from within the local community, spread across the Ganga River Basin, established under the NMCG-WII project to support conservation initiatives at the grassroots level.

8.8 RESCUE AND REHABILITATION CENTRES

The Centre provides support to five rescue and rehabilitation centres, established in the Ganga basin, through the NMCG-WII project. These rescue and rehabilitation centres provide housing and treatment facilities to the aquatic species in distress, which are subsequently released into the suitable habitat.

8.9 INTERPRETATION CENTRES AND MUSEUM

The Centre has a series of interpretation centres in the Ganga basin, established through the NMCG-WII project. Ganga Avlokan, one of its kind museum dedicated to the journey of the Ganga River, from its source to mouth, has been established at Chandighat, Haridwar, Uttarakhand. In addition, two interpretation centres have also been established in Sarnath (Ganga Darpan) and Kanpur (Ganga Anubhuti) in Uttar Pradesh for mass public education programme. Additionally, low budget interpretive corners, termed as Jalmala Samvad, have been established in select schools in the Ganga basin which will be upscaled to country level.

8.10 JALAJ

A network of 75 micro economic units along the Ganga River and its select tributaries, established under the NMCG-WII Ganga Biodiversity Conservation Initiative, to create an economic bridge between the people and river conservation. The Centre provides skill enhancement, upgradation and market links to these Jalajs through networking and trainings.



9. ROADMAP FOR THE FUTURE

9.1 GOVERNANCE

The Wildlife Institute of India is an autonomous Institute of the Ministry of Environment, Forest and Climate Change located at Chandrabani, Dehra Dun. The Wildlife Institute of India' is a registered society under the Societies Registration Act. The Minister of Environment, Forest and Climate Change is the President assisted by 32 members. The WII is managed by a Governing body, for which the Secretary, Ministry of Environment, Forest and Climate Change is the Chairman. Additionally, the Training, Research and Academic Council (TRAC) at WII is responsible for overseeing and managing academic and research activities of the Institute.

It is proposed that WII's Society and the Governing Body may also be responsible for the management of the proposed National Centre for River Research. The WII Society, its Governing Body and TRAC may include representation from the Ministry of Jal Shakti, NMCG and NRC. Two Chairs and two Senior Scientist may be appointed at the level of 'Scientist F' for the administration and management of the Centre under the direction and guidance of the Governing Body and TRAC. Additionally, the Central Government may issue such directives to the Centre as it may consider necessary, for the furtherance of the objectives of the Centre and for ensuring its proper and effective functioning and the Centre shall comply with such directives.

9.2 GENERATION

The funds of the National Centre for River Research shall consist of the following:

- 1) Recurring and non-recurring grants made by the Central Government.
- 2) Grants made by the Government of the State and Union Territories for specific works.
- 3) Contributions and benefactions from other

sources national and international sources.

- 4) Income from investments including consultancy services. The accounts of the Centre shall be audited by the Comptroller and Auditor General of India, and the same would be laid before each house of Parliament.

9.3 AREA OF ACTIVITY

In order to fulfil the aims and objectives, the activities of the National Centre for River Research will be spread over the entire country.

9.4 VERTICALS

The National Centre for River Research may conduct its activities and provide services under the following six verticals:

9.4.1 Freshwater Ecology

'Freshwater Ecology' will improve the scientific understanding of ecological processes, dynamics, and conservation challenges associated with freshwater ecosystems such as rivers, streams, wetlands, floodplains using a combination of field studies, experimental approaches, laboratory and data analyses. The research will explore various aspects of freshwater ecology, including the assessment of biodiversity, ecosystem functions, the interface between changes in the physical, chemical and biotic aspects of the freshwater ecosystems and their consequences upon biological communities and ecosystems functioning and the impacts of human activities on ecological processes.

9.4.2 Ecotoxicology

'Ecotoxicology' will be a specialised research unit dedicated to understanding the impacts of pollutants and contaminants on the health and integrity of freshwater ecosystems. Using cutting-edge technology and methodology, the vertical will assess the presence, distribution, bioaccumulation profiles and biomagnification dynamics of pollutants in freshwater ecosystems. The primary focus will be on identifying and investigating the impact of toxic substances, including chemicals, heavy metals, and emerging contaminants, on aquatic biodiversity, food webs, and ecological processes.

9.4.3 Molecular Ecology

'Molecular Ecology' will focus on studying the

genetic diversity, population genetic structure, DNA barcoding to identify species, and population dynamics. Using state-of-the-art molecular techniques and genetics tools, the vertical will investigate the genetic makeup, evolutionary history, and adaptation of species in these ecosystems.

9.4.4 Population Stewardship and Restoration

'Population Stewardship and Restoration' will be a dedicated unit of skilled veterinarians and conservationists committed to responding to and addressing the unique challenges faced by aquatic species in distress. The vertical will strengthen conservation efforts through rescue, rehabilitation and release of injured or displaced aquatic fauna by establishing 'Rescue and Rehabilitation Centres' at strategic locations in collaboration with the Forest Department or any other relevant stakeholder; developing science-based protocols and procedures for effective management of rescued animals, and capacity building of professionals and stakeholders particularly frontline forest officials and field veterinarians in managing emergent situations. The vertical will also focus on preserving of species diversity and ecosystem functioning, and promote resilience in the face of environmental change by facilitating assisted colonisation of species susceptible to extinction in suitable habitats.

9.4.5 Riverscape Governance and Participatory Management

'Riverscape Governance and Participatory Management' will be a decision support unit dedicated to researching and promoting effective governance and management strategies for freshwater ecosystems. The vertical will focus on furthering the understanding of the social, institutional, and policy facets of riverscapes and fostering participatory approaches to ensure sustainable and inclusive management of these vital ecosystems. The vertical will examine the governance and legal frameworks, and policy instruments that shape the management of freshwater resources, and identify best practices, innovative approaches, and governance models that enhance the resilience and sustainability of riverscapes through interdisciplinary research and engagement with stakeholders.

9.4.6 Geographic Information and Communication Technology (Geo ICT)

'Geographic Information and Communication Technology' will be dedicated to the application of geospatial technologies and communication tools in the study and management of freshwater ecosystems. The primary focus of the vertical will lie on utilizing Geographic Information Systems (GIS), Remote Sensing, and other spatial analysis techniques to understand the spatial patterns, dynamics, and interactions within freshwater ecosystems, and across riverscapes. The vertical will aid decision-making, planning, and conservation efforts, by integrating data pertaining to water quality, habitat distribution, land use land cover, hydrological processes etc. from various sources and developing spatial tools.

9.5 FINANCIAL IMPLICATION

The operating cost of the National Centre for River Research for a duration of 10 years is estimated to be Rs. 115,72,39,327/- (Table 1), which includes the cost of personnel at Rs. 68,83,82,463/-, and maintenance of laboratories at Rs. 7,79,38,094/- and building at Rs. 11,52,36,291/-, and operational cost at Rs. 27,56,82,479/.

10. DETAILED OUTLAY

Budget Head	Number	Monthly Salary per person (INR)	Year 1	Year 2	
A. Manpower					
Chair	2	250000	6000000	6900000	
Scientist F	3	131100	4719600	5427540	
Scientist E	3	123100	4431600	5096340	
Scientist D	3	78800	2836800	3262320	
Scientist C	3	67700	2437200	2802780	
Librarian	1	56100	673200	774180	
Analytical Lab Technician	2	35400	849600	977040	
GIS Technician	1	35400	424800	488520	
Database Technician	1	35400	424800	488520	
Technical Officer	1	35400	424800	488520	
Accountant	1	35400	424800	488520	
Clerk	2	29200	700800	805920	
Multi tasking staff	2	25000	600000	690000	
Support Staff/Attendant	2	15000	360000	360000	
Lab Attendant	4	15000	720000	720000	
Cleaner	4	13000	624000	624000	
Gardener	1	13000	156000	156000	
Electrician	1	13000	156000	156000	
Plumber	1	13000	156000	156000	
Guard	3	13000	468000	468000	
Allowances		-	8000080	9120092	
Total A	41		35588080	40450292	
B. Maintenance cost of laboratories					
Aquatic Ecology					
Maintenance cost of equipment/ machines		LS	600000	660000	
Chemicals and plastic and glass wares		LS	1200000	1260000	
Geoinformatics and Remote Sensing Laboratory					
Maintenance cost of computers		LS	600000	630000	
Upgradation of software		LS	600000	660000	
Ecotoxicology					
Maintenance Cost of Ecotoxicology Machines		LS	1000000	1100000	
Chemicals, flasks and other equipment		LS	1500000	1575000	
Classroom					
Stationary items			125000	127500	
Total B			5625000	6012500	
C. Maintenance cost of building					
Electricity		350000	4200000	4620000	
Operational & Maintenance cost		50000	600000	630000	
Generator Maintenance and Fuel		100000	1200000	1260000	
Water		50000	600000	630000	
Laboratory Waste Management		20000	240000	252000	
Miscellaneous		100000	1200000	1260000	
Total C			8040000	8652000	
D. Operational		1500000	18000000	18900000	
Vehicle purchase		4000000	4000000	-	
Travel		300000	3600000	3780000	
Total D			25600000	22680000	
GRAND TOTAL			7,48,53,080	7,77,94,792	

Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Cumulative
7935000	9125250	10494038	12068143	13878365	15960119	18354137	21107258	121822309
6241671	7177922	8254610	9492801	10916722	12554230	14437364	16602969	95825429
5860791	6739910	7750896	8913531	10250560	11788144	13556366	15589821	89977958
3751668	4314418	4961581	5705818	6561691	7545944	8677836	9979511	57597588
3223197	3706677	4262678	4902080	5637392	6483000	7455451	8573768	49484222
890307	1023853	1177431	1354046	1557153	1790725	2059334	2368234	13668463
1123596	1292135	1485956	1708849	1965176	2259953	2598946	2988788	17250039
561798	646068	742978	854425	982588	1129976	1299473	1494394	8625020
561798	646068	742978	854425	982588	1129976	1299473	1494394	8625020
561798	646068	742978	854425	982588	1129976	1299473	1494394	8625020
561798	646068	742978	854425	982588	1129976	1299473	1494394	8625020
926808	1065829	1225704	1409559	1620993	1864142	2143763	2465328	14228846
793500	912525	1049404	1206814	1387836	1596012	1835414	2110726	12182231
360000	360000	360000	360000	360000	360000	360000	360000	3600000
720000	720000	720000	720000	720000	720000	720000	720000	7200000
624000	624000	624000	624000	624000	624000	624000	624000	6240000
156000	156000	156000	156000	156000	156000	156000	156000	1560000
156000	156000	156000	156000	156000	156000	156000	156000	1560000
156000	156000	156000	156000	156000	156000	156000	156000	1560000
468000	468000	468000	468000	468000	468000	468000	468000	4680000
10400106	11863322	13536340	15449663	17638272	20142287	23007733	26287406	155445300
46033836	52446111	59810548	68269002	77984512	89144463	101964236	116691384	688382463
726000	798600	878460	966306	1062937	1169230	1286153	1414769	9562455
1323000	1389150	1458608	1531538	1608115	1688521	1772947	1861594	15093471
661500	694575	729304	765769	804057	844260	886473	930797	7546736
726000	798600	878460	966306	1062937	1169230	1286153	1414769	9562455
1210000	1331000	1464100	1610510	1771561	1948717	2143589	2357948	15937425
1653750	1736438	1823259	1914422	2010143	2110651	2216183	2326992	18866839
130050	132651	135304	138010	140770	143586	146457	149387	1368715
6430300	6881014	7367495	7892861	8460520	9074195	9737955	10456254	77938094
5082000	5590200	6149220	6764142	7440556	8184612	9003073	9903380	66937183
661500	694575	729304	765769	804057	844260	886473	930797	7546736
1323000	1389150	1458608	1531538	1608115	1688521	1772947	1861594	15093471
661500	694575	729304	765769	804057	844260	886473	930797	7546736
264600	277830	291722	306308	321623	337704	354589	372319	3018694
1323000	1389150	1458608	1531538	1608115	1688521	1772947	1861594	15093471
9315600	10035480	10816764	11665063	12586523	13587877	14676502	15860481	115236291
19845000	20837250	21879113	22973068	24121722	25327808	26594198	27923908	226402066
								4000000
3969000	4167450	4375823	4594614	4824344	5065562	5318840	5584782	45280413
23814000	25004700	26254935	27567682	28946066	30393369	31913038	33508689	275682479
8,55,93,736	9,43,67,305	10,42,49,741	11,53,94,608	12,79,77,621	14,21,99,905	15,82,91,731	17,65,16,808	115,72,39,327

ANNEXURE I

OUTPUT OF THE CENTRE

RESEARCH

A total of **242** documents have been produced as the output of phase I and II of the project "Biodiversity Conservation and Ganga Rejuvenation" and the project "Assessment of the ecological status of select Indian rivers for conservation planning" including outreach material (n=99) in English and Hindi languages, technical or research reports (n= 77), research articles published in journals of international repute (n=31), books (n=21), and Protected Area Management Plans and Village Micorplans (n=14). These documents provide valuable insights into the ongoing efforts in monitoring and conserving the freshwater biodiversity of the Ganga River ecosystem and the role of local communities. These documents highlight the successful rescue, restoration and rehabilitation efforts that have played a crucial role in protecting the aquatic fauna of the Ganga River Basin. These publications shed light on the initiatives that have empowered diverse stakeholders, including government organisations, local communities, and NGOs, to actively participate in the biodiversity conservation of the Ganga River Basin. These publications play a crucial role in environmental education and creating awareness among the general public about the Ganga River's biodiversity and ecological significance.

CAPACITY DEVELOPMENT/TRAINING

A total of **97** trainings have been conducted as capacity development and training of the stakeholders during phase I and II of the project "Biodiversity Conservation and Ganga Rejuvenation".

In these training workshops, about **4560** stakeholders, comprising of the front line staff and officials of the forest department, veterinary department, animal husbandry department, district administration, Ganga Task Force, Eco-Task Force, University and College teachers etc. These stakeholder groups were trained in various aspects of ecological surveys, aquatic biodiversity conservation, monitoring, river and wetland management, participatory management and conservation education.

ADVISORY AND POLICY SUPPORT

The Centre has been providing advisory and policy support to the Ministry of Jal Shakti, National Mission for Clean Ganga on matters pertaining to the aquatic species and habitat conservation, on the basis of information generated through the field research. The Centre will be a resource repository and will continue to provide advisory and policy support to the Government of India.





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