



भारतीय वानिकी अनुसंधान एवं शिक्षा परिषद्
INDIAN COUNCIL OF FORESTRY RESEARCH AND EDUCATION

(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार की एक स्वायत्त परिषद्)
 (An Autonomous Body of Ministry of Environment, Forest & Climate Change, Govt. of India)

F. No. 41-58/2020/ADG (EP)/ICFRE/DPR/Damodar River/506

Dated: 1 JUNE 2020

To

The Director General of Forest & Spl. Secretary
 Govt. of India, MoEF&CC
 Indira Paryavaran Bhawan
 Jorbagh Road
 New Delhi -110 003

Sub.: Proposal for Preparation of DPR for Rejuvenation of Damodar River through Forestry Interventions –reg.

Sir,

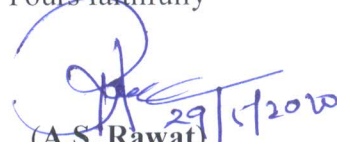
With reference to the subject mentioned above, kindly find enclosed herewith a proposal for preparation of "Detailed Project Report (DPR) for Rejuvenation of Damodar River through Forestry Interventions" prepared by the Institute of Forest Productivity (IFP), Ranchi an institute under ICFRE, Dehradun. A total of Rs. 60.77 lakhs approximate has been proposed as estimated cost towards preparation of DPR of the said river, which is inclusive of uniform institutional charges @ 15% with time period of 18 months.

This is for approval of the proposal by the Ministry.

With regards,

Encl.: As above.

Yours faithfully


 (A.S. Rawat) 29/6/2020
 Director General
 ICFRE

**Preparation of Detailed Project Report for
Rejuvenation of Damodar River through Forestry Interventions**



Submitted to

**Ministry of Environment, Forest and Climate Change
Govt of India**



By

Institute of Forest Productivity

Indian Council of Forestry Research and Education

(An Autonomous Council of Ministry of Environment, Forest and Climate Change, GoI)

Ranchi-835303, Jharkhand, INDIA

1. Introduction:

Damodar is a rain-fed river, which originates near Khamarpat hill on Chhota Nagpur plateau near Chandwa of Palamau district of Jharkhand. The total length of the river is 545km, of which 380km falls in the state of Jharkhand and about 160km in West Bengal. The Damodar river also known as Deonali in its initial reaches, is one of the most important rivers to join the Ganga on its right bank, east of the Sone ⁽¹⁾. The Damodar River Basin is a sub basin of Ganges Basin and accounts for about 10% with a drainage area of about 23,370.98 sq. km in the states of Jharkhand and West Bengal ⁽²⁾. The spatial extent of the basin lies between 22° 45'N - 24° 30'N to 84° 45'E - 88° 00'E and covers part of Jharkhand and West Bengal which is about 11.8% and 8.6% of the total geographical area of these two states, respectively. The drainage area of Damodar River basin extends over Hazaribag, Ramgarh, Koderma, Giridih, Dhanbad, Bokaro, and Chatra districts in Jharkhand and Burdwan and Hooghly districts in West Bengal. It partially covers Palamau, Ranchi, Lohardaga, and Dumka districts in Jharkhand and Howrah, Bankura, and Purulia districts in West Bengal. The state wise constituent of Damodar River Basin is shown in below table.

Sl No	District	Total Area (Sq Km)	Area in the Basin (Sq Km)	% Area of district in the basin	% Share in the basin
Jharkhand Sub Basin					
1	Palamu	12677	736.84	5.01	3.15
2	Ranchi	18311	910.33	4.97	3.90
3	Hazaribag	11152	6631.56	59.47	28.38
4	Giridih	6908	5376.81	77.83	23.01
5	Dhanbad	2996.80	2996.80	100	12.82
6	Santhal Pargana	14129	571.07	4.04	2.44
	Sub Total		17223.39		73.70
West Bengal Sub Basin					
1	Purulia	6259	1383.28	22.10	5.92
2	Bankura	6881	1564.67	22.74	6.69
3	Bardwan	7028	2113.61	30.07	9.04
4	Hooghly	3145	359.87	11.44	1.54
5	Howrah	1474	716.16	49.29	3.11
6	Sub Total		6147.59		26.30
	Grand Total		23370.98		100

Source: <http://envfor.nic.in/divisions/cltech/Damodar/1.1.htm>

1.1 Climate

The climate of the basin is tropical with hot summer and cold winter. The month of May is the peak of summer season with an average maximum temperature of 43°C and minimum of 30°C, while December and January are the coldest months. Temperatures during winter fall below 4°C at some locations in the basin.

1.2 Rainfall:

The average rainfall of the basin is 1200 mm that ranges between 765 and 1600 mm. 80% of the rain occurs during the monsoon season from June to September. The rainfall is the highest in the southern part and decreases gradually towards the northern part of the Barakar catchment.

1.3 Soil

The soil type of the basin has been grouped into major red and yellow loam sedimentary types in upper and middle basin of Jharkhand region. They have a tendency of laterisation; are highly leached; neutral to acidic in reaction; deficient in organic matter, nitrogen and available phosphorus acid but the potash content is high.

1.4 Vegetation

Damodar basin has varied terrestrial ecosystems with diverse vegetation spread across the basin. The floral biodiversity of the basin is rich and is represented by 137 flowering plant families and 853 species belonging to 535 genera. Poaceae is the dominant family of the region with 148 species followed by leguminosae, the second largest family with 92 species. These floral species are found in various forest types, open grasslands, agricultural fields, fallow lands, wastelands, mined out areas and their overburden dumps. A large number of these plants have socio-economic importance, besides their role in natural ecosystem functions. Since a majority of human population resides around the forests, their daily requirements of food, fodder, shelter and medicine are met by these natural plant resources. Some of these plant species have great potential for exploitation by pharmaceutical and cosmetic industry and can become an important resource for economic upliftment of the local population.

1.5 Fauna

A rich and luxuriant vegetation cover in the upper basin provides good habitat for animals and birds. There are 24 species of large and small mammals, 17 species of reptiles and about 300 species of birds in the basin. Despite the fact that the upper basin has a good forest cover the aggregate of wild animals is too small in diversity. The main factors responsible for the decrease of wild animals are: the fragmentation and destruction of habitat, poaching and too much of other human interference. The basin and surrounding areas have a number of large and small-protected areas and some of them like Palamau Tiger Reserve and Dalma Wildlife Sanctuary nurture a good population of mammals. However, increased mining activity in the upper basin will seriously jeopardize the survival of these species. The proposed mining activity, particularly in the North Karanpura valley, will deal a severe blow to the animal species and their survival chances will reduce to a great extent. In the face of already diminishing population of animals like Tiger, these animals may be faced with ultimate Extinction in and around the basin. The resident population of large mammals like tiger and elephants is rather low, but the forest provides important migration corridors for these animals. However, their habitat continuity in the protected areas like Palamau Tiger Reserve in the west, Koderma wildlife sanctuary in the east and Dalma wildlife sanctuary in the south of the basin makes the area critical for these animals.

2. Drainage System:

Damodar River originates in the Khamarpet hill range (1,062 m) near Chandwa in Palamau district and drains into a fan shaped catchment area of about 23370 sq km. In its upper reaches it is known as Deonad. The core of the Damodar River Basin is formed by Damodar and its major tributary Barakar. Other major tributaries of Damodar are Konar, Bokaro, Haharo, Jamnia, Ghari, Guaia, Khudia, and Bhera are the major tributaries and sub-tributaries of Damodar River (DVC 1992; CMRI 2001). The tributaries Konar and Bokaro originate over the Hazaribag plateau near Hazaribag town, and their combined flow joins Damodar River near Tenughat. The river Konar flows over Archaean gneiss country rocks, and a dam has been constructed near Gumea. The Bokaro River enters into the Gondwana basin near Bokaro coalfields. Tenughat onwards, the river Damodar is further joined by few more tributaries both from the north and south side before reaching Panchet. The Jamunia and the Khudia which flow over the Raniganj coalfields area are the main tributaries joining the Damodar River from north. Ijri and Gowai tributaries meet the Damodar River from the south

side near the western end of the Panchet reservoir. A dam has been constructed on the Damodar River near Panchet hill, 5 km west of its confluence with the river Barakar. The catchment area of the river above Damodar-Barakar confluence is rough hilly area denuded of vegetation cover and is susceptible to flood but the area beneath the confluence is narrow. The upper catchment area is more erosion prone where as lower catchment area is silt covered and fertile. The agriculture type is mostly rain-fed, however lower area has irrigation facility from Anderson Weir situated at Rhondia on Damodar river, which is close to Durgapur Barrage.

The river Barakar, which is the major tributary of Damodar, originates from the Koderma plateau and meets the Damodar River near Dishergarh. The Barakar River is about 225 km long and has a total catchment area of 7,025 km². It traverses through a steep-sided valley near its source region and drains into Tilaiya reservoir near Hazaribag. The Damodar River after its convergence with Barakar flows towards southeast and east up to Barsul in Burdwan. A barrage has been constructed over the Damodar River, 60 km east of its confluence with the Barakar, near Durgapur. After that, the river turns toward south near the village Chachai. The river flow becomes very sluggish at this part, and surplus water during monsoon seasons is carried by several spill channels locally, known as hanas. Damodar splits into two channels, Mundeswari and Amta, after flowing further south. The Damodar further traverses over the Arambagh of Hooghly district and Uluberia of Howrah district to join the Hooghly River at 55 km downstream of Kolkata. During its course the river flows through the large cities like Ramgarh, Bokaro, Dhanbad, Asansol, Durgapur, Burdwan and Howrah. Industrial discharges from coke oven plants, sponge iron industries and several coal washeries discharge their thick effluents directly /indirectly into the river at different points in its course.

Central Pollution Control Board (CPCB) has delineated catchment area of the Damodar basin as 23,170 km² only with sub-catchment areas as follows:

Sl No	River Name	Catchment Area (Sq Km)
1	Main Damodar River	15,280
2	Barakar Tributary	7,025
3	Bokaro-Konar Tributaries	865
	Total	23,170

3. Damodar River Basin: Issues

Damodar River basin is a highly industrialized zone, having a large number of coal mines and coal-based industrial establishments such as steel plants, thermal power stations, coal washeries, metal smelting plants, chemical plants, cement mills, beehive coke oven plants, metal alloy, steel re-rolling mills, refractories, mica and glass industries, as well as lime and brick kilns. Damodar basin is regarded as the storehouse of Indian coal. Not surprisingly the river is one of most polluted river in the country.

The Damodar and its tributaries drain almost the entire coal mining area under the Central Coalfields Ltd (CCL), the Bharat Coking Coal Ltd (BCCL) and the Eastern Coalfields Ltd (ECL). Indian industry heavily depends on this region as 60% of the coal need of the industry is met from Chhota-Nagpur belt ⁽⁶⁾. The states of Bihar and West Bengal depend almost entirely on this area for their power requirements. Apart from coal, iron, limestone, bauxite, baryte, mica, fire clay, china clay, etc., are the other minerals associated with the geological formations of the Damodar valley. There are five steel plants, eleven thermal power plants, ten cement factories, twenty-four coal washeries, sixty-four refractories, four hard coke oven plants, fourteen beehive coke oven plants, three hydroelectric power plants and number of other small miscellaneous industries exist in the Damodar River basin. The thermal power stations of the basin having total installed capacity of 10,200 MW. Apart from these, three hydroelectric power plants having a capacity of 144 MW and one gas turbine power plant in Maithan with a capacity of 82.5 MW are also contributing toward the power generation in the basin ⁽³⁾. Damodar Valley Corporation (DVC) is major industry in the basin involved with the operation of thermal power plants.

Erosion and siltation is another major issue in the basin. Severe erosion in the catchment is not only causing formation of wasteland but also posing the problem of siltation and reduction in the reservoirs storage capacity ⁽⁷⁾. Land-use alteration and natural river flows have a great impact in terms of volume and velocity of water flows and determining the relationship between dissolved and sediment load to the water discharge, river bank erosion, frequent shifts in the direction of river course and discontinuation of some old distributaries. The reduced river flow and increased sediment load cause heavy siltation and led to the development of increasing quantum of falls channels (blind rivers), marshes, oxbow lakes, etc. The requirement of water for DVC thermal power has also affected the way people living in the vicinity of the rivers, delve and use the water. During summer, farmers are forced to tap the larger quantity of ground water for irrigation and over exploitation of groundwater led

to lowering of water table and minimization of available annual water resource for future needs, as DVC store water to fulfill power generation meet. Further, the ever flowing discharge from industries has badly affected the river water quality, and people living in the vicinity of the river are most affected. The urban population of more than 3 million in Bihar and West Bengal is supplied Damodar water after treatment with lime and chlorine. The large rural population and urban dwellers outside the industrial townships are bereft of clean water. In Gomia, people living just outside the pampered Indian Explosives Limited (IEL) township depend on water from the Konar, a tributary of the Damodar. Damodar River has shown tremendous decrease in its fish fauna since 1950s.

Thus, there is an urgent need to address these issues, and come up with an integrated approach to meet decreasing E-Flow of river Damodar in order to sustain the river biodiversity. Rejuvenation of rivers through forestry interventions is one such approach that can support the restoration of decreasing E-Flow of the river, while addressing the erosion, providing shelter to faunal community and meeting peoples need of better quality of water. Recognising these issues, a proposal for drafting and submission of a Detailed Project Report (DPR) is proposed by Institute of Forest Productivity, Ranchi with following objectives:

1. Review & assess the existing situation of river basin, past river management & implications and lessons learned.
2. Identify and involve stakeholders and build consensus for design and development of strategies and approaches.
3. Assess ongoing forestry activities of the states engaged in the river management programme
4. Assess potential and possibilities for regeneration, improvement, and restoration of forest catchments.
5. Assess the conditions of riparian forests and potential of biological filters.
6. Examine the possibility of allied and other income generation activities.
7. Assess the potential of cultivation of medicinal plants and restoration of conservation areas and identify appropriate species and suitable sites.
8. Identify and develop a strategy for future research and monitoring, and
9. Formulate strategies, develop approaches, and plan activities for project implementation.

4. Approach and Methodology:

4.1 Study Area:

The Damodar River and its major tributaries across Jharkhand and West Bengal will be considered for rejuvenation plan to be proposed under the DPR (Detailed Project Report). The designated riverscape shall be from the catchment area of Damodar River system

including its major tributaries. This extent of riverscape (buffer zone) for intervention along the main river and the tributaries shall be decided based on interaction with stakeholders during the inception workshop. This is in line with some recent proposals on other major rivers of the country, wherein buffer zone of 5km/2km extent i.e. 5km on both side of main river and 2km on both side of tributaries or otherwise was decided only based on the stakeholders' views.

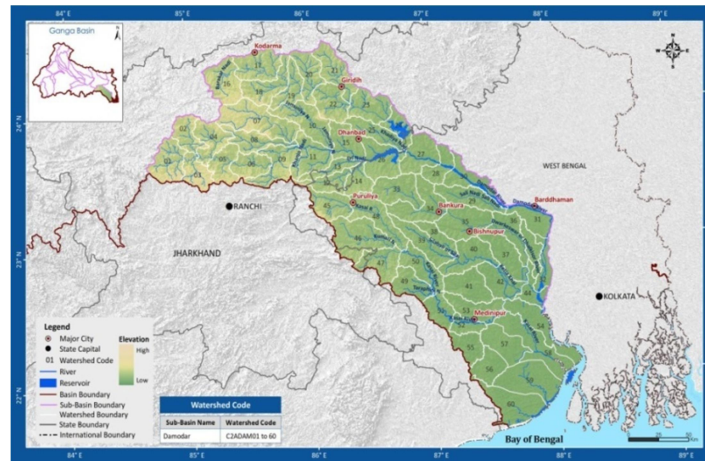


Figure 1: WRIS Map of Damodar Basin

(Source: WRIS Portal, CWC, Govt of India; downloaded on 25th May, 2020)

4.2 Approach

Logical Framework Approach, which is a multi-pronged and multi stakeholder's consultative process, followed by FRI Dehradun in Detailed Project Report - Forestry Intervention for Ganga (FRI, 2016) will also be followed for preparation of the Detailed Project Reports of Damodar river system.

For developing project framework and strategies, review of existing information will be done and consultation meeting with concerned State Forest Department and inception workshop with potential stakeholders including Forest & Environment Department, urban, irrigation, agriculture, horticulture, soil and civil society, for scoping of forestry activities and finalisation of riverscape buffer zone will be carried out. These meetings shall help intensive interaction and identification of diverse category of stakeholder departments/ individuals/ experts/ agencies /communities in the state for implementation of proposed intervention activities across riverscape. The state level inception workshop will be conducted at the time of launch of the project and then a closure workshop will be organised once draft DPR is prepared for its approval and acceptance from the stakeholders.

4.3 Riverscape Analysis

The total length of Damodar River is about 545km of which 380km falls in the state of Jharkhand and about 160km in West Bengal. The core area of the basin is formed by Damodar and Barakar River. The length of Barakar River is 225 km. Other major tributaries and sub-tributaries of Damodar River are Konar, Bokaro, Haharo, Jamunia, Ghari, Guai, Khudia, and Bhera. The actual extent of riverscape to be treated shall be finalised based on the inputs received from inception workshop and accordingly the buffer zone area will be defined and digitised. Similarly the tributaries to be taken for rejuvenation shall also be finalised based on inputs of inception workshop and accordingly the DPR will be prepared.

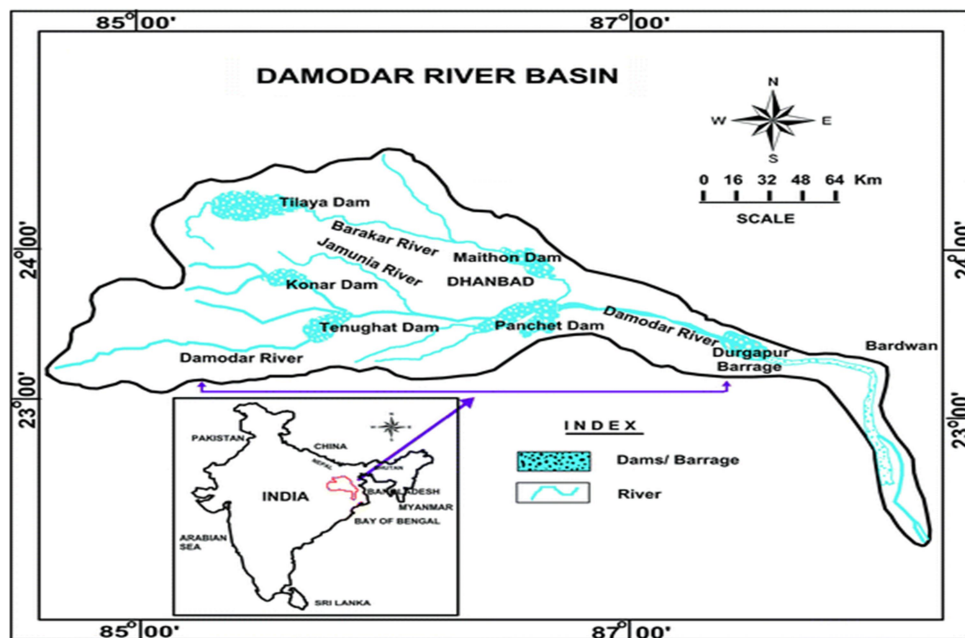


Figure 2: Drainage Map of Damodar River Basin

Source: https://link.springer.com/chapter/10.1007/978-981-10-2984-4_21 (downloaded on 25th May, 2020)

Image processing and GIS tools will be used for riverscape analysis. The image processing for riverscape will be done on Landsat series data, topographical feature will be extracted from SOI toposheets at 1:50,000 scale, LULC maps will be prepared to support prioritisation of intervention area, soil maps including soil texture, soil erosion, soil type will be used from NBSS and other spatial layers slope, aspect, hill-shade etc layers will be derived using Cartosat or ALOS DEM dataset, for determining the priority areas for forestry interventions. Entire riverscape will be categorised in different priority area i.e. high, moderate and low priority based on site erosion status. A multi-criteria (MCA) analysis approach will be followed to identify the treatment priority area.

4.4 Collection and Preparation of Spatial and Attribute Data:

The proposed work involves use of spatial as well as field attribute data to develop riverscape analysis. For spatial datasets, Landsat ETM data of the study area will be used. This dataset of most recent date will be downloaded from usgs sites. Different category of GIS layers including Soil layer, Watershed data layer, Forest Division Boundary layers up to compartment/beat level, Village boundary layers will be procured from concerned agency. LULC map of defined riverscape will be generated and compared with recent 2015-16 year LULC map of NRSA. Entire spatial work will be done on 1:50000 scale and SOI Toposheet at 1:50000 scales will be taken as reference map.

For collection of field attribute data, a data format consisting ground features will be designed and circulated among stakeholders. Field data from every single site shall also include GPS location of that site. In order to acquaint the front end staff of SFD, division level interactive training session will be conducted to explain the data format and data collection technique. In addition to field data format, KML (Knowledge Markup Language) file of the defined riverscape buffer zone projected over Google earth will also be provided and demonstrated. Data collected from the field will be screened for its accuracy at the back end and after proper data cleaning; data will be entered in the Information System for further processing.

4.5 Rejuvenation Models for the Identified Priority Areas:

The land use land class (LULC) based treatment plans will be formulated in the identified riverscape for implementation of forestry interventions. Based on native vegetation type, irrigation condition, soil conditions, agro-climatic conditions, most suitable plantation models will be proposed for natural landscape (forest, grasslands, wetlands etc), agriculture land, community land, wasteland and private land in consultation with Forest & Environment Department and other stakeholders. In private land, choice of species will be selected based on the preference of species by the owner. The urban landscape requires altogether different model approach like bio-filtration, bio-remediation, development of eco-park, plantation across religious places and historical places etc. This aspect will be taken care in consultation of local authority.

4.6 Sensitization and Capacity Building:

This kind of task require great support from the stakeholders, specially the private land owners and the success of the project will very much depend upon, how these stake-

holders can be motivated to have feeling of owners and to contribute to environment and for the betterment of society and next generation as a whole. The sensitization and capacity building task require to:

- (i) Create awareness among local inhabitants, industry owners & workers; religious leaders; fishermen, farmers, tourism agencies etc regarding ecological and economic importance of freshwater bodies (rivers, streams, springs, wells, ponds etc), goods and services these provide to human beings, their maintenance requirements and processes, potential sources of pollution and protection measures and consequences of polluting these through dumping of solid waste and muck, disposal of domestic and industrial sewage etc and
- (ii) Capacity building program for local communities/individuals/groups/implementing agencies/departments/ through stakeholders meet, workshops and onsite trainings.

5. PROJECT DURATION

The project duration will be 18 months from the receipt of the 1st installment of funds after the award of study.

6. FINANCIAL ARRANGEMENTS

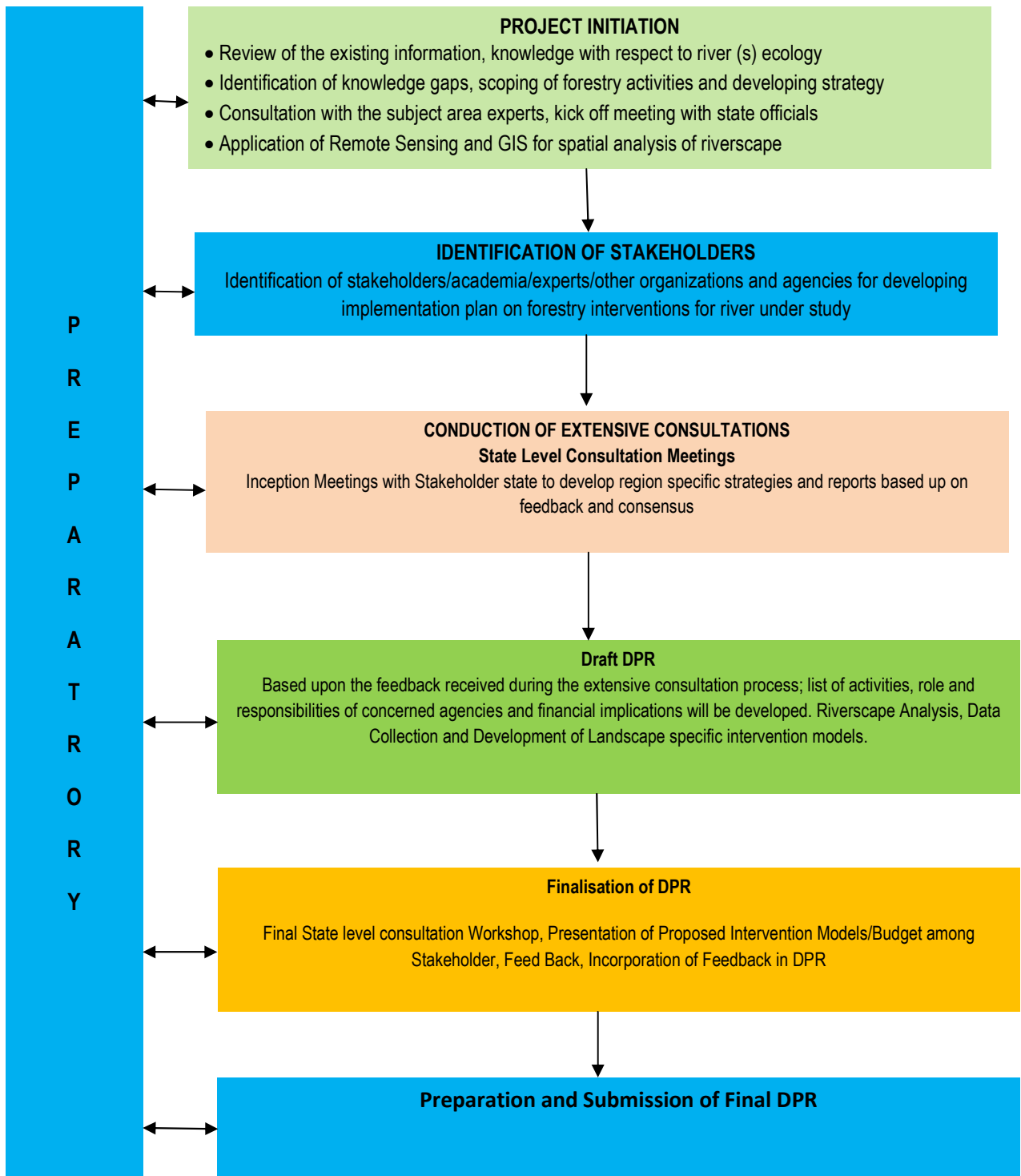
The schedule of payment towards total project cost shall be as under:

1. On acceptance of proposal by MoEF&CC, Govt of India and award of study 40%.
2. On submission of progress report based on completion of activities schedule in Quarter I & II of the Schedule of Activities of the proposal 35%.
3. On Submission of draft report to MoEF&CC, Govt of India 15%.
4. On acceptance of Final report by MoEF&CC, Govt of India 10%.

7. EXPECTED OUTCOME

The exercise will result in preparation of a comprehensive document as Detailed Project Report (DPR) on forestry interventions for rejuvenation of the Damodar River. The document will include the details of riverscape, mechanisms and methods to address the relevant issues, stakeholder's role and responsibility, schedule and cost for implementation of various activities and its monitoring protocol.

Project Workflow Diagram



Budget Estimate:

Sl No	Budget Head	Activities	Amount (in Lakh Rupees)
1	Salary		
	1.1	Hiring of consultants/Subject matter specialists/Service provider	10
	1.2	JPF (3No) @ Rs 20,000/-+ 15% HRA PM for 15 months	10.35
		Sub Total	20.35
2.	Consumable		
	2.1	First Consultation Workshop and kick off meet in Jharkhand and WB	3.0
	2.2	Final Consultation Workshop in Jharkhand and WB	2.5
	2.3	Procurement of GIS Layers	1.0
	2.4	Material & Supply	1.0
		Sub Total	7.5
3.	Travel Expenses		
	3.1	TA/DA expenses for consultant/Project Team	3.0
	3.2	POL/Maintenance of vehicles	0.50
	3.3	Hiring of Vehicles	2.0
		Sub Total	5.5
4.	Contingency		
	4.1	Procurement of ArcGIS Software	15.0
	4.2	Publication	3.5
	4.3	Others	1.0
		Sub Total	19.5
		Total	52.85
		Institutional Charges @15%	7.92
		Grand Total	60.77

Project Schedule: Action Plan

SI No	Activities	Duration (Quarter wise)					
		1 st	2 nd	3 rd	4 th	5 th	6 th
1	Review of existing data/information knowledge w.r.t river ecology						
2	Identification of knowledge gaps, scoping of forestry activities and developing strategy						
3	Consultation with subject area experts						
4	Identification of stakeholders/ academia/ experts/ organizations/ agencies for developing implementation plan on forestry interventions						
5	Conduction of kick off meeting & brain storming session with state representatives						
6	Conduction of state level workshop to develop region specific strategies including finalisation of riverscape area						
7	Identification, selection & prioritization of forestry intervention sites and type of treatment plans (natural, agriculture and urban land scapes), Preparation of riverscape buffer zone						
8	Interaction with front end staff of SFD for explaining Data collection mechanism						
8	Field visits and survey of prioritized sites, data collection and analysis for prioritizing actions						
9	Identification of roles and responsibilities of different stakeholders for implementation of treatment plan.						
10	Preparation of Draft DPR						
11	Conduction of final state level consultation workshop to discuss draft DPR for finalization						
12	Submission of Final DPR						

References:

1. <http://117.252.14.242/Gangakosh/Hydrological%20Units/Damodar.htm>
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5. https://sg.inflibnet.ac.in/bitstream/10603/123340/10/10_chapter%202.pdf
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8. Cover page photo courtesy: trawellblogging.com, Counterview.org.



भारतीय वानिकी अनुसंधान एवं शिक्षा परिषद्

INDIAN COUNCIL OF FORESTRY RESEARCH AND EDUCATION

(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार की एक स्वायत्त परिषद्)
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F. No. 41-58/2019/ADG (EP)/ICFRE/DPR/SR/501

Dated: 22 May, 2020

To

The Director General of Forests & Spl. Secretary
Govt. of India, MoEF&CC
Indira Paryavaran Bhawan
Jorbagh Road
New Delhi -110 003

Sub.: Proposal for Preparation of DPR for Rejuvenation of Subarnarekha River through Forestry Interventions –reg.

Sir,

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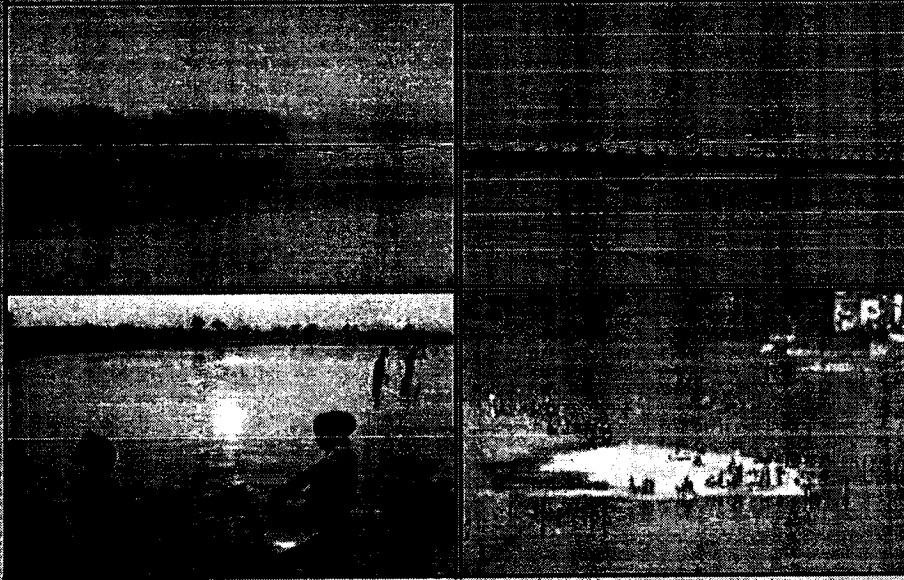
Yours faithfully


(A.S. Rawat) 22/5/2020

Director General
ICFRE

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CEO, CAMPA / I G, WAEB
RE. Susens
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12/6

Proposal for
Preparation of Detailed Project Report for Rejuvenation of
Subarnarekha River through Forestry Interventions



SUBMITTED TO

**Ministry of Environment, Forests and Climate Change (MoEF&CC),
Government of India.**



BY

Institute of Forest Productivity,

Indian Council of Forestry Research and Education

(An Autonomous Body of Ministry of Environment, Forests & Climate Change, GoI)

RANCHI – 835303 (JHARKHAND) INDIA



May, 2020

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1. BACKGROUND

Subarnarekha is a rain-fed river, originates from the state of Jharkhand and flows across West Bengal and Odisha. The name Subarnarekha is historically attributed to the availability of gold near its origin at a small village named Piska near Ranchi city. However, river's golden colour is also said to be the result of its proximity to rich ore deposits in the lateritic rocks in the area ⁽¹⁾. The Subarnarekha River originates near Piska village (23° 18'02"N and 85° 11'04"E) in the Ranchi district and flows through some major cities and towns, of Jharkhand, West Bengal and Odisha states and falls into the Bay of Bengal near Kirtania port (21° 33'18"N and 87° 23'31"E) in Odisha. The river flows through Ranchi, Seraikela-Kharsawan and East Singhbhum district in Jharkhand, Paschim Medinipur district in West Bengal and Balasore district of Odisha. The maximum length (285 km) of the river falls under the state of Jharkhand, whereas it runs for about 83 kms in WB and 79 kms in Odisha. Total length of this rain-fed river is 445 Kms and Raru, Kanchi, Karkari, Kharkai, Garra and Sankh Rivers are its major tributaries ⁽²⁾.

The Subarnarekha river basin is smaller than most multi-state river basins in India and this rain-fed river covers a drainage area of 18,951 km². The most interesting fact about Subarnarekha River in Jharkhand is that it passes through one of the richest mineral beds in the world. The upper basin part contains some of the important minerals, mined near its banks like bauxite, uranium, iron, copper chromium and limestone etc., leading to development of a number of mineral based industries along Subarnarekha river banks. These industries dispose mining waste in the river affecting the quality and eco-system of the river negatively. Rapidly sprawling urbanization is affecting the ecological quality of the basin particularly on upper basin part. The lower catchment of the basin witnesses frequent flood and heavy siltation ⁽²⁾. Quarrying of construction material, such as granite, basalt, quartzite, dolerite, sandstone, limestone, dolomite, gravel, and even sand, has created vast stretches of wasteland in the river basin. Used and abandoned mines and quarries are a source of mineral wastewater and suspended solids ⁽³⁾.

Considering the great reserves of minerals and other natural resources in Subarnarekha basin and its significance in the eastern part, a well-defined rejuvenation plan for the Subarnarekha river system needs to be formulated, addressing the various issues including flood, pollution, river eco-system, ecological development and natural resource management while providing socio-economic support to rural living in the

vicinity of the river. Such planning must include massive programs of reforestation, soil protection, water conservation, water storage, and moisture management throughout the catchment area, besides controlling the discharge of pollutants from towns, mining and industrial areas, and agriculture fields.

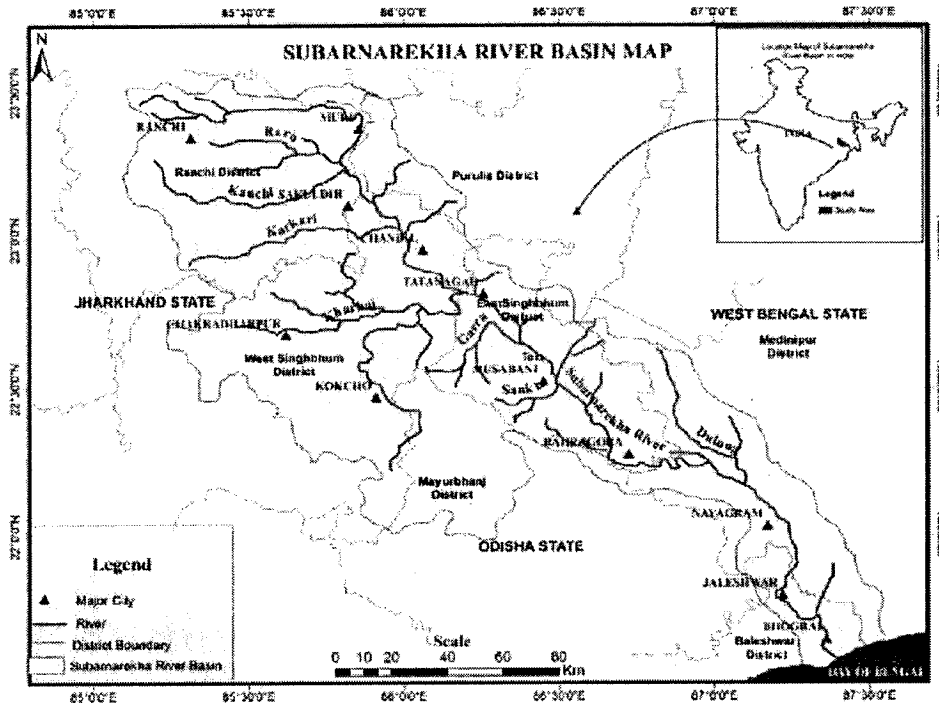


Figure 1: Subarnarekha River Basin Map

Source: https://www.researchgate.net/figure/Location-map-of-Subarnarekha-River-basin_fig2_322207055/SomaGiri

Rivers are an integral and very important system of the bio-sphere, as they are not only a source of water, but many important activities like irrigation, energy, urban settlement; transportation etc hugely depends on river systems. The irreversible developmental activities like construction of dams, reservoirs, industries, altering land-use pattern has affected the natural river ecosystem, resulting into compromised eFlow in one or other way. These issues need to be addressed urgently and requires sincere approach for planning and management of river ecosystem. Riparian forests act as “natural buffer” and “biological filters”. They are one of the most effective protection mechanisms against degraded water resources. They also act as capacitor for storage of water and buffer for lean flow and facilitate in its purification. Hence it is crucial to check degradation of rivers and riverscape and carry out measures to rejuvenate and conserve it. Like other river systems, **Subarnarekha**, an important river in Eastern India too face similar issues. The river contributes immensely to the micro economy as well as agriculture particularly for Jharkhand. Some other issues are:

- a) Forest degradation in the catchment areas
- b) Encroachment of river beds/ banks and excessive human activities
- c) Fluctuation of river course
- d) Sand mining
- e) Over exploitation of ground water
- f) Discharge of industrial waste and pollutants

2. OBJECTIVES

The broad objective is to prepare roadmap for all forestry interventions to rejuvenate Subarnarekha river system through forestry interventions.

Specific objectives are to:

1. Review & assess the existing situation of river basin, past river management & implications and lessons learned.
2. Identify and involve stakeholders and build consensus for design and development of strategies and approaches.
3. Assess ongoing forestry activities of the states engaged in the river management programme (s).
4. Assess potential and possibilities for regeneration, improvement, and restoration of forest catchments.
5. Assess the conditions of riparian forests and potential of biological filters,
6. Examine the possibility of allied and other income generation activities,
7. Assess the potential of cultivation of medicinal plants and restoration of conservation areas and identify appropriate species and suitable sites.
8. Identify research and monitoring needs and develop a strategy for future research and monitoring, and
9. Formulate strategies, develop approaches, and plan activities for project implementation.

3. APPROACH & METHODOLOGY

Study area

The entire length of Subarnarekha River starting from origin up to mouth along with its major tributaries covering all states including Jharkhand, West Bengal and Odisha will be considered for rejuvenation plan to be proposed under the DPR (Detailed Project Report). The designated riverscape shall be from the catchment area of Subarnarekha river system including its major tributaries. This extent of riverscape (buffer zone) for intervention along the main river and the tributaries, shall be decided based on interaction with stakeholders during the inception workshop. This is in line with some recent proposals on other major

rivers of the country, wherein buffer zone of 5km/2km extent i.e. 5km on both side of main river and 2km on both side of tributaries or otherwise was decided only based on the stakeholders' views.

Approach

Logical Framework Approach, which is a multi-pronged and multi stakeholder's consultative process, followed by FRI Dehradun in Detailed Project Report - Forestry Intervention for Ganga (FRI, 2016) will also be followed for preparation of the Detailed Project Reports of Subarnarekha river system. For developing project framework and strategies, review of existing information will be done and consultation meeting with concerned State Forest Department and inception workshop with potential stakeholders including Forest & Environment Department, urban, irrigation, agriculture, horticulture, soil and civil society, for scoping of forestry activities and finalisation of riverscape buffer zone will be carried out. These meetings shall help intensive interaction and identification of diverse category of stakeholder departments/individuals/experts/agencies/communities in the state for implementation of proposed intervention activities across riverscape. The state level inception workshop will be conducted at the time of launch of the project and then a closure workshop will be organised once draft DPR is prepared for its approval and acceptance from the stakeholders.

Methodology

Riverscape Analysis

Total length of Subarnarekha River is about 445 Km. The Subarnarekha is tributed by some important rivers including Raru, Kanchi, Kharkai, Karkai and Dulung. The actual extent of riverscape to be treated shall be finalised based on the inputs received from inception workshop and accordingly the buffer zone area will be defined and digitized. Similarly, the tributaries to be taken for rejuvenation shall also be finalized based on inputs of inception workshop and accordingly the DPR will be prepared. The details of major tributaries of Subarnarekha have been tabulated below for the convenience:

River Name	Length in Km	Catchment Area in Sq Km	% of Total Basin Area
Raru	50	622	3.22
Kanchi	80	1036	5.37
Kharkai	145	5825	30.19
Karkari	120	1575	8.17
Garra	55	483	2.50
Sankh	30	196	1.02
Jumar	35	182	0.94
Dulung	75	1173	6.08

Image processing and GIS tools will be used for riverscape analysis. The image processing for riverscape will be done on Landsat series data, topographical feature will be extracted from SOI toposheets at 1:50,000 scale, LULC maps will be prepared to support prioritisation of intervention area, soil maps including soil texture, soil erosion, soil type will be used from NBSS and other spatial layers slope, aspect, hill-shade etc layers will be derived for determining the priority areas for forestry interventions. Entire riverscape will be categorised in different priority area i.e. high, moderate and low priority based on site erosion status. A multicriteria (MCA) analysis approach will be followed to identify the treatment priority area.

Rejuvenation Plans for the Identified Priority Areas:

The land use land class (LULC) based treatment plans will be delineated in the identified riverscape for implementation of forestry interventions. Based on native vegetation type, irrigation condition, soil conditions, agro-climatic conditions, most suitable plantation models will be proposed for natural land scape (forest, grasslands, wetlands etc), for agriculture land, community land, wasteland, private land in consultation with State Forest Department and other stakeholders. The urban landscape requires altogether different model approach like bio-filtration, bio-remediation, development of eco-park, plantation across religious places and historical places etc.

Sensitization and Capacity Building:

This kind of task require great support from the stakeholders, specially the private land owners and the success of the project will very much depend upon, how these stake-holders can be motivated to have feeling of owners' and to contribute to environment and for the betterment of society and next generation as a whole. The sensitization and capacity building task require to:

- (i) Create awareness among local inhabitants, industry owners & workers; religious leaders; fishermen, farmers, tourism agencies etc regarding ecological and economic importance of freshwater bodies (rivers, streams, springs, wells, ponds etc), goods and services these provide to human beings, their maintenance requirements and processes, potential sources of pollution and protection measures and consequences of polluting these through dumping of solid waste and muck, disposal of domestic and industrial sewage etc and

(ii) Capacity building program for local communities/ individuals /groups/ implementing agencies /departments/through stakeholders meet, workshops and onsite trainings.

4. PROJECT DURATION

The project duration will be 18 months from the receipt of the 1st installment of funds after award of the study.

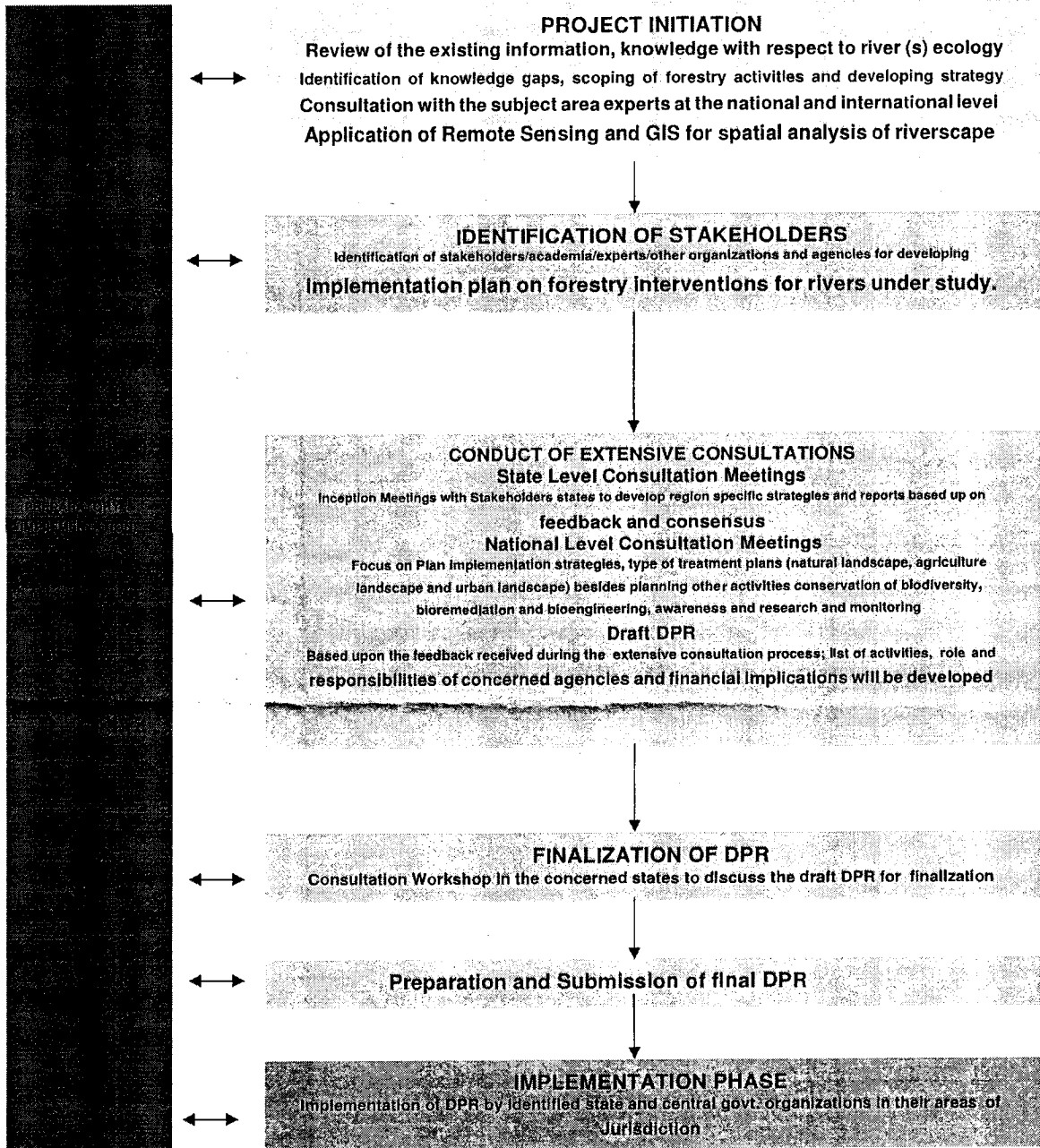
5. FINANCIAL ARRANGEMENTS

The schedule of payment towards total project cost shall be as under:

1. On acceptance of proposal by MoEF&CC, GoI and award of study 40%.
2. On submission of progress report based on completion of activities schedule in Quarter I & II of the Schedule of Activities of the proposal 35%.
3. Submission of draft report to MoEF&CC, GoI 15%.
4. On acceptance of Final report by MoEF&CC, GoI 10%.

6. EXPECTED OUTCOME

The exercise will result in preparation of a comprehensive document as Detailed Project Report (DPR) on forestry interventions in rejuvenation of the Subarnarekha River. The document will include the details of riverscape, mechanisms to address the relevant issues, stakeholder's role and responsibility, schedule and cost for implementation of various activities and its monitoring protocol.



7.0 BUDGET ESTIMATE:

SI No	Budget Head Activities	Amount (in Lakh Rupees)
1.	Salary	
1.1	Hiring of consultants/Subject matter specialists/Service provider	10.0
1.2	JPF (4No) @ Rs 20000/-+ 15% HRA/ PM for 15 months	13.80
2.	Consumables	
2.1	Procurement of GIS layers/Satellite imagery/Toposheets	2.0
2.2	First consultation meetings in each state (03 States @Rs 1.5 lakh per state)	4.5
2.3	Second consultation meetings in each state (03 States @Rs 1.5 lakh per state)	4.5
2.4	Material & Supply	1.0
3.	Travel Expenses	
3.1	TA/DA Expenses for Project team/Consultants	4.5
3.2	POL and vehicle maintenance (POL & Maintenance for official vehicles)	1.5
3.3	Hiring of vehicles	3.0
4.	Contingency Miscellaneous expenses, Publication	4.5
5.	Sub Total (1-4)	49.30
6.	Institutional charges @15%	7.39
	Grand Total	56.69

8.0 PROJECT SCHEDULE: Action Plan

SI No	Activities	Duration (Quarter wise)					
		1 st	2 nd	3 rd	4 th	5 th	6 th
1	Review of existing data/information knowledge w.r.t river ecology						
2	Identification of knowledge gaps, scoping of forestry activities and developing strategy						
3	Consultation with subject area experts						
4	Identification of stakeholders/ academia/ experts/ organizations/ agencies for developing implementation plan on forestry interventions						
5	Conduction of kick off meeting & brain storming session with state representatives						
6	Conduction of state level workshop to develop region specific strategies including finalisation of riverscape area in each state						
7	Identification, selection & prioritization of forestry intervention sites and type of treatment plans (natural, agriculture and urban land scapes), Preparation of riverscape buffer zone						
8	Interaction with front end staff of SFD for explaining Data collection mechanism						
8	Field visits and survey of prioritized sites, data collection and analysis for prioritizing actions						
9	Identification of roles and responsibilities of different stakeholders for implementation of treatment plan.						
10	Preparation of Draft DPR						
11	Conduction of final state level consultation workshop to discuss draft DPR for finalization in each state						
12	Submission of Final DPR						

References:

1. Bhaduri Amrita, Subarnarekha is dying: Who is responsible, indiawaterportel.org
2. Singh AK, Giri Soma, Subarnarekha: The Gold Streak of India, SPRINGERHYDRO, The Indian Rivers, 2018, pp 273-285.
3. Rainwaterharvesting.org/crisis/river-subarnarekha.htm.

Email

dgfindia@nic.in

1639 - 28 AUG 2020 - Inclusion of Damodar and Subarnarekha rivers of Jharkhand in the DPR preparations for "Rejuvenation of Rivers through Forestry Interventions".

From : PCCF Jharkhand <pccf-jhk@gov.in> Fri, Aug 28, 2020 01:56 PM
Subject : 1639 - 28 AUG 2020 - Inclusion of Damodar and Subarnarekha rivers of Jharkhand in the DPR preparations for "Rejuvenation of Rivers through Forestry Interventions". 1 attachment
To : Mr Sanjay Kumar <dgfindia@nic.in>

Dear Sir/Madam,

Please find attached the scanned copy of this office letter no. 1639 dated 28.8.2020 on the following subject for kind information and necessary action.

Sub : Inclusion of Damodar and Subarnarekha rivers of Jharkhand in the DPR preparations for "Rejuvenation of Rivers through Forestry Interventions".

With best regards,

PCCF (HoFF)
Jharkhand

IG NAEB

S
28/8



The ICFRE has already sent a proposals some-time back which was sent to NAEB for processing. If not done so, pl. process immediately and take approval of HMEFCC before sending to CAMPA.

S
28/8/20

8/28/2020, 2:30 PM



**OFFICE : PRINCIPAL CHIEF CONSERVATOR OF FORESTS,
JHARKHAND, RANCHI**

Van Bhawan, Doranda, Ranchi

e-mail : pcef-jhk@gov.in,

Ph.No. 065 1-2481909, Fax- 0651-2480413

Letter No : -01/YB-30/2019- 1639

Dated : 28.8.2020

To,

The Director General of Forests and Special Secretary,
Ministry of Environment, Forest & Climate Change,
Govt. of India, Indra Paryavaran Bhawan, Aliganj, Jorbagh Road,
New Delhi-110003.

Subject:- Inclusion of Damodar and Subarnarekha rivers of Jharkhand in the DPR Preparations for 'Rejuvenation of Rivers through Forestry Interventions'.

Sir,

The major rivers Damodar and Subarnarekha draining through the plateau of the Jharkhand requires forestry interventions to improve the quality and quantity of flow of water in the river. Such interventions will improve the living standards of the people in their catchment area and ensure survival of the aquatic floral and faunal diversity.

The Damodar river originates near Khamarpet hill of Chhotanagpur plateau near Chandwa of Latehar District. Out of 545 km length of this river, 380 km stretch lies in Jharkhand. It joins the Ganges in its right bank in W. Bengal. Its drainage area partially covers Latehar, Lohardaga, Ranchi, Dumka, Hazaribag, Ramgarh, Koderma, Giridih, Dhanbad, Bokaro and Chatra districts of Jharkhand and Burdwan, Purulia, Howrah districts of West Bengal. 75% drainage area share measuring 17223.39 sqkm lies in Jharkhand and rest area lies in West Bengal.

The Subarnarekha river originates in Rani Chunwa in Piska Nagri, near Ranchi, Chhotanagpur Plateau at 2000 feet. Its basin size is 18951 sqkm. It flows through Ranchi, Saraikela-Kharsawan and East Singhbhum and then to West Midnapore (W.B.) and Balasore (Orissa). Total length of the river is 395 km. It is the lifeline of tribal communities of Chhotanagpur area.

It is, therefore recommended to include **Damodar and Subarnarekha in the 'Rejuvenation of Rivers through Forestry Interventions'** to be taken up through CAMPA Funds.

This proposal is in reference to the meeting held between Hon'ble Minister, MoEF & CC, GoI and Hon'ble CM, Jharkhand on 11.07.2019 to discuss various issues related with the State of Jharkhand.

Yours sincerely,

[Handwritten Signature]
28/08/2020

Principal Chief Conservator of Forests
Jharkhand, Ranchi

Minutes of meeting held between Hon'ble Minister, EF&CC and Hon'ble CM, Jharkhand, held on 11th July, 2019 to discuss various issues related to the State of Jharkhand

A meeting between the between Hon'ble Minister, EF&CC and Hon'ble Chief Minister, Jharkhand was held on 11th July, 2019 in Ministry of I&B, Shastri Bhawan, New Delhi to discuss various issues related to the State of Jharkhand.

The issue related to Forest (Conservation) Act, 1980 were also discussed in the meeting. Item wise discussion held and decision taken in the meeting is given as under:

1. Provision of providing Jungle-Jhar land double in extent to the area proposed for diversion

The State Government of Jharkhand has advocated that Jungle Jhar land, coming under the category of recorded forest land, should be treated at par with the non-forest land and accordingly whenever compensatory afforestation (CA) is proposed in such lands, area of such lands, equal in extent to the forest area being diverted, should be insisted instead of double as envisaged in the revised guidelines of Handbook of Forest (Conservation) Act, 1980.

IGF(FC) mentioned that Jungle Jhar land of Jharkhand come within the definition of 'forests' provided by Supreme Court in its 12.12.1996 Judgment, as these are all recorded forests. Accordingly, FCA is applicable over these lands. Considering difficulty in getting non-forest land for raising CA stipulated under FC approval and availability of Jungle Jhar land (recorded forest land), the Ministry has taken pragmatic step in allowing such lands for raising CA in lieu of raising over non-forest land. However, as these are already forest land and also in line with allowing CA over degraded forest land equal to double the extent for forest land under diversion, Ministry stipulates raising of CA in such lands, double in extent to the forest land being diverted. It was also added that the State Government is free to provide non-forest land equal to forest area under diversion rather than providing double the area over such recorded forests (Jungle Jhar in this case), for Compensatory Afforestation.

Decision taken

Giving due consideration to the legal nature of such lands i.e. recorded forest land and definition of forest by Hon'ble Supreme Court, it was decided that provision to raise CA over Junge-Jhar land, double in extent to the area proposed for diversion, aptly included in the revised Guidelines and may be complied by the State Government. Alternatively, the State Government, if so desires, may provide equivalent non-forest land in lieu of diversion of forest land.

2. Transfer of CAMPA Fund to the State Government under CAF Act, 2016:

IGF(FC) informed that a fund of Rs. 4,158 crore has been proposed for transfer from the National Fund under Public Account of India to State Fund, Jharkhand under Public Account of State as per CAF Act, 2016 and the file is under submission for approval.

File No.FC-11/116/2019-FC

Decision taken

It was decided that CAMPA funds will be transferred to the State Government shortly. Hon'ble Minister, EF&CC desired that the dos and don'ts for utilisation of money for compensating for forest loss from the diversion of forest land for non-forest uses, and the institutional mechanism, as laid down in the CAF Rules may be strictly followed by the State Government. The State Government may also ensure that regular financial provisions included in the State Budget for forestry activities, such as management as per Working Plans, normal and ongoing plantation programmes, etc, should not be curtailed and substituted by CAMPA funds. CAMPA funds should be used only to make good the loss of forest land permitted for other use as per the provisions of the CAF Rules.

3. Treatment of State Government Public Sector Enterprises (PSEs) at par with CPSEs for Compensatory Afforestation:

The State Government of Jharkhand has desired that dispensation for raising compensatory afforestation over double degraded forest land as provided to the Central Public Sector Enterprises (CPSE) may be extended to the State Public Sector Enterprises (SPSE).

IGF(FC) mentioned that compensatory afforestation is the essential component in any diversion of forest land under FCA. It has to be taken up over non-forest areas equal to extent of forest area under diversion. However, Ministry, in view of the fact that projects of CPSE have a regional/national impact, and CPSEs do not own any land in States, which they can use for raising CA, has provided special dispensation for raising CA over double degraded forest land. Said dispensation has not been extended to the SPSEs.

Decision taken

Stipulating CA is the core component of any FC approval and extending dispensation of CA over double degraded forest land to SPSEs will practically defeat the very purpose of the Forest (Conservation) Act, 1980 and accordingly, the same was not agreed to by the MoEF&CC.

4. Improvement of Catchment area of Major rivers through afforestation using

central CAMPA funds:

The State Government of Jharkhand has requested the Ministry to include certain rivers of the State in the DPR, being prepared by the ICFRE, for their rejuvenation.

The Addl. DGF(FC) informed that the Ministry has asked ICFRE to undertake project on preparation of Detailed Project Report (DPR) for rejuvenation of major rivers in the country through forestry interventions. Accordingly, ICFRE has

identified 13 rivers (Beas, Chenab, Jhelum, Ravi, Sutlej, Yamuna, Brahmaputra, Mahanadi, Narmada, Krishna, Godavari, Cauvery and Luni) belonging to 9 river basins to carry out a study to assess the requirement of forestry interventions for preparation of DPR for rejuvenation of these rivers. The entire catchment of the river and its tributaries of 5 km on either side the main river and for 2 km either side for tributaries will be considered. Proposal of ICFRE was approved by the Ministry in March 2019 and first installment has already been released. Request of the State Government was forwarded to ICFRE vide letter dated 04.06.2019 to explore the possibility of including the proposal in the study.

Decision taken

MoEF&CC may take up the matter with the ICFRE to obtain their view on the request of the State Government of Jharkhand.

5. Streamlining online format for Forest Clearance:

The representative from the State Government mentioned that current system of online submission of FC proposal may further be simplified to reduce the time lines and to make it more user friendly.

IGF(FC) informed that ministry is already working on revising the concerned components of PARIVESH portal for streamlining the forest clearance particularly to make the portal user-friendly for the User Agencies. Ministry has already received suggestions from different Governments including those from Government of Jharkhand in this regard. It is expected that the proposed modification of the online format will be effected within three months.

Decision taken

Necessary simplification and updation in the online mode of proposal submission through PARIVESH may be effected in a time bound manner.

6. Adjustment of extra non-forest land acquired for North Koel project as

CA in respect of other irrigation project of Jharkhand State

Referring to the letter dated 18.06.2019 of the Chief Secretary, Government of Jharkhand, the representative of the State Government have requested MoEF&CC to adjust extra non-forest land acquired by the State Government in North Koel Project against the CA land requirement in other irrigation projects of Jharkhand State.

The IGF(FC) informed that FC approval to the project was granted primarily based on the ground of lowering dam height and by lowering the dam height, portions of non-forest lands in 15 villages in buffer area of Palamau Tiger reserve, which were earlier coming under the submergences, were no longer required for the project. It

File No.FC-11/116/2019-FC

was also informed that request of the State Government to delete conditions no. 7 and 9 (c) of the Stage-II approval was considered by the FAC in its meeting held on 28.03.2019 and the FAC recommended to amend conditions no. 9 (c) (regarding implementation of R&R) while no change in condition no. 7 was recommended by the FAC. It was further added that Ministry, taking a lenient view in the matter, has already amended/deleted 9 conditions of Stage-I/II approval out of 11 as proposed by the State Government, including raising of CA over degraded forest land, instead of non-forest land though the State Government is not eligible for the dispensation of raising CA over degraded forest land. In view of the aforementioned facts, the condition no 7 was recommended to be retained by the FAC.

It was contended that Ministry has already provided dispensation for raising CA over double degraded forest land which is being complied with by the State Government. Once degraded forest land has been allowed for CA, insisting for some identified non-forest land, which otherwise also the State Government has assured to put under CA for future projects, does not appear to be appropriate at this stage.

Decision taken

Hon'ble Minister, EF&CC desired that the request of the State Government to delete condition no. 7 of the Stage-II approval may be referred to the FAC for its further examination. The details of the land now available after lowering of dam height, should be furnished to Ministry.

F.No. No.12/3/2020 B-I-NAEB
Government of India
Ministry of Environment, Forest and Climate Change
National Afforestation & Eco-Development Board

7th Floor, Pt. Deendayal Antyodaya Bhawan,
CGO Complex, Lodi Road
New Delhi - 110 003.

Date: 18th August, 2020

To

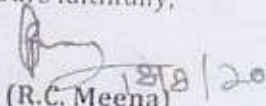
The Director General,
Indian Council of Forestry Research and Education,
P.O. New Forest,
Dehradun-248006

Sub: Preparation of Detailed Project Report (DPR) for Rejuvenation of Subarnarekha and Damodar Rivers through Forestry Interventions - regarding.

Sir,

I am directed to refer to your letter No.41-58/2019/ADG (EP)/ICFRE/DPR/SR/501 dated 22.05.2020 and No.41-58/2020/ADG (EP)/ICFRE/DPR/Damodar River/506 dated 01.06.2020 on the above mentioned subject. In this regard it is to say that, ICFRE is currently preparing Draft Project Report (DPR) for rejuvenation of 13 major rivers assigned by this Ministry and it may be clarified that whether ICFRE is able to deploy additional capacity to undertake the two studies relating to Subarnarekha and Damodar rivers in addition to the work already under process in respect of the 13 major rivers.

Yours faithfully,


(R.C. Meena) 18/8/20

Assistant Commissioner (Forestry)



भारतीय वानिकी अनुसंधान एवं शिक्षा परिषद्
INDIAN COUNCIL OF FORESTRY RESEARCH & EDUCATION
 (पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार की एक स्वायत्त परिषद्)
 (An Autonomous body under the Ministry of Environment, Forests & Climate Change, Government of India)
 पो.ओ.न्यू फॉरेस्ट देहरादून - 248 006 (उत्तराखण्ड)
 P. O. New Forest, Dehradun - 248 006 (Uttarakhand)

F. No. 41-58/2019/ADG (EP)/ICFRE/DPR/SR/578

Dated: 8 September, 2020

To

Assistant Commissioner (Forestry)
 National Afforestation & Eco-Development Board
 Ministry of Environment and Forests & Climate Change
 7th Floor, Pt. Deendayal Antyodaya Bhawan
 CGO Complex, Lodhi Road
 New Delhi - 110 003

Sub.: Proposals for Preparation of Detailed Project Report (DPR) for Rejuvenation of Subarnarekha and Damodar Rivers through Forestry Interventions- regarding.

Ref.: No. 12/3/2020 B-I-NAEB Date 18.08.2020

Sir,

With reference to subject mentioned above, it is to inform that ICFRE is on the verge of completion of the project entitled "Preparation of Detailed Project Report (DPR) for rejuvenation of major Indian river systems through forestry intervention" by 30th September, 2020. In this regard, it is to inform that, ICFRE can undertake studies related to Subarnarekha and Damodar rivers through forestry intervention in addition to work already assigned related to DPR.

Yours faithfully

(Anurag Bhardwaj)
 Director (International Cooperation)
 ICFRE

File No. MEF&CC (NAEB): 12-3/2020-B-I
Government of India
Ministry of Environment, Forest & Climate Change
National Afforestation & Eco-Development Board

Pt. Deendayal Antyodaya Bhawan,
 7th Floor, CGO Complex, Lodi Road
 New Delhi – 110 003.

Dated: 25.09.2020

OFFICE MEMORANDUM

Subject: Proposal for preparation of Detailed Project Report (DPR) by ICFRE, Dehradun for Rejuvenation of Damodar and Subarnarekha Rivers through Forestry Interventions to be funded by CAMPA – reg.

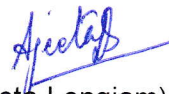
ICFRE has submitted two proposals for rejuvenation of Damodar and Subarnarekha river, through Forestry Interventions. The broad objective is to rejuvenate major river systems of the country through forestry interventions.

2. Damodar is a rain-fed river originating in Palamau district of Jharkhand and falls in a highly industrialized zone. Subarnarekha River is a rain-fed river originating from the state of Jharkhand and flowing across West Bengal and Odisha. There is an urgent need to address various issues related to pollution, degradation and deforestation along the entire river scape. PCCF Jharkhand has recommended the proposal and ICFRE has prepared a proposal for carrying out a study for rejuvenation of these two rivers, addressing various issues including flood, pollution, river eco-system, ecological development and natural resource management while providing socio—economic support to rural living in the vicinity of the river. The estimated cost of the two studies will be a total of Rs. 117.46 lakhs (Damodar River -Rs. 60.77 lakhs; Subarnarekha River- Rs.56.69 lakhs) and the total duration is 18 months.

3. The expected outcome of the project is preparation of a comprehensive document as Detailed Project Report (DPR) on forestry interventions for rejuvenation of the two Rivers.

4. Both the above projects are proposed to be funded from National Authority of CAMPA. Agenda Note alongwith project proposal of both the rivers are enclosed herewith for inclusion in the agenda of the next Executive Committee Meeting of National Authority of CAMPA.

Encl: As above



(Ajeeta Longjam)
 Assistant Inspector General of Forests

Jt. CEO, National CAMPA,
 Ministry of Environment, forest & Climate Change,
 Indira Paryavaran Bhawan, 6th Floor, Jal Wing,
 Aliganj, Jorbagh Road, New Delhi - 110003

Agenda Note: Proposal for preparation of Detailed Project Report (DPR) by ICFRE, D.Dun for Rejuvenation of Damodar and Subarnarekha Rivers through Forestry Interventions to be funded by CAMPA – reg.

ICFRE has submitted two proposals for rejuvenation of Damodar and Subarnarekha river, through Forestry Interventions.

A brief on the proposal is as under:

Damodar River

Damodar is a rain-fed river, which originates near Khamarpat hill on Chhota Nagpur plateau near Chandwa of Palamau district of Jharkhand. Damodar River basin is a highly industrialized zone, having a large number of coal mines and coal-based industrial establishments such as steel plants, thermal power stations, coal washeries, metal smelting plants, chemical plants, cement mills, beehive cock oven plants, metal alloy, steel re-rolling mills, refractories, mica and glass industries, as well as lime and brick kilns. Damodar basin is regarded as the storehouse of Indian coal. Thus, there is an urgent need to address these issues, and come up with an integrated approach to meet decreasing E-Flow of river Damodar in order to sustain the river biodiversity.

Subarnarekha River

Subarnarekha is a rain-fed river, originates from the state of Jharkhand and flows across West Bengal and Odisha. The river Subarnarekha in Jharkhand passes through one of the richest mineral beds in the world. Considering the great reserves of minerals and other natural resources in Subarnarekha basin and its significance in the eastern part, a well-defined rejuvenation plan for the Subarnarekha river system needs to be formulated, addressing the various issues including flood, pollution, river eco-system, ecological development and natural resource management while providing socio—economic support to rural living in the vicinity of the river.

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OBJECTIVES OF THE STUDY: The broad objective is to rejuvenate major river systems of the country through forestry interventions. Specific objectives of the study are to:

- Review and assess the existing situation of river basin, past river management & implications and lessons learned.
- Identify and involve stakeholders and build consensus for design and development of strategies and approaches.
- Assess the conditions of riparian forests and potential of biological filters.
- Examine the possibility of allied and other income generation activities.
- Assess the potential of cultivation of medicinal plants and restoration of conservation areas and identify appropriate species and suitable sites.
- Identify and develop a strategy for future research and monitoring, and

- Formulate strategies, develop approaches, and plan activities for project implementation.

APPROACH : Logical Framework Approach will be followed for preparation of the Detailed Project Reports of Damodar and Subarnarekha river systems.

METHODOLOGY : A multi-criteria (MCA) analysis approach will be followed to identify the treatment priority area.. Major areas of concentration will be on River-scape analysis; Collection and Preparation of Spatial and Attribute Data; Rejuvenation Models for the Identified Priority Areas; and Sensitization and Capacity Building.

PROJECT DURATION : 18 months from the receipt of 1st installment of funds after award of the study

FINANCIAL ARRANGEMENTS : The schedule of payment towards total project cost shall be as under:

- On acceptance of proposal by MoEF&CC, Govt of India and award of study 40%.
- On submission of progress report based on completion of activities schedule in Quarter I & II of the Schedule of Activities of the proposal 35%.
- On Submission of draft report to MoEF&CC, Govt of India 15%.
- On acceptance of Final report by MoEF&CC, Govt of India 10%.

EXPECTED OUTCOME: Preparation of a comprehensive document as Detailed Project Report (DPR) on forestry interventions for rejuvenation of the Rivers & will include the details of river-scape, mechanisms and methods to address the relevant issues, stakeholder's role and responsibility, schedule and cost for implementation of various activities and its monitoring protocol.

ESTIMATED COST:

Damodar River -Rs. 60.77 lakhs

Subarnarekha River- Rs.56.69 lakhs

Total Rs. 117.46 lakhs

Agenda Note is put up for consideration of Executive Committee of CAMPA.