

ACTION HISTORY OF RTI REQUEST No.WLIOI/R/E/21/00008**Applicant Name** M D Gupta

Text of Application

Sub: NRCD-WII Project- Assessment of the Ecological Status of select Indian rivers for Conservation Planning. Kindly provide the following information regarding above referred subject under RTI Act 2005 : (1) Certified photocopy of approved project proposal of NRCD -WII Project - Assessment of the Ecological Status of select Indian rivers for Conservation Planning. (2) Certified photocopy of MOU (Memorandum Of Understanding) signed between WII and sponsoring agency of NRCD -WII Project- Assessment of the Ecological Status of select Indian rivers for Conservation Planning regarding award of project to WII. (3) Certified photocopy of details of head wise and year wise sanctioned budget for above mentioned project. (4) Certified photocopy of details of head wise and year wise received budget for above mentioned project. (5) Certified photocopies of all advertisements published for contractual engagement of project personnel in above mentioned project.

Reply of Application

kindly see the attached cover letter and due to large size of information/ documents to be provided under RTI Act, 2005 is being sent separately by email/speed post

SN.	Action Taken	Date of Action	Action Taken By	Remarks
1	RTI REQUEST RECEIVED	31/01/2021	Nodal Officer	
2	REQUEST FORWARDED TO CPIO	01/02/2021	Nodal Officer	Forwarded to CPIO(s) : (1) P.K.Aggarwal
3	ADDITIONAL PAYMENT REQUIRED FOR INFORMATION	17/02/2021	P.K.Aggarwal- (CPIO)	The information sought by you has been collected from concerned authority of the Institute and the same contains 39 pages. You are requested to deposit an additional fee of Rs. 78/- [39 pages @ 2/page] u/s 7(3) of RTI Act, 2005 towards the cost of providing the certified photocopy of documents.
4	ADDITIONAL PAYMENT RECEIVED FROM REQUESTER	17/02/2021	RTI Applicant	
5	REQUEST DISPOSED OF	18/02/2021	P.K.Aggarwal- (CPIO)	

[Print](#)

[Print](#)

**Government of India
Wildlife Institute of India, Dehradun
Wildlife Institute of India
P.O.Box-18, Chandrabani, Dehradun, Uttarakhand,**

Dated: 18/02/2021

To

Shri M D Gupta
8/11, Kaulagarh Road
Anand Vihar, Dehra Dun
Uttarakhand
248001

Registration Number : WLIOI/R/E/21/00008

Dear Sir/Madam

I am to refer to your Request for Information under RTI Act 2005, received vide letter dated 31/01/2021 and to say that *kindly see the attached cover letter and due to large size of information/ documents to be provided under RTI Act, 2005 is being sent separately by email/speed post.*

In case, you want to go for an appeal in connection with the information provided, you may appeal to the Appellate Authority indicated below within ***thirty days*** from the date of receipt of this letter.

Director, WII

FAA & Director

Address: Wildlife Institute of India Chandrabani Dehradun

Phone No.: 01352646101

Yours faithfully

(P.K.Aggarwal)
CPIO & Deputy Registrar
Phone No.: 01352646110
Email : pka@wii.gov.in



No. WII/RTI/CPIO/2020-21 (Qtr-IV)/93

Date: 18 February, 2021

To,

Shri M.D. Gupta
8/11, Kaulagarh Road
Anand Vihar, Dehradun

Sub.: Information under RTI Act, 2005-reg.

Ref.: Your Online RTI No. WLIOI/R/E/21/00008 dated 31/01/2021

Dear Sir,

Please refer to your application cited above under RTI Act, 2005. In this context, the point-wise response to your queries is given below:

S. No.	Information Sought under RTI	Reply under RTI
1	Certified photocopy of approved project proposal of NRCD -WII Project - Assessment of the Ecological Status of select Indian rivers for Conservation Planning.	Please see attached Annexure-I
2	Certified photocopy of MOU (Memorandum of Understanding) signed between WII and sponsoring agency of NRCD -WII Project- Assessment of the Ecological Status of select Indian rivers for Conservation Planning regarding award of project to WII.	There is no such document available
3	Certified photocopy of details of head wise and year wise sanctioned budget for above mentioned project.	The information is available in Annexure-I
4	Certified photocopy of details of head wise and year wise received budget for above mentioned project.	Please see attached Annexure-II
5	Certified photocopies of all advertisements published for contractual engagement of project personnel in above mentioned project.	Please see attached Annexure-III

In case, you are not satisfied with the information provided above, you may file an appeal to the First Appellate Authority indicated below within **thirty days** from the date of receipt of this letter.

Director, WII
FAA & Director
Address: Wildlife Institute of India, Chandrabani, Dehradun
Phone No.: 01352640910

Thanking you,

Encl.: as above.

Yours faithfully,

NO & CPIO (RTI)

Received on 19/02/2021
at 05.30 P.M.
M.D. Gupta

No. WII/RTI/CPIO/2020-21 (Qtr-IV)/93

Date: 18 February, 2021

To,

Shri M.D. Gupta
8/11, Kaulagarh Road
Anand Vihar, Dehradun

Sub.: Information under RTI Act, 2005-reg.

Ref.: Your Online RTI No. WLIOI/R/E/21/00008 dated 31/01/2021

Dear Sir,

Please refer to your application cited above under RTI Act, 2005. In this context, the point-wise response to your queries is given below:

S. No.	Information Sought under RTI	Reply under RTI
1	Certified photocopy of approved project proposal of NRCD -WII Project - Assessment of the Ecological Status of select Indian rivers for Conservation Planning.	Please see attached Annexure-I .
2	Certified photocopy of MOU (Memorandum of Understanding) signed between WII and sponsoring agency of NRCD -WII Project- Assessment of the Ecological Status of select Indian rivers for Conservation Planning regarding award of project to WII.	There is no such document available.
3	Certified photocopy of details of head wise and year wise sanctioned budget for above mentioned project.	The information is available in Annexure-I .
4	Certified photocopy of details of head wise and year wise received budget for above mentioned project.	Please see attached Annexure-II .
5	Certified photocopies of all advertisements published for contractual engagement of project personnel in above mentioned project.	Please see attached Annexure-III .

In case, you are not satisfied with the information provided above, you may file an appeal to the First Appellate Authority indicated below within **thirty days** from the date of receipt of this letter.

Director, WII
FAA & Director
Address: Wildlife Institute of India, Chandrabani, Dehradun
Phone No.: 01352640910

Thanking you,

Yours faithfully,

NO & CPIO (RTI)

Encl.: as above.

Annexure - I

ASSESSMENT OF THE ECOLOGICAL STATUS OF SELECT INDIAN RIVERS FOR CONSERVATION PLANNING

INFORMATION PROVIDED
UNDER RTI



**PROJECT
PROPOSAL**



भारतीय वन्यजीव संस्थान
Wildlife Institute of India

ATTESTED

[Signature]
WILD LIFE Institute of India, Dehradun

Submitted to
**National River
Conservation
Directorate**

Submitted by
**WILDLIFE INSTITUTE
OF INDIA**

June, 2020

ASSESSMENT OF THE ECOLOGICAL STATUS OF SELECT INDIAN RIVERS FOR CONSERVATION PLANNING

PROJECT PROPOSAL

Submitted to

National River Conservation Directorate

Ministry of Jal Shakti, Government of India

INFORMATION PROVIDED
UNDER RTI

Submitted by



भारतीय वन्यजीव संस्थान
Wildlife Institute of India

June, 2020

ATTESTED

PIQ Wildlife Institute of India, Dehradun




PHOTOGRAPH PROVIDED
UNDER RTI

[Signature]
ATTESTED

CPIO, Wild Life Institute of India, P.

SALIENT FEATURES OF THE PROPOSED PROJECT

Title	:	Assessment of the Ecological Status of select Indian Rivers for Conservation Planning
Name of the proponent	:	Director, Wildlife Institute of India, Dehra Dun
Project Advisor	:	Dean, Wildlife Institute of India, Dehra Dun
Concept, design and Principal Investigators	:	(I) Dr. Syed Ainul Hussain, Department of Landscape Level Planning and Management, Wildlife Institute of India, Dehra Dun (II) Dr. Ruchi Badola, Department of Ecodevelopment Planning and Participatory Management, Wildlife Institute of India, Dehra Dun
Co-Investigators	:	(I) Prof. Qamar Qureshi, Department of Population Management, Capture and Rehabilitation, Wildlife Institute of India, Dehra Dun (II) Dr. Jeyaraj Antony Johnson, Department of Habitat Ecology, Wildlife Institute of India, Dehra Dun (III) Dr. Gopi Govindhan Veeraswami, Department of Endangered Species Management, Wildlife Institute of India, Dehra Dun
Aim	:	The aim of this study is to spearhead river conservation in identified Indian rivers for biodiversity conservation.
Estimated Cost	:	INR 24,56,25,094/-
Duration	:	2 years and 6 months
Implementing agency	:	Wildlife Institute of India, Dehra Dun
Central Government Share	:	100%
State Government Share	:	Not applicable

ATTESTED

 CPID, Wildlife Institute of India, Dehra Dun

THE TEAM

Principal Investigators

Dr. Syed Ainul Hussain

Dr. Ruchi Badola

Co-investigators

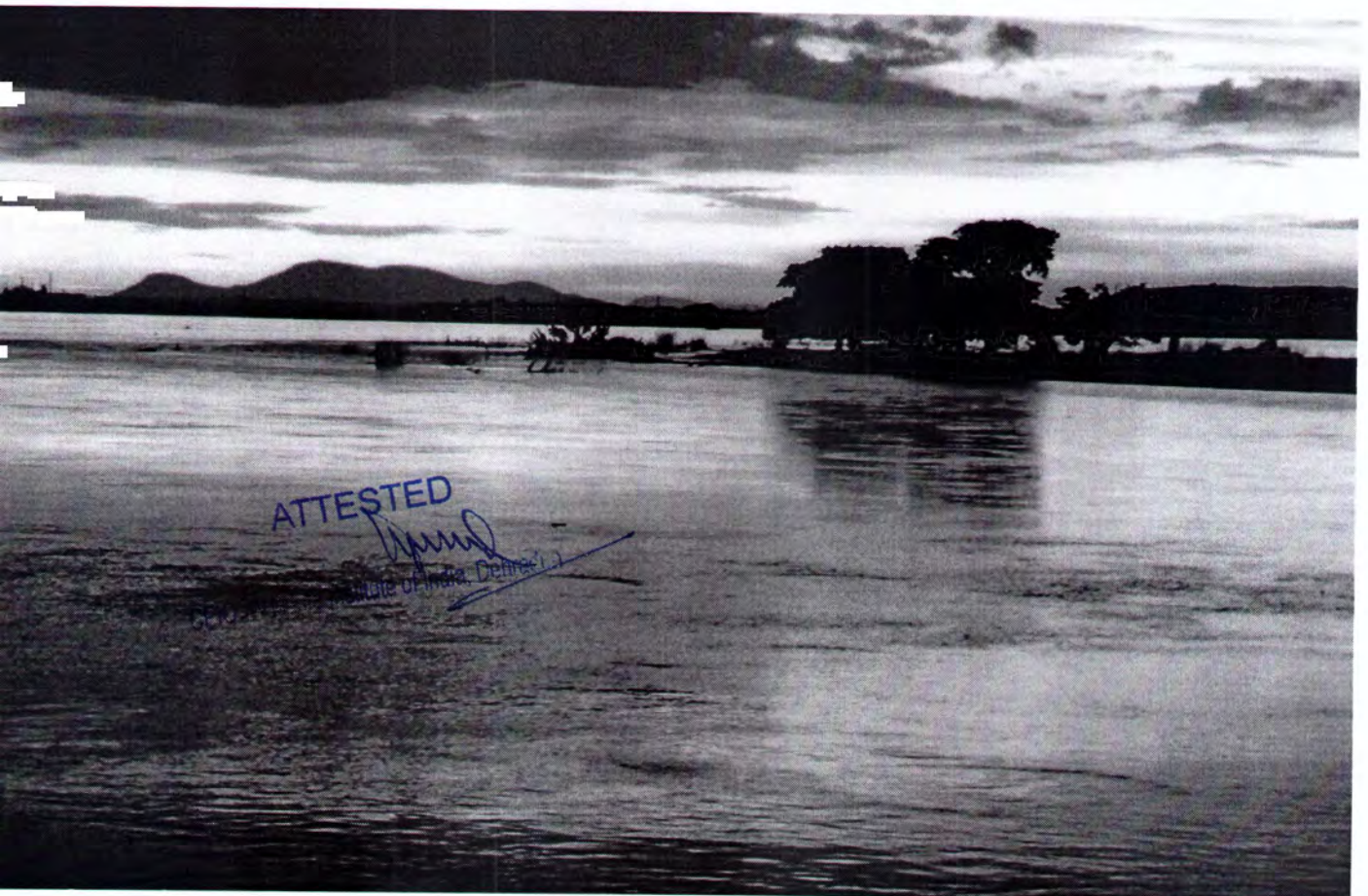
Prof. Qamar Qureshi

Dr. J. Anthony Johnson

Dr. Gopi. G.V.

INFORMATION PROVIDED
UNDER RTI

Co-Coordinating Faculty	Faculty subject areas
Dr. Amit Kumar	Flora
Dr. V.P. Uniyal	Invertebrate
Dr. J.A. Johnson	Fish
Dr. K. Sivakumar	
Dr. Abhijit Das	Amphibians & Turtles
Dr. Gopi G.V.	Birds
Dr. S.A. Hussain	Mammals & Crocodiles
Dr. Gopi. G.V.	Eco-toxicology
Dr. Sandeep Gupta	Genetics
Dr. Ruchi Badola	Networking & Capacity Development



CONTENTS

<i>Executive Summary</i>	i
Background	1
Introduction	2
Global River Conservation Status	2
River Restoration in India	5
Need of the Study	8
Aim	10
Objectives	10
Approach and Methodology	12
Activities	13
Deliverables	13
References	18

INFORMATION PROVIDED
UNDER RTI


ATTESTED

CPIO, Wild Life Institute of India, Dehradun





INFORMATION PROVIDED
UNDER RTI

ATTESTED


CPIO, Wild Life Institute of India, Dehradun

Executive Summary

Freshwater ecosystems such as rivers, streams, inland wetlands, lakes, ponds, marshes, and swamps, are the most bio-diverse, as well as the most imperiled worldwide. Globally, 67% of rivers are under moderate to high threat and 80% of the global human population lives in areas with high water stress or biodiversity threats. 60,000 large dams and more than 3,7000 hydropower dams are planned or under construction worldwide, leading to 48% of rivers moderately to severely impacted by flow alteration, morphological modification, habitat fragmentation and degradation, and pollutant flux. This has given rise to a global decline of 88% of freshwater megafauna populations. Most of this is attributed to rise in human population and the increasing demand for energy, and food, which are manifested in form of dam construction, water withdrawals, pollution, invasive species, and overharvesting.

However, considering the escalating trends in species extinction, climate change, water use and development pressures, freshwater systems, especially rivers, will remain under threat well into the future. This is because human impacts on rivers extend to all other anthropogenic activities in their drainage basins with which they regularly interact through run-offs and floods. Climate change could aggravate other anthropogenic issues in river ecosystems and will have direct consequences for water security and conflict, particularly in arid and semi-arid areas of the world. Water crisis has been identified as top global risk as water is connected to every global risk that humanity faces.

Additionally, the array of ecosystem services provided by rivers span across broad categories of human societal needs. However, increasing degradation of rivers and decline of associated species is resulting in loss of these services. Assessing these services could be a useful tool to recognize the benefits received from rivers offering stronger arguments to protect and restore, and help achieve sustainability goals. Hence, necessitating redoubled efforts to reverse declining trends.

The perennial and rain-fed rivers of India are crucial water resources for millions of people. These rivers also harbour one of the most diverse assemblages of aquatic wildlife. However, due to increasing demand in the domestic, industrial and agricultural sectors, most river basins in India are extremely water stressed, with Krishna, Cauvery, Subernarekha, Pennar, Mahi, Sabarmati, Tapi, Luni basins reported to have water availability of less than 1000 m³ per capita. In addition, there are 5264 completed large dams and 437 large dams are under construction in India, altering the natural flow regime of most rivers and subsequently reducing the carrying capacity for pollutants. These large multipurpose dams have altered the morphology of the rivers, fragmented river habitats and impacted aquatic species occurrence and distribution. This is further accentuated by the fact that around 61,948 Million Liter per day (MLD) sewage is being generated from Class I and Class II cities in and around these river basins and only 37% of the sewage is treated before they are discharged into the rivers. In addition, micro- and macro-plastics, persistent xenobiotics, endocrine disruptive substances

pose toxicological risk. The threats posed by the national waterways across major rivers for cargo movement can be detrimental, as rivers in India, in the natural state, often do not have the required depth and width for large vessel movement. Moreover, ship and large vessel movement in rivers are detrimental to aquatic species and may even provide opportunities for the spread of invasive aquatic species.

Owing to these anthropogenic stressors, the resulting habitat degradation, alterations, invasive species and over-exploitation, the aquatic species within these river basins are under stress while some species have become locally extinct. These existing threats are expected to be further heightened by the impacts of climate change, questioning the survival of the aquatic species. Therefore, it is crucial to address the basin specific threats, keeping in view the current global river conservation scenario and based on the ecological character of healthy rivers.

While existing literature have addressed the issues of hydrological modeling, engineering solutions and even pollution to some extent, no studies have been conducted to address the issue of river conservation from the context of biodiversity conservation and ecosystem services management. This necessitates urgent restoration and conservation actions for these national rivers through holistic science-based studies that address ecosystem processes and hydrological linkages within these systems.

In view of this, a consultative meeting was held on 16th December 2019 at National River Conservation Directorate, Ministry of Jal Shakti to identify the major Indian rivers for conservation prioritization. It was suggested that the Biodiversity Conservation and Ganga Rejuvenation model implemented by Wildlife Institute of India (WII) under the National Mission for Clean Ganga project should be replicated to start the Nation-wide river conservation project, and WII can be the nodal agency. A comprehensive set of criteria was recommended to prioritize rivers for condition assessment. It was proposed that, the rivers Cauvery, Godavari, Periyar, Mahanadi and Narmada shall be taken as priority rivers as suggested by His Excellency Ram Nath Kovind, President of India, in the Parliament. Subsequently, a video conference meeting was Chaired by Hon'ble Minister for Jal Shakti Shri Gajendra Singh Sekhawat, on 11th April, 2020 on Biodiversity Conservation projects implemented through WII. The Hon'ble Minister directed WII to replicate the river conservation model to other Indian rivers and priority shall be given to the rivers mentioned by the Hon'ble President of India. In the follow-up meeting on 23rd April, 2020, under the chairmanship of Director General (DG), NMCG, DG recognized WII as an umbrella agency to spearhead the biodiversity conservation in Indian rivers under the aegis of National River Conservation Directorate (NRCD). It was suggested that, Narmada, Mahanadi, Godavari, Cauvery, Periyar and Barak rivers shall be studied. The proposed project shall, in the first phase, aim at assessment of the biodiversity status of the rivers.

The Wildlife Institute of India submitted a proposal, earlier for systematic conservation

ATTESTED
CPIO, Wild Life Institute of India, Dehradun

planning of select rivers in India. The proposal initially incorporated rivers such as Brahmaputra, Barak, Narmada, Godavari, Krishna and Cauvery. As suggested during the meetings, the revised proposal includes Narmada, Mahanadi, Godavari, Cauvery, Periyar and Barak rivers. In the first phase, the project aims at assessment of ecological status of the identified rivers in India for conservation planning. Intensive ecological studies will be carried out in the six prioritized river basins of India and ecological status will be assessed. Conservation institutions/organizations working in the respective regions will be identified according to their expertise and capacity will be enhanced to engage them in long term networking and conservation planning. Latest methodologies and tools available to science will be used to achieve the project objectives.

The project will lead to enhanced understanding of the occurrence and distribution of aquatic species of conservation concern, hydrology regime, extent of morphological alteration, extent of anthropogenic influence, and concentration of key pollutants in these rivers. The findings of the project will pave path for initiating systematic conservation for the identified rivers in the next phase. The existing Ganga Aqua Labs at WII will be strengthened to cater to the requirements of other Indian rivers for conservation planning and information dissemination.

The project will be implemented at an estimated cost of INR 24,56,25,094/- over a period of two years and six months.

Table 1. Year wise consolidated budget outlay (in INR)

Budget Heads	Manpower	Equipment	Creation of Centralized facilities	Operational	Travel	Office management costs	Contingency	Institutional charge (@ 15%)	GRAND TOTAL
Year 1	38788000	49920000	18000000	8500000	2000000	1000000	2000000	12020800	132228800
Year 2	42646800	6580000	7000000	8500000	3000000	1000000	2000000	7072680	77799480
Year 3 (6 months)	26570740	990000	0	2800000	1000000	500000	500000	3236074	35596814
Total	108005540	57490000	25000000	19800000	6000000	2500000	4500000	22329554	24,56,25,094

ATTESTED


CPIO, Wild Life Institute of India, Dehradun

**INFORMATION PROVIDED
UNDER RTI**

INFORMATION PROVIDED
UNDER RTI



ATTESTED

PIO, Wild Life Institute of India, Dehradun

**ASSESSMENT OF THE ECOLOGICAL STATUS OF SELECT INDIAN RIVERS FOR
CONSERVATION PLANNING
INFORMATION PROVIDED
UNDER RTI**

BACKGROUND

A consultative meeting was held on 16th December 2019 at National River Conservation Directorate, Ministry of Jal Shakti to identify the major Indian rivers for conservation prioritization. The meeting was chaired by Smt. T. Rajeswari, Additional Secretary, Ministry of Jal Shakti and co-chaired by Mr. B. B. Barman, Advisor, NRCD. The meeting was attended by representatives from National Mission for Clean Ganga (NMCG), International Union for Conservation of Nature (IUCN), Zoological Survey of India (ZSI), Wildlife Institute of India (WII), Central Water Commission (CWC), and Forest Research Institute (FRI). It was suggested that the Biodiversity Conservation and Ganga Rejuvenation model implemented by Wildlife Institute of India under the National Mission for Clean Ganga project should be replicated to start the Nation-wide river conservation project, and WII can be the nodal agency. A comprehensive set of criteria was recommended to prioritize rivers for condition assessment. To begin with following criteria were agreed upon, viz. 1. Socio-cultural value, 2. Biodiversity value, 3. Pollution load, 4. Extent of modification of river morphology, and 5. Biogeographic zones. It was proposed that, the rivers Cauvery, Godavari, Periyar, Mahanadi and Narmada shall be taken as priority rivers as suggested by His Excellency Ram Nath Kovind, President of India, in the Parliament. Successively, the Wildlife Institute of India submitted a proposal for systematic conservation planning of select rivers in India, and a detailed work plan of the proposed project was presented during a follow-up meeting held on 14th February, 2020 at the office of the National Mission for Clean Ganga (NMCG), under the chairmanship of Director General (DG), NMCG.

A video conference meeting was Chaired by Hon'ble Minister for Jal Shakti Shri Gajendra Singh Sekhawat, on 11th April, 2020 on Biodiversity Conservation projects implemented through WII. The Hon'ble Minister directed WII to replicate the river conservation model to other Indian rivers and directed that, priority shall be given to the rivers mentioned by the Hon'ble President of India. In the follow-up meeting on 23rd April, 2020, under the chairmanship of DG, NMCG, WII was given the task to spearhead the biodiversity conservation in Indian rivers as an umbrella agency, under the aegis of National River Conservation Directorate (NRCD). It was suggested that, Narmada, Mahanadi, Godavari, Cauvery, Periyar and Barak rivers shall be studied. The proposed project shall, in the first phase, aim at assessment of the biodiversity status of the selected rivers. The comprehensive proposal is as follows.

ATTESTED


CPIO, Wildlife Institute of India, Dehradun

INTRODUCTION

INFORMATION PROVIDED

GLOBAL RIVER CONSERVATION STATUS UNDER RTI

Freshwater ecosystems comprise of rivers, streams, inland wetlands, lakes, ponds, marshes, and swamps, covering 0.8% of earth's surface (Balian et al., 2008). These systems harbour the richest diversity of species as well as habitats (Revenga et al., 2005; Abell et al., 2008; Collen et al., 2014). They support at least 9.5% of all animal species (Balian et al., 2008), nearly 6% of all described species (Dudgeon et al., 2006) and 1/3 of all vertebrate species (Strayer and Dudgeon, 2010).

Globally, 65% of river discharge, and the aquatic habitat supported by the rivers is under moderate to high threat. Incidentally, 80% of the global population lives in areas where either incident human water security or biodiversity threat exceeds the 75th percentile (Vörösmarty et al., 2010). This can be attributed to rise in human population, agricultural expansion and settlements that has led to widespread degradation and disruption of these systems and decline in biodiversity (Allan and Flecker, 1993), and stand to be further affected by anthropogenic climate change (Karl et al., 2009).

Globally, 67% of rivers are moderately to highly fragmented resulting in loss of connectivity to sea that is of vital importance for the exchange of water, nutrients, sediments and species with deltas, estuaries and the ocean (Grill et al., 2019). There are 60,000 large dams and more than 3,7000 hydropower dams currently planned or are under construction worldwide. As a result, 48% of rivers are moderately to severely impacted by flow alteration, morphological modification, habitat fragmentation and degradation, and pollutant flux (WWF, 2016; Schmutz and Moog, 2018). In effect, these ecosystems have lost a greater proportion of their



[Signature]
ATTESTED

INFORMATION PROVIDED UNDER RTI

species and habitat than the terrestrial and marine ecosystems, and they face increasing threats from dams, water withdrawals, pollution, invasive species, and overharvesting (MEA, 2005). Therefore, these systems and the species they support are among the most imperiled worldwide (Revenga et al., 2005), as 34% of species inhabiting rivers are under threat as compared to marsh and lake species (Collen et al., 2014). A global assessment also reveal that freshwater megafauna populations has declined by 88% from 1970 to 2012 and mega-fishes exhibited the greatest global decline (94%) (He et al., 2019). This scenario necessitates intensified efforts to reverse declining trends (Dudgeon et al., 2006).

Climate change will affect hydrologic and thermal regimes of rivers, having a direct impact on freshwater ecosystems and human water use (van Vliet et al., 2013). It is predicted to induce changes in regional precipitation and temperature patterns that have the potential to alter natural flow regimes of rivers. The ecological consequences and management responses for any river will depend not only on the direct impacts of increased temperature but on how extensively the magnitude, frequency, timing, and duration of runoff events change relative to the historical and recent flow regime. Additionally, it will also depend on how adaptable the aquatic and riparian species are to different degrees of alteration (Palmer et al., 2009). Consequently, free-flowing rivers in largely undeveloped river basins are expected to be resilient to climate change, while the need for restoration/rehabilitation and proactive management may be quite high in dammed and otherwise developed river systems (Palmer et al., 2008).

Climate change could aggravate other anthropogenic issues in river ecosystems, as it primarily manifests itself through changes in the water cycle. Its impacts will have direct consequences for water security and conflict (IUCN, 2015). As the climate changes, droughts, floods, melting glaciers, sea-level rise and storms intensify or alter, causing periodic and chronic shortfalls of water, particularly in arid and semi-arid areas of the world (IPCC, 2001). As most of India is arid or semi-arid, the country is particularly vulnerable, especially with water resources mainly derived from single-point systems such as bore wells or isolated reservoirs (Mujumdar, 2008).

Rivers provide an array of ecosystem services spanning broad categories of human societal needs; including resource provisioning such as drinking water and fisheries, regulating services such as flood mitigation and water filtration, supporting services such as maintaining riparian wildlife habitat and biodiversity, and cultural values such as recreation and aesthetics (Alan et al., 2016; Gilvear et al., 2017; Ncube et al., 2018). These services could only be maintained when freshwater ecosystems are functionally intact (Baron et al., 2002). However, increasing degradation of freshwater ecosystems and decline of associated species (Collen et al., 2009; Galewski et al., 2011), has resulted in a decline in these services (Dodds et al., 2013). Given escalating trends in species extinction, human population, climate change, water use and development pressures, freshwater systems will remain under threat well into the future (Stephen et al., 2007). Therefore, it is necessary to assess ecosystem service value of rivers in

ATTESTED

CPIO, Wild Life Institute of India, Dehradun

conjunction with biodiversity values.

INFORMATION PROVIDED
UNDER RTI



[Signature]
ATTESTED

RIVER RESTORATION IN INDIA

The river restoration programme in India was initiated with the launching of the Ganga Action Plan (GAP) in 1985, which was later expanded to cover other rivers under the National River Conservation Plan (NRCP). The NRCP is implemented for rivers, lakes and wetlands in the country by National River Conservation Directorate (NRCD) of the Ministry of Jal Shakti. The Ministry of Jal Shakti through the National Mission for Clean Ganga (NMCG) is addressing the challenges posed to the Ganga River in a comprehensive manner. Under this initiative, a science-based aquatic species restoration plan is being developed through the Wildlife Institute of India's – Biodiversity conservation and Ganga rejuvenation project. At the end of its first phase, the project has yielded significant scientific outcomes for aquatic biodiversity conservation in the mainstem Ganga River and has garnered stakeholders' support. In the second phase, this study has been extended to the basin level, spearheading river conservation and management throughout the Ganga basin.

India has about 4% of the world's renewable freshwater reserve, which support nearly 18% of the world's population and unique assemblage of aquatic and semi-aquatic biota. The perennial and rain-fed rivers are crucial water resources and habitats for humans and the biodiversity. The Central Water Commission has identified 20 river basins drained by eight major rivers and their tributaries. These rivers are Indus, Ganga and Brahmaputra originating from Himalaya-Karakoram ranges; Narmada River from Aravalli range; Mahanadi River from Chotanagpur plateau; and Godavari, Krishna and Cauvery from Western Ghats. Brahmaputra - Barak - Ganga System accounts for about 60% of total surface water resources of India (NIH, 2019).

Due to increasing demand in the domestic, industrial and agricultural sectors, most of the major river basins in India are extremely water stressed. As reported by the Central Water Commission (CWC, 2015), the per capita annual water availability reduced from 1816 m³ in 2001 to 1544 m³ in 2011. The per capita annual water availability in the Brahmaputra river basin is 13,407 m³ whereas it was as low as 263 m³ in Sabarmati basin during the year 2010. Most river basins such as Krishna, Cauvery, Subarnarekha, Pennar, Mahi, Sabarmati, Tapi, Luni were reported to have water availability of less than 1000 m³ per capita which is considered as water stressed.

In addition, there are 5264 completed large dams and 437 large dams are under construction in India (CDSO, 2019). An overview of dam-based impacts on large river systems reveal that the Ganga-Brahmaputra basin is moderately fragmented, however, the river basin in the peninsula are highly fragmented (Nilsson et al., 2005). The impoundments have altered the natural flow regime of most of the rivers and subsequently reduced the carrying capacity for pollutants.

This is further accentuated by the fact that around 61,948 Million Liter per day (MLD) sewage is being generated from Class I and Class II cities in and around these river basins and only

37% of the sewage is treated before they are discharged into the rivers. Out of the total measurable pollution in the rivers from various point sources, around 75% is accounted for by municipal sewage from towns located along the banks of rivers and remaining 25% is accounted for by industrial effluents (CPCB, 2015). In addition, micro- and macro-plastics, persistent xenobiotics, EDSs pose toxicological risk (Moore, 2006).

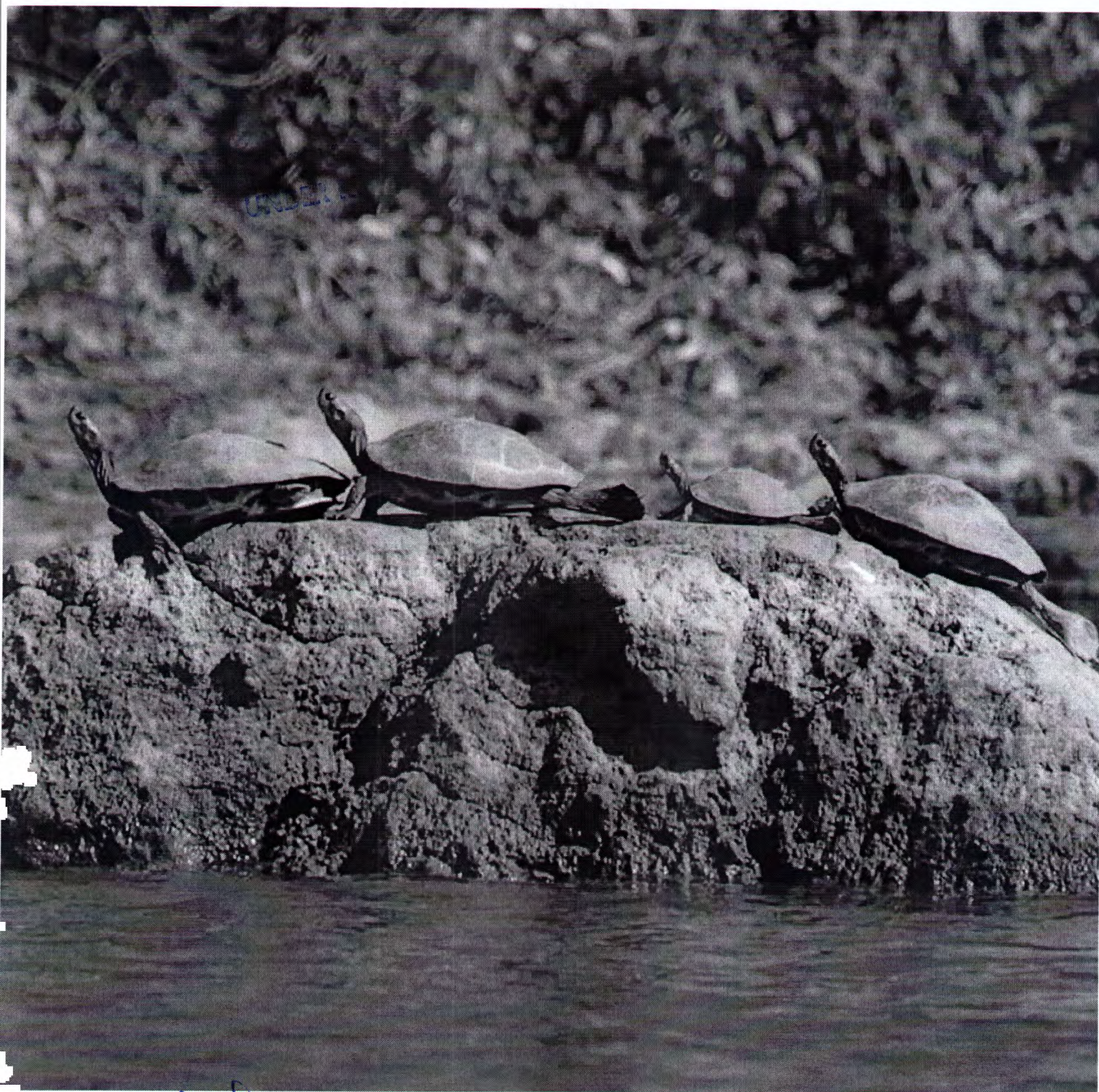
The Inland Water Authority of India has recognized 111 national waterways across major rivers for catering to demand for economically cheap transportation. Increasing river traffic and large vessel movement are detrimental to aquatic species and may even provide opportunities for the spread of non-native aquatic species (Panov et al., 2009). The invasive introduced species such as Tilapia (*Oreochromis aureus*), Grass carp (*Ctenopharyngodon idella*), guppy fish (*Poecilia reticulata*), Red Piranha (*Pygocentrus nattereri*) in the southern India (Bijukumar, 2000), has altered the aquatic ecology by changing water quality and species composition. Owing to these anthropogenic stressors, the resulting habitat degradation, alterations, invasive species and over-exploitation, the aquatic species within these river basins are under stress while some species has become locally extinct. For example range of hilsa (*Tenulosa ilisa*) has reduced in the Ganga River due to Farakka barrage. Migratory fish species such as *Tor mosal*, *Rhinomugil corsula* and *Macrobrachium* sp. have been affected by the Hirakud Dam in Mahanadi (Sugunan and Yadava, 1992). Annual catch of hilsa has decline by 75% from 1991 to 2008 in Narmada (Bhaumik et al., 2017). The population of *Mastacembelus armatus* in the Narmada River from Jabalpur is isolated between Bhedaghat waterfall and barrage on the upstream, and the population is found to be further genetically differentiated (Khedkar et al., 2014).

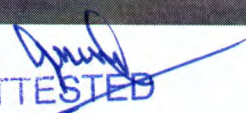
The introduction of exotic and alien species to the natural waters of Kerala has resulted in competition for food and space and ultimately in the decline of indigenous species. In Periyar Lake, which is well known as one of the biodiversity hotspots of Kerala, exotic species such as Common carp *Cyprinus carpio* have already established breeding populations and contribute more than 70% of the stock. A high percentage of diet overlap exists between native fish species like *Tor khudree*, *Gonoproktopterus curmuca*, *Lepidopygopsis typus* and exotic species like Tilapia (*Oreochromis mossambicus*) and Common carp. Percentage contribution of exotics in the landing showed clear cut preponderance over indigenous fish species by weight. Tilapia has established its populations in almost all rivers of Kerala. The exotic high yielding African catfish (*Clarias gariepinus*) is another potential danger to the indigenous species in most part of India (Kurup et al., 2004).


ATTESTED

CPIO, Wild Life Institute of India, Dehradun

INFORMATION PROVIDED
UNDER RTI




ATTESTED

CPIO, Wild Life Institute of India, Dehradun

NEED OF THE STUDY

INFORMATION PROVIDED
UNDER RTI

The rivers in India pass through nine Biogeographic zones and nurture unique aquatic species assemblage. The Ganga basin provide critical habitat for Gangetic dolphin (*Platanista gangetica gangetica*), Irrawaddy dolphin (*Orcaellabrevirostris*), Smooth coated otter (*Lutrogale perspicillata*), Sarus crane (*Grus antigone*), Indian skimmer (*Rynchops albicollis*), gharial (*Gavialis gangeticus*), mugger (*Crocodylus palustris*), Saltwater crocodile (*Crocodylus porosus*), Northern river terrapin (*Batagur baska*), Red-crowned roofed turtle (*Batagur kachuga*) and fish species such as Golden Mahseer (*Tor putitora*) (WII-GACMC, 2018). The Barak River is one of the bio-diverse rivers in the Brahmaputra River basin and passes through Himalayan and North-east biogeographic zones and herbour endemic biota such as Orange-spotted snakehead fish (*Channa aurantimaculata*). A putative new species, *Osteobrama serrata* has been described from the Barak River basin. Besides, the Gangetic dolphin and Smooth-coated otter are key aquatic species of the basin (Wakid, 2005; CSG, 2014). The Mahanadi basin share biotic elements from the Gangetic basin and the key fauna are represented by Gangetic dolphin, Irrawady dolphin, Smooth coated otter, mugger, saltwater crocodile (ZSI, 1998; FPDWCI, 2017). The *Tor mosal mahanadicus* is endemic to this basin (Mohapatra et al., 2017). In the Deccan peninsula, the Narmada basin nurture key aquatic species such as Smooth coated otter, mugger, Tor mahseer (*Tor tor*) and other fish species (Suthar et al., 2017; Saini and Dube, 2018). Isolated from the northern river basins and passing through bio-diverse Western Ghats, the Godavari, Periyar and Cauvery rivers provide habitat for distinctive aquatic species. The Godavari basin nurture key aquatic species such as smooth-coated otter, Saltwater crocodile and unique species such as Leith's softshell turtle (*Nilssonia leithii*) and Fringed-lipped carp (*Labeo fimbriatus*) (Das, 2008; Raveendranathan, 2016). The Periyar River in the Western Ghats show high endemism in terms of fish fauna, and species such as *Crossocheilus periyarensis*, *Garra periyarensis* and *Nemacheilus periyarensis* are new found records in the river (Gopi, 2001; Kurupand Radhakrishnan, 2005). Researchers described a new fish species (*Dario urops*) from Cauvery basin (Silas, 1951), besides, *Puntius cauveriensis* and *Hemibagrus punctatus* are endemic to this region (Ali et al., 2013). Asian giant softshell turtle, Humpback mahseer (*Tor* sp.), and saltwater crocodile are also key aquatic fauna in this region (Pinder et al., 2015; Melvinselvan and Das, 2017).

Due to increasing demand for domestic, industrial and agriculture uses, most of these river basins are water stressed. The impoundments have altered the natural flow regime of most of the rivers and subsequently reduced the carrying capacity for pollutants. This is further accentuated by the fact that around 61,948 Million Liters per day (MLD) sewage is being generated from Class I and Class II cities in and around these river basins and only 37% of the sewage is treated before falling into rivers (CPCB, 2015). Out of the total measurable pollution in the rivers from various point sources, around 75% is accounted for by municipal sewage from towns located along the banks of rivers and remaining 25% is accounted for by industrial effluents. In addition, micro- and macro-plastics, persistent xenobiotics, EDSs pose toxicological risk (Moore, 2006).

ATTESTED

CPIO, Wild Life Institute of India, Dehradun

INFORMATION PROVIDED
UNDER RTI

In India, 5264 completed large dams are fragmenting most major rivers and their tributaries, with an additional 437 dam under-construction (CDSO, 2019). In the Ganga basin alone 795 dams and 181 barrages and weirs (Water Resource Information System, India) are altering the physical habitat and making the river intermittent. An estimated 70.7% of the Bhagirathi River and 48.0% of the stretch of the Alaknanda River in Ganga basin has been morphologically altered. Almost 90% of the water is extracted from Bhimgoda barrage reducing flow in the downstream till the confluence of Yamuna River and limit distribution of Gangetic dolphins (WII-GACMC, 2018). Large multipurpose dams in peninsular rivers such as Narmada, Godavari, Krishna and Cauvery are impacting aquatic species habitat and distribution. Habitat fragmentation in the Narmada River has created genetic differentiation in the *Mastacembelus armatus* population (Khedkar et al., 2014). Dams in the Krishna and Cauvery headwaters in the Western Ghats adversely impacted population of endemic *Nyctibatrachus* species (Naniwadekar and Vasudevan, 2014). The construction of dams on Godavari and Krishna rivers resulted in the retention of sediment, in turn, affects the deltas by depriving them of sediments in delta-building process, which leads to shoreline erosion rather than accretion (Rao et al., 2010).

India being mostly arid or semi-arid, climate change is a crucial concern (IPCC, 2001). Hence, existing threats to rivers will be heightened by the impacts of climate change and altered water quality, questioning the survival of the aquatic species (Bouwer et al., 2006). Additionally, the absence of policies and institutional mechanism at the state basin level, or the larger basin level, and those on water resource development and water allocation taking into consideration the ecological health of rivers is a critical concern (Amrit et al., 2017).

As a consequence of synergistic impact of those factors, the freshwater biota of these river basins is under stress and some has become locally extinct. Although numerous studies have been carried out on Indian rivers, these studies are fragmented. Moreover, studies on aquatic species diversity, richness and their functional roles to draw any conclusion about the ecological status of the river for conservation planning are lacking. The ecological considerations during river regulation, water abstraction, and morphological modification are less accounted while planning developmental projects. Therefore, it is imperative to study the ecological status of these rivers, keeping in view the current global river conservation scenario. Table 1 summarizes details of the selected rivers to be critically studied during the project.

ATIL K. SINGH

CPIO, Wild Life Institute of India, Dehradun

AIM

The aim of this study is to spearhead river conservation in identified Indian rivers for biodiversity conservation.



OBJECTIVES

1. Prepare biodiversity profile of the identified rivers to derive the current status.
2. Identify direct and indirect drivers affecting the integrity of these rivers.
3. Assess the concentration of key pollutants such as micro- and macro-plastics, pesticides, heavy metals and other endocrine disruptive substances (EDSs) in identified rivers and bioaccumulation in species of conservation concern.
4. Derive the current trend in genetic variability and gene flow of identified species which might have been disrupted due to river fragmentation.
5. Identify conservation priority zones and prepare conservation action plan for select stretches to minimize the negative impact of the direct and indirect drivers on river ecosystem processes.
6. Identify, prioritize and enhance capacity of the regional institutions/organization for long term involvement in river conservation.
7. Strengthen the existing Ganga Aqua Labs at WII to cater to the requirements of other Indian rivers for conservation planning and information dissemination.

INFORMATION PROVIDED
UNDER RTI

PIO, Wild Life Institute of India, Dehradun

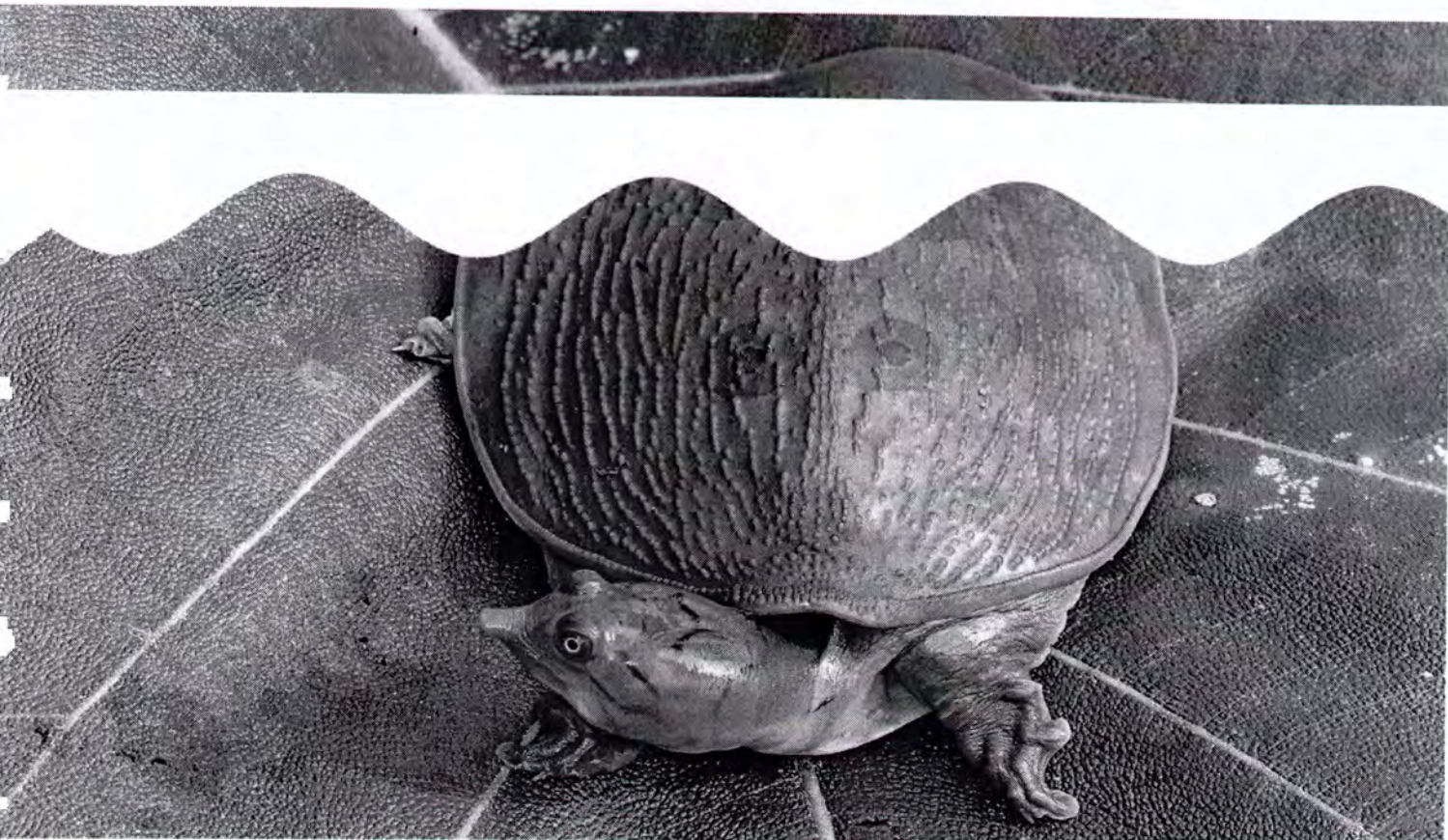


Table 1.Characteristics of the Indian rivers identified for the study

River	Type	Passage through State/ Union Territory	Biogeographic zone	Origin	Length (km)	Discharge (m ³ /s)	Catchment area (km ²)	No. of dams	Human density (persons/km ²)	Forest cover in basin (km ²)	Total irrigated area (km ²)
Barak	Perennial	Meghalaya, Manipur, Nagaland, Mizoram, Assam, Tripura	North east	Liyai Kullen Village, Manipur	564	7786	52000	1*	431.8 (Barak Valley)	Data not available	Data not available
Mahanadi	Perennial	Chhattisgarh, Odisha	Deccan Peninsula	Dandakaranya, Chhattisgarh	850	2119	141589	5	273	43808	68719
Narmada	Perennial	Gujarat, Madhya Pradesh, Maharashtra	Semi-arid - Deccan Peninsula	Narmada Kund, Madhya Pradesh	1312	1447	98796	4	161.9	28509.75	59277.6
Godavari	Non-Perennial	Maharashtra, Telangana, Andhra Pradesh, Chhattisgarh	Western Ghats-Deccan Peninsula	Brahmagiri Mountain, Maharashtra	1465	3505	3014503	21	729	1039702.08	1738162
Periyar	Perennial	Kerala, Tamil Nadu	Western Ghats-Deccan Peninsula	Sivagiri, Tamil Nadu	244	1364.66	5398	4	NA	1889.3	417.96
Cauvery	Perennial	Karnataka, Tamil Nadu	Western Ghats-Deccan Peninsula, East Coast	Western Ghat, Karnataka	805	677	81155	9	232	15849.57	86698.81

*proposed

CPIO, Wild Life Institute of India, Dehradun

ATTACHED

INFORMATION PROVIDED UNDER RTI

APPROACH AND METHODOLOGY

Extensive and seasonal ecological assessment shall be carried out in identified Indian rivers to consolidate primary information on biodiversity, species distribution, habitat characteristics and hydrology in terms of water quality and flow. This primary information will be collated with published literature and shall be used for determining the current state of the aquatic species of conservation significance and their habitat.

To identify direct and indirect drivers socio-ecological frameworks such as DPSIR and ES, shall be used. The drivers shall be identified, described and ranked (Gooch and Stålnacke, 2010). Indicators shall be chosen for each of the identified drivers (Vidal-Abarca et al., 2014). Primary and secondary data shall be collected for each of the indicators along the selected tributaries and wetlands. Samples will be collected to assess micro- and macro-plastic, persistent xenobiotics such as pesticides, heavy metals and EDSs.

Both, temporal and spatial scale of operation of the drivers will also be assessed and adaptive social process will be outlined. A risk assessment framework will be developed to explore and evaluate the combination of impact chains, with the aim of selection of management options (USEPA, 1992; Davidson and Finlayson, 2007; Patricio et al., 2016). Ordination and classification techniques will be used for used to analyze correlations/co-occurrence of multiple human drivers and pressures, identify most pressured sites, and summarize multiple stressors to investigate their impact on the aquatic environment across the basin (Pletterbauer et al., 2017).

INFORMATION PROVIDED
UNDER RTI

To identify the conservation priority areas, stretches that retain significant biodiversity and those with high anthropogenic pressure will be identified. This will be done on the basis of geo-spatial information, primary survey-based data, tracking movement pattern and habitat use of species of conservation significance and identifying hotspots. Habitat prediction model will be used to fill up gaps in species distribution information, identification of areas to be included in conservation zones and provide decision support by producing a number of different options that meet both socio-economic and conservation objectives. Geospatial layers will be produced in Geographic Information System (GIS) platform on the basis of species distribution, river hydrology, habitat characteristics and anthropogenic disturbances.

Conserving entire river basins would be impractical and decision-makers should follow science-based strategies based on rigorous studies to balance conservation and development goals. These strategies should be applied through a conservation action plan. To prepare such an action plan it is imperative to know the current state of the aquatic biodiversity, habitat, the drivers of biodiversity change, and spatial distribution of the conservation priority and problematic areas. This method, known as conservation prioritization aids in decision support for conservation planning (Ferrier and Wintle, 2009) and allows decision makers to better allocate limited resources (Hicks et al., 2015). Identified conservation priority zones will be

ANNEXED

brought under protection within the purview of available legal tools such as the Indian Wild Life (Protection) Act, 1972.

Conservation Action Plans for the Barak, Mahanadi, Narmada, Godavari, Cauvery and Periyar rivers will be prepared by integration of science-based knowledge and stakeholder consultation. An adaptive management framework will be implemented during the planning process to help practitioners and policy planners focus on natural resource conservation strategies on clearly defined elements of conservation targets and to measure their success in a manner that enables them to adapt and learn over time. Conservation institutions/organizations such as Zoological Survey of India, Central Inland Fisheries Research Institute, Chilka Development Authority working in those regions will be involved in the process. The conservation planning and management of the rivers will be spearheaded from the Ganga Aqua Labs at WII.

ACTIVITIES

INFORMATION PROVIDED UNDER RTI

1. Ecological assessments to determine the biodiversity profile, status of species of conservation concern and their habitat in identified Indian rivers.
2. Assess the impact of direct and indirect drivers affecting the integrity of these rivers.
3. Toxicology assessment, bioaccumulation study and assessment of effect of persistent pollutants on aquatic species of conservation significance.
4. Genetic assessment to evaluate effect of multiple stressors on species of conservation concern.
5. Database on aquatic wildlife and habitat condition of identified rivers will be created and maintained.
6. Development of conservation strategy and site-specific action plan and pilot implementation programmes.
7. Coordination meetings with managers, planners and policy makers to sensitize them on the issues of the identified rivers and ensure their cooperation in implementation of the conservation action plan.
8. Identify the prospects for engaging local communities and other stakeholders.
9. Carryout capacity building activities for institutions/organizations for long term involvement in networking and conservation planning.
10. The existing Ganga Aqua Labs at WII will be strengthened to cater to the requirements of other Indian rivers for conservation planning and information dissemination.

DELIVERABLES

1. Consolidated study report on biodiversity status of the identified Indian rivers.
2. Quantified information on drivers of change of aquatic environment and their scale of operation identified.


ATTESTED

3. An ecological risk assessment framework that would aid in selection of management options.
4. Database created on biodiversity and habitat condition in spatial framework.
5. Conservation priority zones identified.
6. Site-specific action plans are in place.
7. Framework for capacity building programme developed.
8. Institutions/organizations identified and engaged for long term commitment in networking and conservation action planning.
9. Ganga Aqua Labs in WII strengthened for assisting in planning national level river conservation and information dissemination.
10. Bring out publications as popular and research articles.

Table 1.1 Timeline of activities

INFORMATION PROVIDED
UNDER RTI

No.	Activities	Project Phase (Half yearly)				
		1 st	2 nd	3 rd	4 th	5 th
1.	Appointment of project personnel					
2.	Upgradation of Centralized Laboratory – River Conservation Centre					
3.	Procurement of equipment and field gears					
4.	Procurement of maps and GIS layers and satellite images					
5.	Literature review, baseline survey					
6.	Ecological assessment to determine the biodiversity profile, status of species of conservation concern and their habitat in identified Indian rivers					
7.	Framework for capacity building programme					
8.	Identification and prioritize institutions/organization & capacity building programmes					
9.	Ecotoxicological and genetic assessment					
10.	Database on aquatic biodiversity and habitat conditions					
11.	Publications in print on subject matters					
12.	Identification of conservation priority zones					
13.	Development of conservation strategy and site-specific action plan					
14.	Coordination meetings with managers, planners and policy makers					
15.	Functional Ganga Aqua Labs for river conservation in the Wildlife Institute of India, Dehra Dun					


ATTESTED

CPIO, Wild Life Institute of India, Dehradun

Table 1.2 Log frame

TASK	ACTIVITIES	MEASURABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS IF ANY
Objective 1: Prepare biodiversity profile of identified Indian rivers.	1. Review of literature (First year onwards). 2. Regular strategic survey for current state of aquatic environment and biodiversity in identified rivers (First year onwards).	1. Status of key aquatic fauna in the identified rivers. 2. Geo-spatial distribution of aquatic species of conservation significance in identified rivers.	1. Number of ecological surveys. 2. Publications of brochures, booklets, resource materials. 3. Status and distribution of species of conservation significance in GIS domain.	1. Adequate funds are made available on time. 2. Necessary approval obtained from concerned agencies.
Objective 2: Identify direct and indirect drivers affecting the integrity of these rivers.	1. Identification of activities in the basin affecting ecological integrity of the identified rivers through ecological surveys (First year onwards).	1. Drivers of change of aquatic environment and their scale of operation identified.	1. Drivers and their relationship with the aquatic biodiversity derived.	1. Adequate funds are made available on time.
Objective 3: Derive the current trend in genetic variability and gene flow of identified species which might have been disrupted due to fragmentation of the longitudinal connectivity of the rivers.	1. Regular strategic survey for sampling for genetic variability assessment (First year onwards).	1. Report on factors affecting genetic variability of species of conservation significance.	1. Number of ecological surveys. 2. Genetic variability of species of conservation significance defined for identified rivers.	1. Adequate funds are made available on time. 2. Necessary approval obtained from concerned agencies.
Objective 4: Asses the concentration of key pollutants such as micro- and macro-plastics, heavy metals and endocrine disruptive substances (EDSs) in identified rivers and bioaccumulation in species of conservation concern.	1. Samples collected for water quality and ecotoxicology assessment (First year onwards)	1. Report on ecotoxicology of identified rivers.	1. Risk map developed.	1. Adequate funds are made available on time. 2. Necessary approval obtained from concerned agencies.
Objective 5: Identify conservation priority zones and prepare conservation action plan for select stretches to minimize the negative impact of the direct and indirect drivers on river ecosystem processes.	1. Procurement of maps and GIS layers and satellite images (First year onwards). 2. Identification of conservation priority zones in identified rivers (Second year onwards). 3. Coordination meetings with state forest departments	1. Ecological status of identified rivers. 2. Conservation priority zones in identified rivers identified. 3. Number of coordination meetings. 4. Numbers of site-specific action plan developed.	1. Digitized maps of priority areas. 2. Ecological status report.	1. Timely availability of budget. 2. Line agencies provided adequate support.

INFORMATION PROVIDED
UNDER RTI

ATTESTED

TASK	ACTIVITIES	MEASURABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS IF ANY
	and other line agencies for management of the priority zones (Third year).			
Objective 6: Identify, prioritize and built capacity of institutions/organization for long term involvement in networking and conservation planning	<ol style="list-style-type: none"> 1. Identify conservation institutions/ organizations working in those areas (First year). 2. Networking and capacity building activities and engaging them in conservation planning (Second year onwards) 	<ol style="list-style-type: none"> 1. A network of conservation institutions/ organizations in place for long term engagement in conservation planning. 	<ol style="list-style-type: none"> 1. Coordination and cooperation at National level for river and biodiversity conservation. 	<ol style="list-style-type: none"> 1. Timely availability of budget. 2. Responsive target groups.
Objective 7: Strengthen the existing Ganga Aqua Labs at WII to cater to the requirements of other Indian rivers for conservation planning and information dissemination.	<ol style="list-style-type: none"> 1. Digital data repository on aquatic wildlife and habitat condition of identified rivers (First year onwards). 	<ol style="list-style-type: none"> 1. Publications of reports, brochures, resource materials, booklets and scientific and popular articles. 2. Number of occasions River Conservation Centre provided decision support in matters of conservation of Indian rivers. 	<ol style="list-style-type: none"> 1. Scientific publications, popular articles, on identified rivers. 2. Digital information repository. 	<ol style="list-style-type: none"> 1. Timely availability of budget.

[Signature]
ATTESTED

INFORMATION PROVIDED
UNDER RTI

CPIO, Wild Life Institute of India, Dehradun



INFORMATION PROVIDED
UNDER RTI

ATTESTED

The Institute of India, Dehradun

REFERENCES

- Abell, R., Thieme, M.L., Revenga, C., Bryer, M., Kottelat, M., Bogutskaya, N., & Stiassny, M.L. (2008). Freshwater ecoregions of the world: a new map of biogeographic units for freshwater biodiversity conservation. *BioScience*, 58(5), 403-414. <https://doi.org/10.1641/B580507>
- Alan Y.J., Ervin, D., Chang, H., Granek, E. F., Dujon, V., Shandas, V., & Brown, D. (2016). Ecosystem services of streams and rivers. *River Science*, 335-352. doi:10.1002/9781118643525.ch17
- Ali, A., Dahanukar, N., Kanagavel, A., Philip, S., & Raghavan, R. (2013). Records of the endemic and threatened catfish, *Hemibagrus punctatus* from the southern Western Ghats with notes on its distribution, ecology and conservation status. *Journal of Threatened Taxa*, 5(11), 4569-4578.
- Allan, J. D., & Flecker, A. S. (1993). Biodiversity conservation in running waters. *BioScience*, 43(1), 32-43.
- Amrit, K., Mishra, S. K., & Pandey, R. P. (2017). Tennant Concept Coupled with Standardized Precipitation Index for Environmental Flow Prediction from Rainfall. *Journal of Hydrologic Engineering*, 23(2), 05017031.
- Balian, E. V., Segers, H., Lévêque, C. & Martens, K. (2008). The Freshwater Animal Diversity Assessment: an overview of the results. *Hydrobiologia*, 595, 627-637. doi:10.1007/s10750-007-9246-3
- Bhaumik, U., Mukhopadhyay, M. K., Shrivastava, N. P., Sharma, A. P., & Singh, S. N. (2017). A case study of the Narmada River system in India with particular reference to the impact of dams on its ecology and fisheries. *Aquatic Ecosystem Health & Management*, 20(1-2), 151-159. <http://dx.doi.org/10.1080/14634988.2017.1288529>
- Bijukumar, A., & Sushama, S. (2000). Ichthyofauna of Ponnani estuary, Kerala. *J. mar. biol. Ass. India*, 42(1-2), 182-189.
- Bouwer, L. M., & Aerts, J. C. (2006). Financing climate change adaptation. *Disasters*, 30(1), 49-63.
- CDSO (Central Dam Safety Organization). (2019). National Register of large dams. Central Water Commission, Dam Safety Monitoring Directorate, Government of India. 300 pp.
- Collen, B., Ram, M., Dewhurst, N., Clausnitzer, V., Kalkman, V. J., Cumberlidge, N., & Baillie, J. E. (2009). Broadening the coverage of biodiversity assessments. *Wildlife in a Changing World—An Analysis of the 2008 IUCN Red List of Threatened Species*, 67.
- Collen, B., Whittton, F., Dyer, E. E., Baillie, J. E., Cumberlidge, N., Darwall, W. R., Böhm, M. (2014). Global patterns of freshwater species diversity, threat and endemism. *Global ecology and Biogeography*, 23(1), 40-51. <https://doi.org/10.1111/geb.12096>
- CPCB (Central Pollution Control Board). (2015). Annual Report. Central Pollution Control Board, Ministry of Environment Forest & Climate Change, 274.
- CSG (Crocodile Specialist Group). (2014). Crocodiles. Proceedings of the 23rd Working Meeting of the Crocodile Specialist Group – IUCN – The World Conservation Union, Gland, Switzerland and Cambridge UK, 451.
- CWC (Central Water Commission). (2015). Water and related statistics. Water Resources Information System Directorate, Information System Organization, Water Planning & Projects Wing, Central Water Commission. Government of India. 168 pp.
- Das, I. (2008). *Pelochelyscantorii* Gray 1864—Asian giant softshell turtle. In: Rhodin, A. G. J., Pritchard, P. C. H., van Dijk, P. P., Saumure, R. A., Buhlmann, K. A., and Iverson, J. B. (Eds.), Conservation Biology of Freshwater Turtles and Tortoises: A Compilation Project of IUCN/SSC Tortoise and Freshwater Turtle Specialist group.. *Chelonian Research Monographs*, 5, 011-1. doi: 103854/crm.5.011.cantorii.v1.2008
- Davidson, N. C., & Finlayson, C. M. (2007). Developing tools for wetland management: inventory, assessment and monitoring—gaps and the application of satellite-based radar. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 17, 219-228.
- Dodds, W. K., Perkin, J. S., Gerken, J. E. (2013). Human impact on freshwater ecosystem services: a global perspective. *Environmental science & technology*. 47(16), 9061-9068. <https://doi.org/10.1021/es4021052>
- Dudgeon, D., Arthington, A. H., Gessner, M. O., Kawabata, Z. I., Knowler, D. J., Lévêque, C., Naiman, R. J., Prieur-Richard, A. H., Soto, D., Stiassny, M. L. Sullivan, C. A. (2006). Freshwater biodiversity: importance, threats, status and conservation challenges. *Biological reviews*, 81(2), 163-182. <https://doi.org/10.1017/S1464793105006950>
- FPDWCI (Forum for Policy Dialogue on Water Conflicts in India). (2017). Mahanadi River Basin: A Situation Analysis. Forum for Policy Dialogue on Water Conflicts in India, Pune. 78 pp.
- Galewski, T., Collen, B., McRae, L., Loh, J., Grillas, P., Gauthier-Clerc, M., & Devictor, V. (2011). Long-term trends in the abundance of Mediterranean wetland vertebrates: from global recovery to localized declines. *Biological Conservation*, 144(5), 1392-1399. <https://doi.org/10.1016/j.biocon.2010.10.030>

ATTESTED

Institute of India, Dehradun

- Gilvear, D., Beevers, L., O'keeffe, J., & Acreman, M. (2017). Environmental Water regimes and natural capital – Free Flowing Ecosystem Services. In: Water for the Environment: From Policy and Science to Implementation and Management, 1st Edn., edited by: Horne, A., Webb, A., Stewardson, M., Richter, B., and Acreman, M., Academic Press, Elsevier, 151–173.
- Gooch, G. D., & Stålnacke, P. (Eds.). (2010). *Science, policy and stakeholders in water management: an integrated approach to river basin management*. Earthscan.
- Gopi, K.C. (2001). *Garraperiyarensis* - a new cyprinid fish from Periyar Tiger Reserve, Kerala, India. *Journal of the Bombay Natural History Society*, 98: 82-83.
- Grill, G., Lehner, B., Thieme, M., Geenen, B., Tickner, D., Antonelli, F., ...& Macedo, H. E. (2019). Mapping the world's free-flowing rivers. *Nature*, 569(7755), 215.
- He, F., Zarfl, C., Bremerich, V., David, J. N., Hogan, Z., Kalinkat, G., ...& Jähnig, S. C. (2019). The global decline of freshwater megafauna. *Global Change Biology*, 25(11), 3883-3892.
- Hicks, C. C., Cinner, J. E., Stoeckl, N., & McClanahan, T. R. (2015). Linking ecosystem services and human-values theory. *Conservation Biology*, 29(5), 1471-1480.
- IPCC. (2001). In: Houghton, et al. (Eds.) and WMO/UNEP, Climate Change 2000. The Science of Climate Change, Assessment Report of the IPCC Working Group, Cambridge University Press, Cambridge.
- IUCN (International Union for Conservation of Nature and Natural Resources). (2015). Water and Climate Change. IUCN Issue Briefs, Conference of Parties 21, Gland, Switzerland.
- Karl, T. R., Melillo, J. M., Peterson, T. C., & Hassol, S. J. (Eds.). (2009). *Global climate change impacts in the United States*. Cambridge University Press.
- Khedkar, G. D., Lutzky, S., Rathod, S., Kalyankar, A., & David, L. (2014). A dual role of dams in fragmentation and support of fish diversity across the Godavari River basin in India. *Ecohydrology*, 7(6), 1560-1573.
- Kurup, B.M. & K.V. Radhakrishnan (2005). Fishes of the genus *Nemacheilus* (Bleeker, 1863) in Kerala with description of a new species, *Nemacheilus periyarensis*. *Journal of the Bombay Natural History Society*, 102: 75-78.
- Kurup, B. M., Radhakrishnan, K. V., & Manojkumar, T. G. (2004). Biodiversity status of fishes inhabiting rivers of Kerala (S. India) with special reference to endemism, threats and conservation measures. In *Proceedings of LARS2. 2nd large rivers symposium. Mekong River Commission and Food and Agricultural Organization* (pp. 163-182).
- Melvinselvan, G., & Nibedita, D. (2017). On the occurrence of Asian Giant Softshell Turtle, *Pelochelys cantorii* gray 1864, in Cauvery river, Tamil Nadu, Southern India. *Russian Journal of Herpetology*, 24(3).
- Moore, M. N. (2006). Do nanoparticles present ecotoxicological risks for the health of the aquatic environment?. *Environment international*, 32(8), 967-976.
- Mohapatra B. C, Sahoo S. K, Gupta S. D, Gupta S. D. (2017). Biology of Mahanadi Mahseer, *Tor mosal mahanadicus* (David) Reared in Freshwater Pond Culture System. *Current Agriculture Research Journal*, 5(2). doi :<http://dx.doi.org/10.12944/CARJ.5.2.13>
- Mujumdar, P. P. (2008). Implications of climate change for sustainable water resources management in India. *Physics and Chemistry of the Earth, Parts A/B/C*, 33(5), 354-358.
- Naniwadekar, R., & Vasudevan, K. (2014). Impact of dams on riparian frog communities in the Southern Western Ghats, India. *Diversity*, 6(3), 567-578.
- Ncube, S., Beevers, L., Adeloye, A. J., & Visser, A. (2018). Assessment of freshwater ecosystem services in the Beas River Basin, Himalayas region, India. *Proceedings of the International Association of Hydrological Sciences*, 379, 67-72.
- NIH (National Institute of Hydrology). 2019. Surface Water availability, National Institute of Hydrology, Roorkee. http://117.252.14.242/rbis/india_information/water%20potential.htm
- Nilsson, C., Reidy, C. A., Dynesius, M., & Revenga, C. (2005). Fragmentation and flow regulation of the world's large river systems. *Science*, 308(5720), 405-408.
- Palmer, M. A., Lettenmaier, D. P., Poff, N. L., Postel, S. L., Richter, B., & Warner, R. (2009). Climate change and river ecosystems: protection and adaptation options. *Environmental management*, 44(6), 1053-1068.
- Palmer, M. A., ReidyLiermann, C. A., Nilsson, C., Flörke, M., Alcamo, J., Lake, P. S., & Bond, N. (2008). Climate change and the world's river basins: anticipating management options. *Frontiers in Ecology and the Environment*, 6(2), 81-89.
- Patrício, J., Elliott, M., Mazik, K., Papadopoulou, K. N., & Smith, C. J. (2016). DPSIR – two decades of trying to develop a unifying
- Pinder, A. C., Raghavan, R., & Britton, J. R. (2015). The legendary hump-backed mahseer *Tor* sp. of India's River

ATTESTED

Ministry of India, Dehradun

- Cauvery: an endemic fish swimming towards extinction?. *Endangered Species Research*, 28(1), 11-17. doi: 10.3354/esr00673
- Pletterbauer, F., Funk, A., Hein, T., Robinson, L., Culhane, F., Delacamara, G., & Tamis, J. (2017). Drivers of change and pressures on aquatic ecosystems: European Union. framework for marine environmental management?. *Frontiers in Marine Science*, 3, 177.
- Rao, K. N., Subraelu, P., Kumar, K. C. V. N., Demudu, G., Malini, B. H., & Rajawat, A. S. (2010). Impacts of sediment retention by dams on delta shoreline recession: evidences from the Krishna and Godavari deltas, India. *Earth Surface Processes and Landforms: The Journal of the British Geomorphological Research Group*, 35(7), 817-827.
- Raveendranathan, D. (2016). Western Ghats and the Bounteous Services Showered on the Planet. Notion Press. 238 pp.
- Revenga, C., Campbell, I., Abell, R., De Villiers, P., & Bryer, M. (2005). Prospects for monitoring freshwater ecosystems towards the 2010 targets. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 360(1454), 397-413. <https://doi.org/10.1098/rstb.2004.1595>
- Saini, D. & Dube, K. K. (2018). Exploring the Faunal Diversity of River Narmada, Jabalpur Region (M.P) India. *International Journal of Science and Research (IJSR)*, ISSN (Online), 7(1), 2319-7064.
- Schmutz, S., & Moog, O. (2018). Dams: ecological impacts and management. In: Schmutz S., Sendzimir J. (eds) *Riverine Ecosystem Management*, 111-127. Springer, Cham.
- Silas, E. G. (1951). On a new cyprinid fish from Coorg, south India. *Journal of the Zoological Society of India*, 3(1), 7-10.
- Steffen, W., Crutzen, P. J., & McNeill, J. R. (2007). The Anthropocene: are humans now overwhelming the great forces of nature. *AMBIO: A Journal of the Human Environment*, 36(8), 614-622.
- Strayer, D. L., & Dudgeon, D. (2010). Freshwater biodiversity conservation: recent progress and future challenges. *Journal of the North American Benthological Society*, 29(1), 344-358. <https://doi.org/10.1899/08-171.1>
- Sugunan, V. V. & Yadava, Y. S. 1992. Hirakud Reservoir: Strategies for fisheries development. Bulletin No. 66. Central Inland Capture Fisheries Research Institute. 28 pp.
- Suthar, A. R., Rathod, J. Y., Patel, I. B., Gavali, D. J., & Lakhmapurkar, J. (2017). Historical and Current Distribution of Smooth Coated Otter *Lutrogale perspicillata* in Gujarat, India. *IUCN Otter Specialist Group Bulletin*, 34(2), 95-103.
- USEPA (1992). Dermal Exposure: Principles and Applications. EPA 600/18-9 I/O 11 B. Office of Research and Development, U.S. Environmental Protection Agency, January, 1992.
- Vidal-Abarca, M. R., Suárez-Alonso, M. L., Santos-Martín, F., Martín-López, B., Benayas, J., & Montes, C. (2014). Understanding complex links between fluvial ecosystems and social indicators in Spain: an ecosystem services approach. *Ecological complexity*, 20, 1-10.
- Vörösmarty, C. J., McIntyre, P. B., Gessner, M. O., Dudgeon, D., Prusevich, A., Green, P., ... & Davies, P. M. (2010). Global threats to human water security and river biodiversity. *Nature*, 467(7315), 555.
- Wakid, A. (2005). Studies on certain Aspects of Ecology and Behaviour of River Dolphin (*Platanistaganetica*) in Dibru-Saikhowa National Park, Assam. Ph. D. Thesis, under Dibrugarh University, Assam. 151 pp.
- WII-GACMC. (2018). Macro Fauna of the Ganga River: Status and Conservation of Select species. Ganga Aqualife Conservation Monitoring Centre, Wildlife Institute of India, Dehra Dun. Uttarakhand, India. ISBN: 81-85496-31-5
- WWF. (2016). Living Planet Report 2016. Risk and resilience in a new era. WWF International, Gland, Switzerland
- ZSI (Zoological Survey of India). (1998). Fauna of Mahanadi Estuary, Orissa. Estuarine Ecosystem Series No. 3. VIII+1-218 pp.

ATTESTED

 CPIC Wild Life Institute of India, Dehradun

INFORMATION PROVIDED
 UNDER RTI

INFORMATION PROVIDED
UNDER RTI



भारतीय वन्यजीव संस्थान
Wildlife Institute of India

ASSESSMENT OF THE ECOLOGICAL STATUS OF SELECT
INDIAN RIVERS FOR CONSERVATION PLANNING

Wildlife Institute of India, Dehra Dun, Uttarakhand
www.wii.gov.in
nmcg@wii.gov.in
Tel. 0135 2646210, 01352646480

ATTESTED

OPD Wildlife Institute of India, Dehradun

File No. J-24037/1/2019-NRCD-II

Government of India

Ministry of Jal Shakti

Department of Water Resources, River Development and Ganga Rejuvenation
National River Conservation Directorate

Pt. Deendayal Antyodaya Bhawan,
CGO Complex, Lodhi Road,
New Delhi-110003

Dated: 29th September, 2020

To

The Pay & Accounts Officer,
Ministry of Jal Shakti,
D/o WR, RD & GR,
Shastri Bhawan,
New Delhi - 110001

Sub: Release of Grants-in-aid of Rs.50,00,000/- (Rupees fifty lakh only) as 1st Installment in favour of Wildlife Institute of India for sanctioned project of "Assessment of ecological status of the select 6 Indian rivers" under National River Conservation Plan during the FY 2020-21(Plan).

Sir,

I am directed to refer to the Administrative Approval and Expenditure Sanction (AA&ES) of even no. dated 11th September, 2020, and to convey sanction of the President to the release of Grants-in-Aid of Rs.50,00,000/- (Rupees fifty lakh only) as 1st Installment in favour of Wildlife Institute of India (WII), Dehradun for the project of "Assessment of ecological status of the select 6 Indian rivers (Namely Cauvery, Godavari, Periyar, Mahanadi, Narmada Barak Rivers)" under National River Conservation Plan (NRCP) during the financial year 2020-21(Plan).

2. The terms and conditions stipulated in the order conveying Administrative Approval and Expenditure Sanction (AA&ES) vide letter no. J-24037/1/2019-NRCD-II dated 11th September, 2020 in respect of the project shall be adhered to during implementation of the project.

3. The amount will be drawn by the Wildlife Institute of India (WII), through electronic remittance mode whose bank detail is given below:

Name and Address of Company	Name and address of Bank	MICR and IFSC code/ Type of Account	Account No
Wildlife Institute of India, Dehradun, Post Box No.18, Chandrabani, Dehradun-248001, Uttarakhand.	Union Bank of India, Chandrabani, Dehradun	MICR Code-248026006 & IFSC code-UBIN0551856 (Saving Account)	518502010058069

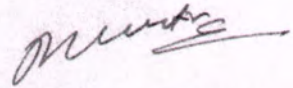
APPROVED
CPIO, Wild Life Institute of India, Dehradun

**INFORMATION PROVIDED
UNDER RTI**

4. No previous UC is involved as this is the first release of funds to the WII. Utilization Certificate for the amount being released now is to be filed by WII. Any unutilized balance out of the above release should be returned to this Directorate in terms of GFR-2017.

5. The expenditure is debitable to Demand No.61 of the Ministry of Jal Shakti Object Head 3435,04,101,06,02,31 Grants-in-aid, NRCP "General" National River Conservation Plan for the financial year 2020-2021 (Plan).

6. The issues under the powers delegated to the Ministry of Jal Shakti with the approval of Minister of Jal Shakti as well as with concurrence of IFD vide their Note No. N/52/AS&FA dated 16/08/2020 and the details entered in the Grants-in-aid Register at page No.16 (Sr.No.01).



(Pramod Kumar Patra)

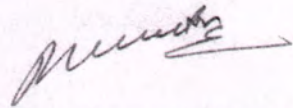
Under Secretary to the Govt. of India

Copy to:

1. Drawing & Disbursing Officer, NRCD – 2 copies,
2. Director, Wildlife Institute of India (WII), Post Box No.18, Chandrabani, Dehradun-248001, Uttarakhand,
3. Director (Environmental Audit), O/o Principal Director of Audit (SD), AGCR Building, 3rd Floor, New Delhi-110 002,
4. PPS to Secretary, MoJS,
5. PPS to PD (NRCD),
6. Adviser, NRCD,
7. Sanction Folder/Guard file.

ATTESTED

CPIO, Wild Life Institute of India, Dehradun



(Pramod Kumar Patra)

Under Secretary to the Govt. of India

INFORMATION PROVIDED
UNDER RTI



भारतीय वन्यजीव संस्थान
Wildlife Institute of India

(An Autonomous Institution of Ministry of Environment, Forest and Climate Change, Government of India)

Chandrabani, Dehra Dun- 248002, India
EPBAX: 0135-2640114 and 2640115, FAX: 2640117
Website: www.wii.gov.in, Email: pka@wii.gov.in

**CONTRACTUAL ENGAGEMENT OF PROJECT PERSONNEL IN THE NRC-D-WII
PROJECT "ASSESSMENT OF THE ECOLOGICAL STATUS OF SELECT INDIAN
RIVERS FOR CONSERVATION PLANNING"**

The Wildlife Institute of India (WII) is a premier autonomous Institute under the Ministry of Environment, Forest & Climate Change, and Government of India, in the field of wildlife research, teaching and training. The Institute plans to engage project personnel (Indian national only) in the above mentioned project on purely contractual basis, initially for a one-year period from the date of engagement that can be extended depending on the candidate's performance and the programme needs for further period up to two years. The project aims to assess the ecological status of Narmada, Mahanadi, Godavari, Cauvery, Periyar and Barak rivers for conservation planning. The work description, essential and desirable qualifications, age (as on date of advertisement) and the consolidated monthly emoluments for the required position is given in Appendix 1. The upper age limits for all posts may be relaxed up to 5 years for SC/ST/Women/Physically Challenged and 3 years for OBC candidates.

The selection will be made on the basis of online written test followed by personal interview. The online written test will be conducted through an outsourced company. Candidates should submit their applications online at the site www.wii.gov.in. Each candidate can apply at the most for two positions only. Application fees of Rs. 1000/- will have to be deposited online for each application. Candidates belonging to SC, ST and Physically Challenged category need to pay only Rs. 200/- as communication fees. Payment can be made via Internet Banking/Debit Card/Credit Card through our online secured payment gateway.

The registration portal for the test will remain open for a duration of one month from the date of issue of the advertisement. The online written test is likely to be held on 31st January, 2021. The personal interview is likely to be held after 15th February 2021. The candidates qualified in the written test will be notified through our site (www.wii.gov.in) and email for the personal interview.

The written test will be of one-hour duration with 25 objective type questions of two mark each (Total 50 marks) covering subjects related to general aptitude and an essay (around 300 words in English or in Hindi Languages) on the subject specific domain (20 marks). The personal interview will be of 30 marks. The written test will be conducted online and the personal interview will be conducted through Video conferencing. The selection for PMU 6 (Store keeper) will be based on personal interview only.

Candidates are required to submit the required certificates in support of their candidature such as age, educational qualification and work experience, at the time of online registration. All original documents/certificates must be produced at the time of joining for necessary verification. If there will

be any discrepancy in the document submitted at the time of verification, the selection of the candidate will be cancelled.

The written test is of a qualifying nature and only the shortlisted candidates will be called for the personal interview. The final selection of the candidate will be in accordance with the performance in the interview and in order of merit as decided by the Interview Committee. Depending on number of candidates, five candidates for each position will be called for personal interview.

The decision of the Director, WII in all matters relating to eligibility, work experience, acceptance or rejection of application, mode of selection will be final and binding on the candidates and no enquiry or correspondence will be entertained from any individual or his/her agency. At the time of the verification of original documents, if it is found that an attempt has been made by the applicant to willfully conceal, misrepresent or canvass the facts, his/her candidature will not be considered. A separate declaration form will have to be submitted through online application system.

How to Apply

- a) The process for registration and written test is "Online". Details for online registration and written test will be hosted on the WII's website (www.wii.gov.in). The online link for registration is <https://services2.amezo.com/wiircnctest/reg/>.
- b) The online registration process will open for a duration of one month from the date of issue of the advertisement.
- c) All eligible interested candidates are advised to follow the latest updates on the WII's website (www.wii.gov.in) for online registration, submission of application and payment of application processing fee, etc.
- d) Candidates will be required to fill in their personal, educational and professional experience profiles online besides uploading a recent passport size photograph. Candidates will make the payment of application processing fee of Rs. 1000/- (Rupees one thousand only) through the prescribed "Payment Gateway". Candidates belonging to SC, ST and Physically Challenged category need to pay only Rs. 200/- as communication fees.
- e) Candidates must mention the Project name and Position applied for in their applications.
- f) Candidates can apply for maximum of two positions and pay the fee for each position.
- g) The written test will be conducted online. The personal interview will be conducted through Video conferencing.

Note: The online registration process will open on December 14th 2020 and closes on January 13th 2021.

ATTESTED
CPIO, Wild Life Institute of India, Dehradun

Dr. Monali Sen
Registrar

**INFORMATION PROVIDED
UNDER RTI**

APPENDIX I

Recruitment of Project Personnel for NRCD-WII Project "Assessment of the Ecological Status of Select Indian Rivers for Conservation Planning"

#	Positions	Total consolidate emolument per month	No. of Posts	Educational Qualification		Maximum Age (years)	Work Description
				Essential	Desirable**		
1	Project Scientist	56000	2	Ph.D. in Wildlife Science / Zoology / Botany/ Forestry / Environmental Science or related subjects.	Expertise in wildlife surveys or ecological studies or wildlife conservation	40	Candidate will prepare the biodiversity profile and conservation action plans of select Indian rivers, and will implement the objectives of the project.
2	Project Associate-II	42000	6	Master's degree with minimum of 60% aggregate marks in Wildlife Science / Zoology / Botany/ Forestry / Environmental Science or related subjects with ≥4 years experience in relevant field.	Expertise in river and wetland ecology or conservation and sound knowledge on biology of aquatic wildlife	35	Candidate will implement the objectives of the project by analyzing available information.
3	Project Associate-I (Aquatic Ecology)	32000	3	Master's degree with minimum of 60% aggregate marks in Wildlife Science / Botany/ Forestry or related subjects with ≥1 year experience in relevant field.	Experience in aquatic ecology/river habitat assessment/wetland ecology/ aquatic habitat monitoring/ wildlife research/ conservation.	35	Candidates will carry out field sampling for biodiversity profiling and assessing various Environmental parameters.
4	Project Associate-I (Conservation Genetics - Fish)	32000	1	Master's degree with minimum of 60% aggregate marks in Wildlife Science / Zoology/ Life Science/ Biotechnology or related subjects with ≥1 year experience in relevant field.	Experience of genetic study of aquatic species, such as turtles, fishes.	35	Candidates will collect samples from field and assist the scientists for genetic analysis and report writing.
5	Project Associate-I (Conservation Genetics - Herpetofauna)	32000	1	Master's degree with minimum of 60% aggregate marks in Wildlife Science / Zoology/ Life Science/ / Biotechnology or related subjects with ≥1 year experience in relevant field.	Experience of genetic study of aquatic species, such as turtles, fishes.	35	Candidates will collect samples from field and assist the scientists for genetic analysis and report writing.
6	Project Associate-I (Ecotoxicology)	32000	6	Master's degree with minimum of 60% aggregate marks in Environment Science/ Wildlife Science / Zoology or Life Science or related subjects with ≥1 year experience on ecotoxicology.	Experience of sample collection and laboratory analysis for toxicity/pollution assessment, preferably related to aquatic ecosystems.	35	Candidates will collect samples from field, assist in laboratory analysis and report writing.
7	Project Associate-I (Aquatic Botanist)	32000	6	Master's degree with minimum of 60% aggregate marks in Botany/ Wildlife Science / Life Science or related subjects with ≥1 year experience in relevant field.	Experience in aquatic vegetation research/aquatic habitat monitoring/ wildlife research/ conservation	35	Candidates will carry out field sampling for biodiversity profiling and assessing various Environmental parameters.

CPIO, Wild Life Institute of India, Dehradun
 ATTESTED

8	Project Associate-I (Fish)	32000	6	Master's degree with minimum of 60% aggregate marks in Wildlife Science /Environmental Science/Zoology / Fishery Science/ Life Science or related subjects with ≥1 year experience in relevant field.	Experience in Taxonomy and Biology of Fishes/ Aquatic Ecology/ River habitat assessment/wetland ecology	35	Candidates will carry out field sampling for biodiversity profiling and assessing various Environmental parameters.
9	Project Associate-I (Birds & mammals)	32000	6	Master's degree with minimum of 60% aggregate marks in Wildlife Science / Forestry /Environmental Science/Zoology / Life Science or related subjects with ≥1 year experience in relevant field.	Experience in Taxonomy and Biology of birds and mammals/ Aquatic Ecology/ River habitat assessment/wetland ecology	35	Candidates will carry out field sampling for biodiversity profiling and assessing various Environmental parameters.
10	Project Associate-I (Herpetology)	32000	6	Master's degree with minimum of 60% aggregate marks in Wildlife Science / Forestry /Environmental Science/Zoology / Life Science or related subjects with ≥1 year experience in relevant field.	Experience in Taxonomy and Biology of reptiles and amphibians/ Aquatic Ecology/ River habitat assessment/wetland ecology	35	Candidates will carry out field sampling for biodiversity profiling and assessing various Environmental parameters.
11	Project Associate-I (Spatial Analyst)	32000	2	Master's degree with minimum of 60% aggregate marks in Geo-information/ Life Science/Environmental Science/ M.Tech. in Environmental Engineering/ Remote Sensing & GIS or related subjects with ≥1 year experience in relevant field.	Experience in projects related to GIS and Remote Sensing after Master's degree particularly experience of working on wildlife and aquatic habitat	35	Candidate will assist the Project Scientist/ Associate in creation of spatial database and other lab works. Conduct field work, when required for spatial modeling.
12	Project Assistant (Biology)	20000	12	Bachelor's degree with minimum 55% marks in Botany / Zoology / Chemistry / Life Sciences/ Wildlife Science / Forestry or related subjects.	Masters' degree in any discipline in life science, humanity and economics, mass communication. Experience and enthusiasm in implementing conservation projects.	30	Candidate will assist in field sampling for biodiversity profiling and assessing various environmental parameters. They will assist in literature survey and report preparation
13	Project Assistant (General)	20000	4	Bachelor's degree with minimum 55% marks in Sociology/ Commerce/ Economics/ or related subjects.	Masters' degree in any discipline in life science, humanity and economics, mass communication. Experience and enthusiasm in implementing conservation projects.	30	Candidate will assist in field sampling for biodiversity profiling and assessing various environmental parameters. They will assist in literature survey and report preparation
PROJECT MANAGEMENT UNIT							
PMU 1	Project Coordinator	56000	1	Ph.D. in Wildlife Science / Forestry / Environmental Science / Botany / Zoology / Life Science or related subjects.	Expertise in wildlife surveys or ecological studies or wildlife conservation	40	Candidate will implement project activities, will conduct analysis of data, carry out administrative work related to office management for the project and will support the field activities.

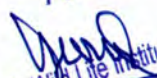
INFORMATION PROVIDED UNDER RTI

CPIO, Wildlife Institute of India, Dehradun

ATTESTED

PMU 2	Field Conservation Officer	40000	1	Master's degree with minimum 55% marks in Wildlife Science/ Forestry/ Botany/Zoology, with at least 4 years of experience in working with government agency or NGO or similar organizations.	Experience of working with multiple stakeholders. Sound knowledge of wildlife conservation.	35	Candidate will carry out stakeholder engagement, assist in office management for the project and will support the field activities.
PMU 3	Database Operator	32000	1	Bachelor's degree with minimum of 55 % aggregate marks in computer science with ≥2 year experience in relevant field	Experience of development and management of database and web designing	30	Candidate will develop and maintain ecological database. Develop and maintain web page on aqualife of the select Indian rivers.
PMU 4	Graphic Designer	32000	1	Bachelor's degree with minimum of 55 % aggregate marks in graphic designing/arts with ≥2 year experience in relevant field	Experience of graphic designing , web designing and working on designing software, managing social media etc.	30	Candidate will assist in online data preparation and management.
PMU 5	Accountant	20000	1	Bachelor's degree with minimum 55% marks in Commerce/Business Administration/Accounting with specialization in finance.	Knowledge of financial, and auditing regulations, computer application such as MS Word, MS Excel, Power Point internet.	30	Candidate will assist in financial and budgetary management and auditing systems for the Project.
PMU 6	Store Keeper	30000	1	Person retired from Central/State Governments/autonomous bodies as section officer/procurement in-charge with experience in store management.	Experience of store management in conservation/forest related projects.	65	Candidate will carry out administrative work for the project and support the field activities.

** Desirable qualifications are only indicative in nature.

ATTESTED

 CPIO, Wild Life Institute of India, Dehradun

**INFORMATION PROVIDED
 UNDER RTI**