ACTION PLAN FOR DIKHOW RIVER AT DIKHOW BRIDGE PRIORITY V

1. Basic information about the Stretch

The river Dikhow is considered as one of the important south bank tributary of the mighty river Brahmaputra. The river is originating in Zunheboto district of Nagaland and enters into the Assam plain through Naginimara of Sivsagar district of Assam and flowing through the district only to mingle with the river Brahmaputra at Dikhowmukh on its southern bank within the district. The river basin is surrounded by the Brahmaputra river in the in the north, Buridihing basin in the east, Jhanji basin in the west and the Naga hill in the south. Its catchment area lies between latitude $26^0$05'N and longitude $94^0$32'E. The total length of the river is 236 km and the catchment area of the basin is 4372 sq.km. and in Assam the length of the river stretch is 98.5 km.

The river leaves more than fifteen abandoned channels at different places of Assam plain mostly in the form of Ox-bow Lake. Among these, Mori-Dikhow is the longest one with a length of 20 km extending from Naginimara to near Hatipati Tea garden. In Assam plain, Dikhow River joins with two small streams Borjan stream and Owgurijan stream on its right bank. Thereafter a tributary river named as Dorika river, which is also flowing through Sivasagar District, joins finally with the river Dikhow on right hand side near Saraguri. Previously an another countable tributary called Namdang river was considered as a southern sub-stream of the river Dikhow and their confluence was near the locality Namdang of Gaurisagar area. But presently, the flow of this sub-stream is diverted towards the main river Brahmaputra and known popularly as Mitong River passing through places like Gaurisagar, Dicial Gaon, Na-Katani Kalu Gaon, Telia Dunga, Rupahimukh, Cintamonigarh and finally fall in Brahmaputra near Sagunpara Gaon.

1.1 Polluted river stretch/length

The length of the polluted stretch of Dikhow River is approximately 6 KM with an area of 17.6 sq.km. (Fig 1). The stretch identified as polluted is from Hatimuria to Arjunguri. The encroachment on the river banks are spreading due to which the width of the river is becoming narrower and shallower.

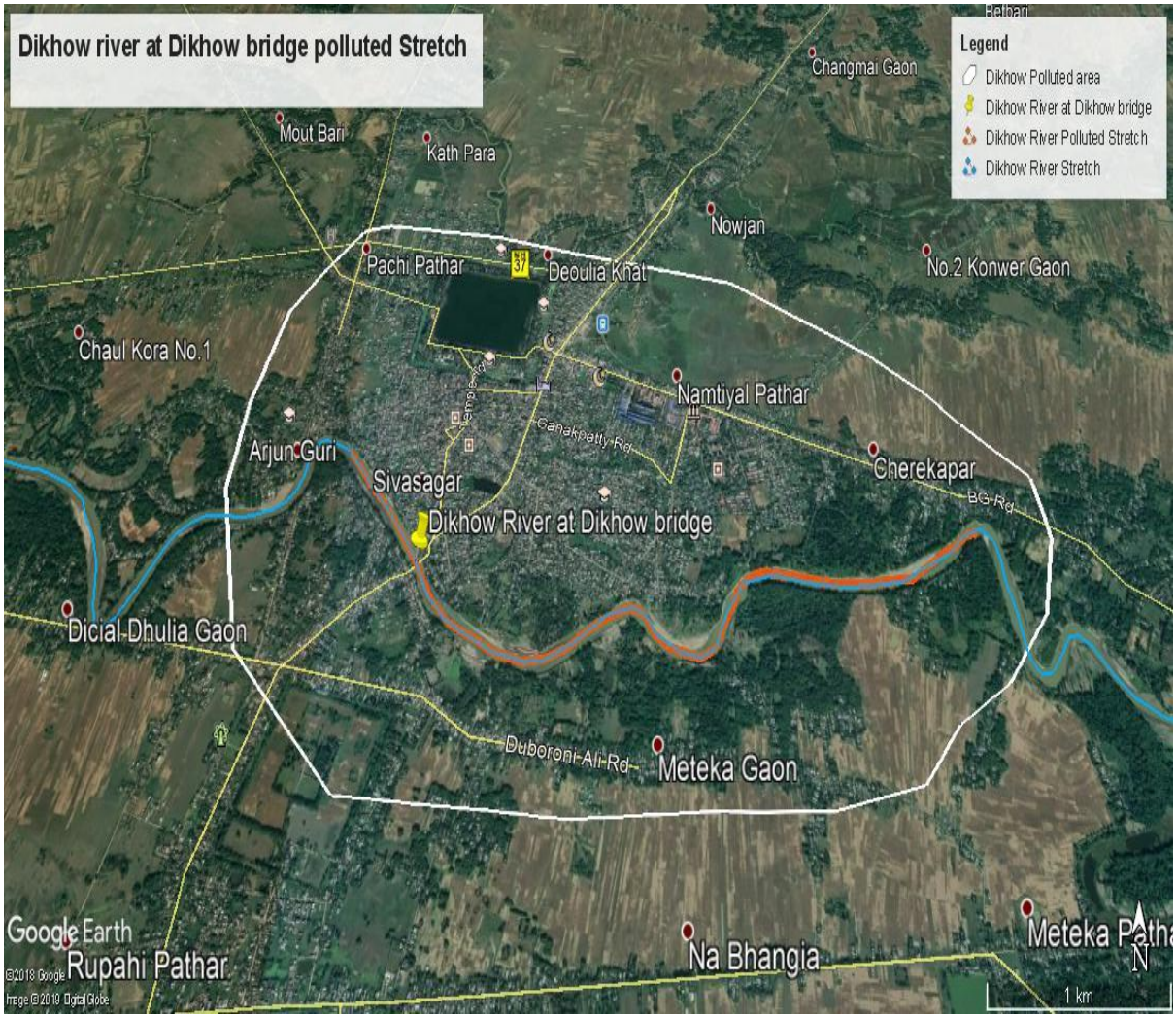

Fig 1: Map showing the polluted river stretch of Dikhow river at Dikhow bridge

2. Background:

In compliance of the direction of Hon'ble National Green Tribunal, Principal Bench, New Delhi in the matter of news published in 'The Hindu' authored by Jacob Koshy, Titled 'More river stretches are now critically polluted CPCB', Government of Assam constituted River Rejuvenation Committee (RRC) vide memorandum673/2018 dated 19/12/2018 for effective abatement of pollution, rejuvenation, protection and management of the identified polluted stretches, for bringing the polluted river stretches to be fit at least for bathing purposes within six months

3. Basis of Action Plan for Dikhow polluted river stretch

The action plan for rejuvenation, protection and management of the identified polluted river stretch of Assam has been prepared based on the following

- As per direction of Hon'ble National Green Tribunal, Principal Bench, New Delhi in the matter of news published in 'The Hindu' authored by Jacob Koshy, Tiltled 'More river stretches are now critically polluted CPCB'
- Comprehensive report on Prevention and Control of Pollution in River Hindon: An Action Plan for Rejuvenation' [Submitted in compliance to Hon'ble National Green Tribunal]

4. Components of Action Plan

(a) Industrial Pollution Control

- Inventorisation of industries
- Categories of industry and effluent quality
- Treatment of effluents, compliance with standards and mode of disposal of effluents
- Regulatory regime.

(b) Identification, Channelization, Treatment and Utilization of Treated Domestic Sewage

- Identification of towns in the catchment of river
- Town-wise Estimation of quantity of sewage generated and existing sewage treatment capacities to arrive at the gap between the sewage generation and treatment capacities;
- Identification of towns for installing sewerage system and sewage treatment plants.
- Storm water drains now carrying sewage and sullage joining river and interception and diversion of sewage to STPs,
- Treatment and disposal of septage and controlling open defecation.

(c) River catchment/Basin Management-Controlled ground water extraction and periodic quality assessment

- Periodic assessment of groundwater resources and regulation of ground water extraction by industries particularly in over exploited and critical zones/blocks.
- Ground water re-charging /rain water harvesting

- Periodic ground water quality assessment and remedial actions in case of contaminated groundwater tube wells/bore wells or hand pumps.
- Assessment of the need for regulating use of ground water for irrigation purposes.

(d) Flood Plain Zone

- Regulating activities in flood plain zone.
- Management of Municipal, Plastic, Hazardous, Bio-medical and Electrical and Electronic wastes.
- Greenery development- Plantation plan.

(e) Ecological/Environmental Flow (E-Flow)

- Issues relating to E-Flow
- Irrigation practices

(d) Such other issues which may be found relevant for restoring water quality to the prescribed standards.

5. Action Plan as per direction of Hon'ble NGT

The components to be discussed in the action plan for rejuvenation, protection and management of identified polluted stretch of Dikhow river are as follows

5.1. Industrial Pollution Control

No notified industrial estate/ industrial area is located in the demarcated Dikhow river catchment area. However, few industries such as ONGC oil fields (Drilling/Surface installation), Hotels, Health Care facilities and Automobiles industries are scattered in the periphery of the demarcated river stretch. It was observed that no industry discharge their effluent directly into the river stretch. Moreover, directions were issued by the PCBA to all the defaulting industrial units to operate their ETPs. The details of the industrial units are presented in **Table I** below.

Following are the suggestions for control of industrial pollution control

- The industry that will extract groundwater for manufacturing process should not operate unless they possess valid permission for groundwater extraction from Central Ground Water Authority.
- No industries should discharge their effluent directly into drains without treatment, rather they should reuse their treated effluent/sewage.
- Direction to be issued to the units which are not complying to the effluent discharge norms as per Section 5 of the Environment (Protection) Act, 1986, by PCBA for ensuring compliance to the discharge norms.

6. Identification, Channelisation, Treatment and Utilization of Treated Domestic Sewage

6.1. Major towns located on the bank

Sibsagar is the major town located on the bank of the Bhogdoi river. During its path in the Sibsagar district, the river passing through areas like - Bogdoi, Luthuri Gaon, Balighat, Sunpora, Singha Duwar, Phukan Nagar, Meteka, Hatikhuk, Arjun Guri, Konwarpur, Bolia Ghat. Gaurisagar, Sri Puria, Sungia, Bhecheli Mari, Saraguri etc. before the confluence with the river Brahmaputra.

6.2. Town wise estimation of quantity of sewage generated and existing sewage treatment capacities

The total estimated quantity of sewage generated is approximately 5.5 MLD. There is no any STP at present. Sewage generation and gaps in treatment are presented in Table II below.

6.3. Identification of towns for installing sewerage system and sewage treatment plants.

Sewage Treatment Plant and sewerage system can be installed in Sibsagar town in consultation with the Urban Local bodies, Sibsagar Municipal body and district administration

Table II: Sewage generation and gaps in treatment

S.N	Area	Population as per 2011 census (Sibsagar Town)	Water Consumption (KLD) @135 lpcd	Sewage Generation (KLD)	No. of STPs	Existing Treatment capacity (KLD)	Gaps in KLD
1	**10.9 sq. km.**	**50796**	**6858 KLD**	**5486 KLD**	**1**	**Nil**	**5486 KLD**

6.4. Water Quality of the river stretch

There are three (03) sampling location of Dikhow River under NWMP as per the following. Only Dikhow river at Dikhow bridge is identified as polluted stretch.

Table III: Monitoring Locations Details

Sampling Location	Coordinates
Dikhow river at Dikhow bridge	26°58'34.03" N 94°37'48.12" E
Dikhow river at Naginimora	26°48'34.82"N 94°48'4.79"E
Dikhow river at Dikhowmukh	26°59'58.88"N 94°27'59.52"E

The latest water quality trend of Dikhow river in terms of BOD value from January 2016 till April 2019 is presented below:

Table IV: BOD value in mg/l of Dikhow river at Dikhowbridge, Sibsagar

Year	BOD Value (mg/l)	Year	BOD Value (mg/l)	Year	BOD Value (mg/l)	Year	BOD Value (mg/l)
Jan-16	1.0	Jan-17	0.7	Jan-18	2.6	Jan-19	1.1
Feb-16	0.9	Feb-17	1.3	Feb-18	0.5	Feb-19	2.3
Mar-16	1.5	Mar-17	1.2	Mar-18	1.0	Mar-19	1.1
Apr-16	0.9	Apr-17	1.6	Apr-18	1.1	Apr-19	1.0
May-16	1.8	May-17	3.2	May-18	2.9		
Jun-16	1.4	Jun-17	1.8	Jun-18	2.6		
Jul-16	3.0	Jul-17	2.4	Jul-18	1.3		
Aug-16	1.6	Aug-17	2.4	Aug-18	0.8		
Sep-16	2.2	Sep-17	0.7	Sep-18	1.4		
Oct-16	1.2	Oct-17	1.5	Oct-18	0.8		
Nov-16	1.1	Nov-17	1.0	Nov-18	1.7		
Dec-16	0.6	Dec-17	0.7	Dec-18	0.9		

The above data indicates that the BOD load is above 3 mg/l only on two (02) occasion out of Forty (40) samplings carried out from January 2016 till April 2019. This stretch do not show any severity of pollution load and can be omitted from the list of polluted stretch.

Assam is a flood prone zone. Every year the flood creates a havoc in the livelihood of the people and the flood water washes out the top soil layer along with the debris in the catchment area of the river which is having high organic load resulting in increase of BOD level beyond permissible limit at some occasion.

6.5. Drains contributing to pollution

There are no major outfall/drains in to the Dikhow river in the polluted stretch area. However small storm water drains are joining the river which carries the sewage along with the storm water runoff from the Sibsagar town.

6.6. Characteristics of the major drains

The drains mainly carries residential wastes. Direct dumping of residential and commercial garbage into the drains is making it shallower and heavily silted. As a result, during rainy season water overflows and inundates the areas. It is also observed that the drains of the town are also becoming a regular garbage-dumping site. Moreover, these drains are not planned properly to carry even the regular water.

6.7. Flow details of the major drains contributing to river pollution

Action initiated to measure the flow of various out falling drains.

6.8. Sewage generation from the towns located on the banks of the polluted river

The main contributor of pollution in the river is municipal sewage. There are no treatment systems for the sewages which ultimately finds its way to water bodies without treatment. Moreover, Sewage treatment facility has not been set up yet in Assam.

However it was observed that the there is no any severity of impact on Dikhow river due to BOD load. As the river is perennial and voluminous, the effect is negligible. However, in this regard a STP of 5.5 MLD capacity has been proposed for the Sibsagar town.

6.9. Number of Sewage treatment plants present and treatment capacity, and gaps

There is no any sewage treatment plant at present and the gap in treatment is 5.5 MLD.

6.10. Number of STPs proposed and capacity

As per Sewage generation one (01) number of STP has been proposed with 5.5 MLD capacity.

6.10. Interception and diversion of drains /in situ treatment given

One (01) number of STP has been proposed along with interceptor drains for in situ treatment before outfall.

6.11. Drainage system/ sewerage network present/proposed

There is no proper sewerage system at present. In this project one (01) number of STP along with interceptor drains for collection of the sewage of the basin has been proposed. All the sewage of the catchment area of the river shall be collected by interceptor drains and shall be treated in the proposed STP and shall be reused for other activities.

6.12. Treatment and Disposal of Septage and controlling Open Defecation

Some of the households in the towns are equipped with septic tanks and some of the slum dwellers in the catchment areas of the river have kuccha latrines. However, around 2873 toilets have been constructed in the Sibsagar district under the 'IHHL' mission which is an initiative of Swachh Bharat Abhiyan to achieve open defecation free area.

Following remedial actions will be taken in consideration of treatment and disposal of sewage

- Sewage Treatment plant should be installed for treatment of sewage.
- Public awareness to control open defecation and understand the importance of toilets.

7. Controlled Ground water Extraction and quality Assessment

Ground water development in the district is still in nascent stage. As per Central Ground Water Board, The net ground water availability is estimated to be 1316.33 mcm. In Sibsagar district stage of ground water development is 14%, which shows under the SAFE category as reported by CGWB and sufficient

resources are available for development. As long-term water level trend does not show any major change so the whole district may be considered as SAFE.

The details of estimated ground water resource in Sibsagar district is presented in Table V below.

Table V: Estimation of ground water resource in the Sibsagar district

Net annual Ground Water Availability	**1,316.33 MCM**	**Ground water recharging mechanism**	**Rain water harvesting**
Net annual ground water draft	187.04	Recharging of groundwater are done by creation of Pond/lakes under government schemes.	The roof top rainwater harvesting is practiced.
Projected demand for domestic and industrial use up to 2025	36.23		
Stage of ground water development	14%		

Irrigation Practices in Sibsagar Town

Irrigation programme in the district is now taken up under two broad head viz. (i) Major & Medium Projects and (ii) Minor Irrigation. The irrigation schemes are of three categories viz. (a) flow irrigation, (b) low lift irrigation and (c) ground water irrigation.

Table VI: Newly proposed & present irrigation schemes under Sivsagar division (irrigation)

S.N	Name of scheme	Villages to be benefitted	Amount of scheme (in lakh)	Proposed under
1	DTW Scheme in Bogidol Area (10 Points)	Bogidol Bejgaon under Hologuri Mouza of Gaurisagar Dev. Block	716.00	RIDF-XX (NABARD)

List of present functional irrigation schemes Under Sivasagar division (irrigation), Sivasagar

S.N	Name of scheme	Hectares covered	
		Kharif	Rabi
1	DTW I.S. at Hahchora Nagarmohal (7 Pts.)	60	40
2	DTW I.S. at Khelua (3 Pts.)	10	10

7.1. Status of Ground Water

The water quality data generated by CGWB indicated the sporadic occurrence of iron in some of the places. Whereas Fluoride content in ground water in the district is found to be within permissible limit. The water quality is found to be well within the permissible limit for drinking, irrigation and industrial purposes except high iron concentration in scattered patches, which can be removed through the process of aeration before use. There is no any major ground water issues except for higher concentration of Iron in some places.

The district is still under 'Safe' category.

7.2. Remedial Actions

The following remedial actions will be taken in consideration of contaminated ground water sources, controlled ground water extraction and periodic quality assessment

- Ground water of deeper aquifers should be analyzed for periodic assessment of Iron.
- Alternate sources of drinking water should be explored and prioritized.
- Awareness campaigns about health hazards due to intake of excessive Iron is the need of the time.
- Role of pesticides used for agricultural activity should be carefully observed.
- Survey should be conducted regarding ground water uses by different categories such as domestic, Industries etc and also to identify the over exploited and critical areas in the river stretches with respect to ground water extraction.
- Effective management of industrial effluent or sewage for preventing contamination of ground water sources.
- The industry that will extract groundwater for manufacturing process should not operate unless they possess valid permission for groundwater extraction from Central Ground Water Authority.
- Strict vigilance and conducting inspection of the industries to rule out any forceful treated effluent injection in to ground water resources.
- Roof top rain water harvesting techniques should be encouraged for industrial, commercial or individual households and community.

8. Flood Plain Zone

The following are the identified flood prone area for the polluted Dikhow river stretch

Name of River	Flood plain areas
Dikhow River	Sholey gaon, Phukan Nagar, Amolapatty, Meteka gaon, Cherekpara etc.

Almost every year the catchment area gets inundated by floods during monsoon season. The river bank embankment covers 38.475 km.

The Dikhow river embankment details are as follows

S.N	Embankment	Length (km)
1	Left bank	59.993
2	Right Bank	38.475

8.1. Regulating activities in the Flood Plain Zone

Further following activities need to be regulated in the flood plain zones.

S.No	Action points	Responsible authority
1	Plantation in the flood plain zone	Forest Department
2	Checking Encroachment	Local administration
3	Demarcation of the flood plain zone	Water Resource Department
4	Prohibition of disposal of all kinds of wastes	District Administration

8.2. Waste management status and proposed actions for Municipal solid waste, industrial waste and Bio medical waste management

Table VII: Waste management status and proposed actions

Type	Status	Proposed Action	Authority
Industrial Waste	➢ Authorisation have been granted to different industries in line with Water act 1974, Hazardous Waste (Management, Handling and Transboundary Movement) Rule, 2008 as amended. ➢ Regular monitoring by PCBA to ensure that the terms and conditions are strictly adhered in accordance with the prescribed standards.	➢ Direction issued to the industries to identify the non-point sources and arrest contamination of storm water. ➢ Directions to be issued to the defaulter units.	Pollution Control Board Assam

Type	Status	Proposed Action	Authority
Municipal waste management	➢ At Present Municipal Solid wastes are being dumped unscientifically near Dorika river by Sibsagar Municipality Board. ➢ ULBs are to prepare DPR for Solid waste management of the city in consultation with state governments. ➢ Municipal Body has engaged NGOs ward wise for collection of Municipal Solid Waste from the generation point for treatment and disposal. ➢ The wastes are being segregated into dry and wet waste categories and are collected separately and transported to disposal site.	➢ Directions have been issued by Pollution control Board, Assam to concerned Municipality Board in this regard. ➢ Implementation of segregation of waste at source ➢ Door-to-door garbage Collection of waste ➢ Formation of Sanitation task Force ➢ Formation of Neighbourhood Community ➢ Awareness campaigns ➢ Processing and disposal of waste	Sibsagar Municipality Board
Plastic waste	➢ At present plastic wastes are being dumped along with Municipal solid waste.	➢ Issue directions to Municipal Board to segregate and collect plastic waste and initiate necessary steps to channelize the waste to authorized agencies for recycling and reprocessing	Sibsagar Municipality Board
Hazardous waste	➢ No hazardous wastes are directly disposed in the river	➢ Awareness campaign regarding health and other issues related to Hazardous waste	Pollution Control Board Assam
Bio-Medical waste	➢ Segregation at the source under Biomedical waste Management Rules, 1998 as amended	➢ Direction issued to all HCF unit to implement the BMW Rules, 2016 as ammended in all HCF Units. (As per guidelines of CPCB)	HCF units, PCBA

Type	Status	Proposed Action	Authority
E –waste	➢ No bulk consumers and generators have been identified.	➢ Not Applicable	Pollution Control Board Assam

8.3. Gaps identified in waste management

About 30 MT of municipal solid wastes per day are being dumped unscientifically near Dorika river in Sibsagar District.

8.4. Greenery development - Plantation Plan

State has initiated afforestation in the degraded forestland, also raising roadside plantation besides creating check dams/embankments in the river catchment areas to combat erosion and soil conservation.

The following remedial actions has to be initiated in consideration of greenery development

- Raise plantation along the river bank to control the flow run off water directly to the river
- Bamboo species to be raised as it is a good soil binder thereby stabilize the banks of the river from erosion

9. Environmental Flow (E-Flow)

9.1. Stretch of river perennial or non- perennial/flow available/water usage in the stretch

The entire river stretch is perennial. The discharge recorded as per the master plan of Brahmaputra Board is 594.30 m^3/sec and the average water level recorded is about 86 m. It is also observed that even during the dry season, the river maintains 50% of the average flow recorded.

9.2. Irrigation practices in the river

The high volume of discharge and water level of the river can be of great use for good irrigation practices for the people.

10. Identified organisations responsible for preparation and execution of the action plans

Organisations responsible for preparation and execution of the action plans are as follows:

- Secretary to the Govt. of Assam, Environment and Forest department
- Secretary to the Govt. of Assam, Urban Development department
- Commissioner, Industries and Commerce, Assam
- Member Secretary, Pollution Control Board Assam
- Commissioner, Guwahati Municipal Corporation
- Commissioner to the Govt. of Assam, Water Resource Department
- Divisional Forest officer, Social Forestry, Basistha, Guwahati -29

11. Monitoring mechanism proposed for implementation of action plans

The water quality assessment and evaluation of impacts is necessary to understand the river state at various stages of the project implementation and post implementation of the project. Therefore the water quality assessment and evaluation of the project achievements is essential component for the long term benefit of the project. The monitoring and evaluation also indicate for taking corrective measure at appropriate time. The ill effects may be controlled by taking step at right time for right cause. The monitoring & evaluation schedule and plan proposed is as under.

11.1 Water Quality Stations (WQS):

The water quality monitoring will include following parameters, which shall be monitored at monthly interval or as and when required. The one complete unit to be purchased and identified parameters to be monitored at defined sampling stations.

The sampling stations are:

- Dikhow river at Dikhow bridge.
- Dikhow river at Naginimora.
- Dikhow river at Dikhowmukh.

The parameters to be monitored are as follows.

1	pH	6	Bio-Chemical Oxygen Demand (BOD)
2	Turbidity	7	Faecal coliform
3	Conductivity	8	Total coliform
4	Temperature		

5 Dissolved Oxygen (DO)

Most of the parameters will be monitored manually and will be incorporated in database.

12. Public Mass awareness etc.

Any river conservation project to be implemented successfully, public awareness is of utmost importance. Unless the public are made aware about the irreversible damage and pollution caused by indiscriminate littering and dumping of waste and garbage in drain and water bodies connected to Dikhow River, the project cannot be implemented in true sense of the word to achieve conservation. Some members of the communities are already aware that there is a need for river conservation programme and that they will be benefitted. Hence, it should be ensured with the following points

- The communities are effectively involved in all the stages of the project cycle from conceptualization, to preparation, to finalization, to implementation and finally O & M.
- Public Awareness & Public Participation should be affront-end activity of the project
- The entire programme of conservation should be conceived, formulated, implemented, monitored and evaluated in close consultation with the stake holding communities.
- Therefore, education and awareness programmes are key to the sustainability of the various components implemented as part of the river restoration project.

13. Action Plan

Table VIII: Action Points

Type	Action Points	Responsible Authority	Time Targeted
Industries	a) Strict observation/ monitoring of industrial effluent/waste water discharge strictly for compliance. a) Stringent action against non-complying industrial units b) No industry should operate or continue manufacturing	**Pollution Control Board Assam**	**3 Months (June, 2019 To August, 2019)**

Type	Action Points	Responsible Authority	Time Targeted
	process unless they possess valid permission for ground water extraction from Central Ground Water Authority (CGWA) c) Small service providing units like street food selling vendors, laundry etc should not be allowed to dispose solid, liquid or semi-liquid wastes directly into the drains or sewers. d) Set up online monitoring system in the major industries. e) To stress all the industrial units to adopt cleaner technology and take appropriate measures for reduction of effluent, recycling and reuse of treated water Directions has been issued for Zero Liquid Discharge (ZLD) in the major polluting industrial units		
Interception and treatment of raw sewage	a) The quality of waste water flowing in the drains of identified polluted stretch have to be analysed and studied to assess the drain wise characteristics of waste water. b) Concerned departments should design the installation of Sewage Treatment Plant (STP) based on flow details of the drains and utilization capacity and ensure that each households are connected to the sewers as applicable. c) Sewage Treatment Plant should also consider treatment and disposal of sewage for	**PCBA/ ULBs/ District Administration/ Water Resource Department**	**2 Years (June,2019 to May, 2021)**

Type	Action Points	Responsible Authority	Time Targeted
	river catchment area settlement including discharge from toilets constructed under Swachh Bharat Mission d) To trap the discharge using strainers before falling into river. e) Channelization including diversion of sewage generated from households to sewer lines/interception of all the drains presently carrying sewage and for ensuing proper treatment through the upcoming STPs. f) Local administration should provide pucca latrines to all the households through Individual Households Latrines (IHHL) Scheme under Swachh Bharat Mission.		
Ground Water Assessment	a) Conducting survey regarding ground water usage by category wise such as domestic, community, etc. and also identification of over exploited and critical blocks in the river stretches with respect to the ground water extraction. b) Carry out assessment of ground water survey in the catchment area of the identified polluted stretch once in a year to ensure quality. c) To promote roof top rain water harvesting by individual households	**PCBA/CGWA**	**Continuous**
Flood Plain Zone	a) Conservation of the river through watershed management. b) Cleaning of the river bed and bank.	**Soil Conservation Department/Water Resource/ Forest Department/**	**6 Months (February,2020 to July, 2020)**

Type	Action Points	Responsible Authority	Time Targeted
	c) Afforestation on both the banks to prevent soil erosion d) Recreational activities to be promoted. e) Erection of pathway of the river banks. f) Checking encroachment in the flood plain zone of the polluted river stretch g) Prohibition of disposal of municipal, plastic, biomedical and other wastes in the polluted stretch of the river bank h) Demarcation of the flood plain zone.	**Tourism Department/PWD Assam/ULBs**	
	The plan for the polluted stretches of the river may be implemented in a time bound manner by fragmenting activities as a) Modification of consent conditions in and around the polluted stretches. b) Surveillance of sources of pollution in contrast to the norms. c) Assessment of water quality of the polluted stretches on monthly basis has already been commencing d) The monitoring committee may convene meeting of Stakeholder organizations on Quarterly basis with under the chairmanship of Chief Secretary	**Pollution Control Board Assam**	**3 Months (June,2019 to August, 2020)** **c) Monthly Basis**
Solid Waste	a) Prohibition of direct disposal of solid waste in the river banks.	**Municipal Board/ Water Resource Department**	**3 Months (November, 2019 to January, 2020)**

Type	Action Points	Responsible Authority	Time Targeted
	b) Frequent River Surface cleaning by removal of debris, plastics etc.		
Environmental Flow	a) Flow measurement of the river should be carried out by the concerned department and the record has to be maintained b) Fresh water flowing through escape channels/small barrages should be checked. c) The river can be of good potential for irrigation practices and should be carried out by the farmers.	**Water Resource Department**	**Continuous**
Public Awareness	a) Awareness programs to highlight the issues related with the direct discharge of solid waste and open defecation. b) Mass awareness to conserve water.	**ULBs/PCBA/NGOs**	**Continuous**

14. Budget Estimate

1	No. of STPs	01 No.
2	Capacity of STP	5.5 MLD
3	Life of STPs	25 years
4	Cost of STPs , Interceptor drains/pipeline including pumping station Sewerage System	8.1 crores
7	For Captive power	0.5 Crore
Total Amount		**Rs. 8.6 Crores**

Members of River Rejuvenation Committee (RRC)

Secretary to the Govt of Assam
Environment & Forest Department

Secretary to the Govt of Assam
Urban Development Department

Commissioner
Industries and Commerce Assam

Member Secretary
Pollution Control Board Assam