

Government of West Bengal  
Department of Urban Development & Municipal Affairs  
"Nagarayan"  
DF- 8, Sector- I, Bidhannagar, Kolkata -700064

No. 3578 - UD/O/M/B/MISC-05/2016 (Pt-1)

Date: 19.11.2019

From : The Joint Secretary,  
to the Govt. of West Bengal.



AD(SM)  
Sdf

To : The Chief Executive Officer, K.M.D.A.  
Unnayan Bhavan, 3<sup>rd</sup> floor, Sector-II, Salt lake, Kolkata-91

Department

Sub: Bio-remedial/ Phyto remedial measures of out falls to Hoogly river  
Within the jurisdiction of CMC, Hoogly.

EE, SWM  
He will discuss  
it with Director  
SUDA.  
2.11.19

Madam,

In reference to the above, I am directed to forward herewith the copy of Memo No. PW/TEN/XI/1M-1/2019/51 dated 13.11.2019 of commissioner Chandernagore Municipal Corporation regarding Bio-remedial/Phyto remedial measures of out falls to Hoogly River within the jurisdiction of CMC, Hoogly for taking further necessary action at your end.

Encl: As stated

Yours faithfully,

Sdf

Joint Secretary

No. 3578 /2-UD/O/B/MISC-05/2016 (Pt-1)

dated: 19.11.2019

Copy forwarded for information to :-

- ✓ Director, SUDA  
Ilgus Bhavan HC Block, Sector -III, Salt Lake City, Kolkata-700106
- 2. P.S. to Principal Secretary, UD & MA Department.

*[Signature]*

Joint Secretary



# CHANDERNAGORE MUNICIPAL CORPORATION

Marie Park, P.O. Chandernagore, Dist. Hooghly, PIN 712 136, West Bengal

Phone : 033 2683 5297 / 2562 ; 2685 0057 | Fax : 033 2683 5068 | 2683 6706 (Ambulance)

E-mail : chandernagorecorporation@yahoo.co.in | Website : www.chandernagoremunicipalcorporation.in

Complaint / Grievance : chandernagorecorporation@gmail.com | Whatsapp : +91 9874110110

DD/100/2019/13995  
dt- 15/11/19

13

Memo No. PW/TEN/XI/1M-1/2019/51

Date: 13.11.2019

To  
The Special Secretary,  
Urban Development & Municipal Affairs Dept.  
Govt. of West Bengal  
Nagarayan Bhavan, Saltlake,



Sub: Bio- remedial / Phyto remedial measures of out falls to Hooghly river within the jurisdiction of CMC, Hooghly.

Ref: Notice of Dr. Rajesh Kumar, Member Secretary, WBPCB vide no (i) 2744-2K-4/2016 dt. 2/09/2019 (ii) 2290 - 2K-4/ 2016 dt. 21/09/2019  
2. letter of CEO, KMDA vide memo no. 1983-NGRBA/SPMG/KMC-154/2015 dt. 16/09/2019

S. Roy.  
Pl. send to  
KMDA  
copy of  
envelopes  
to  
Director,  
SUDA.

Madam,

As per the notice of the members Secretary, Pollution control Board and the letter of CEO, KMDA referred above, we have proceeded as per suggestions which are given bellow :

1. We have conducted inspection of the outfalls and prepared format reports of all 41 small & bigger outfalls within CMC. (Reports Enclosed as Annexure - I).
2. We have engaged an agency to prepare a concept note & a preliminary cost estimate which the agency has submitted report. (Reports Enclosed as Annexure - II).

The above reports may be presented in a synoptic manner as below:

Total no of outfalls within CMC	Fund required for Bio- remedial Treatment for 1 yr
41	Rs. 336.77 Lakhs.

As this is an urgent issue, we like to proceed immediately and I would request you to kindly allot fund for the said project and, or guide us suitably for further course of action.

With regards,

Yours Faithfully

Commissioner  
Chandernagore Municipal  
Corporation

*[Signature]*  
13/11/19

Encl:

1. Reports of Drains/Outfalls to River Ganga
2. Budgetary Estimate

No: 1530-Comm  
dt- 12/11/19

*[Handwritten notes and signatures on the left margin]*

Report of Drains/Canals/Outfall to River Ganga Under  
Chandernagore Municipal Corporation, Hooghly.  
 Borough No: 1

Sl No.	Name of the Drain/ Canal/Outfall	Location of the out fall.	Latitude/Longitude	Area of catchment	Amount of discharge per day	The name of STD considered	Remarks
1.	Shibbati Ghat(Ward - 6)	Shibbati Ghat	E = 88° 22' 29" N = 22° 51' 51"	0.06sqkm	L=250m D=300mm		In-situ Bio-remedial methodology will have to applied
2.	Majherghat( Ward - 6)	South side of Rameswar Agarwall Ghat	E=88°22'31" N=22°51'52"	0.06sqkm	L=200m D=325mm		In-situ Bio-remedial methodology will have to applied
3.	Borichanditala Burning Ghat	West side of Burning Ghat	E= 88°22'50" N= 22°52'12"	0.06sqkm	L= 300m D= 350mm		In-situ Bio-remedial methodology will have to applied
4.	Kanaisarkar Ghat(Ward - 5)	North Side of Community Latrine	E= 88°22'30" N= 22°52'9"	0.15sqkm	L=350m D= 650mm		In-situ Bio-remedial methodology will have to applied
5.	Suri Ghat (Ward- 6)	East side of Naba Udyan Sangha	E=88° 23'6" N= 22° 51'47"	0.07sqkm	L=200m D= 650mm		In-situ Bio-remedial methodology will have to applied
6.	Beside Prabartak School	South side of Prabartak School		0.5sqkm	L= 350 m D= 750mm		In-situ Bio-remedial methodology will have to applied
7.	Beside Sunil Sangha	North side of Sunil Sangha Club		0.15sqkm	L= 500m D= 750mm		In-situ Bio-remedial methodology will have to applied
8.	Dhankal Ghat	Dhankal Ghat		0.15sqkm	L=300m D= 600mm		In-situ Bio-remedial methodology will have to applied

*Radhika Banerjee*  
 Signature of SAE  
 CMC  
 23/9/19

*Post 23-09-19*  
 Signature of AE  
 CMC

*10/19*  
 Signature of Engineer  
 CMC

*34*  
 Signature of Commissioner  
 CMC

*23/9/19*



**Report of Drains/Canals/Outfall to River Ganga Under  
Chandernagore Municipal Corporation, Hooghly.  
Borough No: 2**

Sl No.	Name of the Drain/ Canal/Outfall	Location of the out fall.	Latitude/Longitude	Area of catchment	Amount of discharge per day D= Avg. Water Ddepth	The name of STD considered	Remarks
1.	Kuthirghat (Ward - 11)	South side of Ghat	E= 88° 22' 24" N= 22° 51' 46"	0.07sqkm	L= 250m D= 575mm		In-situ Bio-remedial methodology will have to applied
2.	Bhattacharjee Ghat(Ward- 12)	South side of Ghat	E= 88° 22' 24" N= 22° 51' 46"	0.06sqkm	L= 200m D= 225mm		Do
3.	Gopinath Ghat(Ward-12)	South side of Hanuman Temple	E=88° 22' 18" N= 22° 51' 41"	0.06sqkm	L=200m D= 265mm		Do
4.	P.S Ghat(Ward-12)	South Side of P.S.	E=88° 22' 13" N= 22° 51' 23"	0.40sqkm	L= 200m D= 600mm		Do
5.	South Side of Rabindrabhavan(Ward -12)	East side of Rabindrabhavan	E= 88° 22' 30" N= 22° 51' 23"	0.40sqkm	L= 200m D= 625mm		Do
6.	Infront of correctional home(Ward-12)	Infront of correctional home	E= 88° 22' 14" N= 22° 51' 36"	0.04sqkm	L=100m D= 500mm		Do

Signature of SAE  
CMC  
*Rabindro Dasgupta*

Signature of AE  
CMC  
*Rabindro Dasgupta*

Signature of Engineer  
CMC  
*Rabindro Dasgupta*

Signature of Commissioner  
CMC  
*Rabindro Dasgupta*

**Report of Drains/Canals/Outfall to River Ganga Under  
Chandernagore Municipal Corporation, Hooghly.**

**Borough No: 2**

Sl No.	Name of the Drain/ Canal/Outfall	Location of the out fall.	Latitude/Longitude	Area of catchment	Amount of discharge per day	The name of STD considered	Remarks
7.	Gopinath Ghat(Ward-12)	North side of Hanuman Temple	E=88°22'18" N=22°51'41"	0.06sqkm	L=200m D=250mm		In-situ Bio-remedial methodology will have to applied
8.	Murgi Patty(Ward-11)	North East,side of Bhattacharjee Ghat	E=88°22'17" N=22°51'43"	0.05sqkm	L=150m D=1000mm		Do
9.	Chuna Galil(Ward-11)	Chuna Gali		0.75sqkm	L=500m D=1050mm		Do
10.	Hanuman Temple	South side of Hanuman Temple		0.75sqkm	L=500m D=1050mm		Do

*Ranjan Kumar*  
Signature of SAE  
CMC

Sub-Assistant Engineer  
Chandernagore Municipal Corporation

*Ranjan Kumar*  
Signature of AE  
CMC

Assistant Engineer  
Chandernagore Municipal Corporation

*Ranjan Kumar*  
Signature of Engineer  
CMC

Engineer  
Chandernagore Municipal Corporation

*Ranjan Kumar*  
Signature of Commissioner  
CMC

Commissioner  
Chandernagore Municipal Corporation

Report of Drains/Canals/Outfall to River Ganga Under  
Chandernagore Municipal Corporation, Hooghly.

Borough No: 3

Sl No.	Name of the Drain/ Canal/Outfall	Location of the out fall.	Latitude/Longitude	Area of catchment	Amount of discharge per day D= Avg. Water Ddepth	The name of STD considered	Remarks
1.	Joraghat(Ward-16)	East side of Sahid Kanailal Statu	E=88 °22'10" N=22 °51'48"	0.50sqkm	L= 300m D= 335mm		In-situ Bio-remedial methodology will have to applied
2.	Convent Ghat(Ward-16)	East side of St. Josephs convent	E=88 °23'0" N= 22 °50'2"	0.10sqkm	L= 150m D=300mm		Do
3.	Patalbari Ghat(Wad-16)	North Side of Patal Bari	E= 88 °22'10" N= 22 °51'17"	0.25sqkm	L=30m D=750mm		Do
4.	Senerghat(Ward-16)	Infront of Jagannath Ghat	E= 88 °22'7" D= 22 °51'7"	0.03sqkm	L=30m D= 350mm		Do
5.	Davedharghat(Ward-17)	Beside Agraduti Sporting Club	E= 88 °22'7" D= 22 °51'7"	0.12sqkm	L=20m D=400mm		Do
6.	Natun Teli Ghat			0.25sqkm	L=300m D=900m		Do

Signature of SAE  
 CMC  
*Roshan Bhowmik*  
 23/9/19

Signature of AE  
 CMC  
*Port 23.09.19*

Signature of Engineer  
 CMC  
*23/9/19*

Signature of Commissioner  
 CMC  
*23/9/19*

Sub-Assistant Engineer  
 Chandernagore Municipal Corporation

Assistant Engineer  
 Chandernagore Municipal Corporation

Engineer  
 Chandernagore Municipal Corporation

Commissioner  
 Chandernagore Municipal Corporation

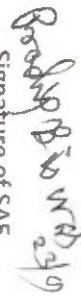



Report of Drains/Canals/Outfall to River Ganga Under  
Chandernagore Municipal Corporation, Hooghly.  
Borough No: 4


Sl No.	Name of the Drain/ Canal/Outfall	Location of the out fall.	Latitude/Longitude	Area of catchment	Amount of discharge per day D= Avg. Water Ddepth	The name of STD considered	Remarks
1.	Gondalpara Manshatala Ghat(Ward -24)	R.N Road Gondalpara. Manshatala (W-24)	E=88 °22'13" D= 22°50'59"	0.15sqkm	L=30m D=600mm		In-situ Bio-remedial methodology will have to applied
2.	Binodtala Ghat(Ward – 24)	R.N Road Gondalpara. Binodtala (W-24)	E=88 °22'43" D= 22°50'39"	0.25sqkm	L=45m D=250mm		Do
3.	Gourhati Kalitala Ghat (Ward-27)	Gourhati Malapara G.T.Road(E) w-27	E=88 °21'14" D= 22°49'9"	0.06sqkm	L=30m D=350mm		Do
4.	Gourhati Ferryghat(Ward – 27)	Gourhati Ferryghat G.T Road	E=88 °21'14" D= 22°49'10"	0.15sqkm	L=30m D=200mm		Do
5.	Govt. Qurt.1(Ward- 27)	Govt. Qurt.1(Single) G.T Road(E) W-27	E=88 °21'35" D= 22°48'27"	0.25sqkm	L=35m D=225mm		Do
6.	Govt. Qurt.2(Ward- 27)	Govt. Qurt.2(Double) G.T Road(E) W-27	E=88 °21'35" D= 22°48'27"	0.25sqkm	L=35m D=250mm		Do
7.	E.S.I Hospital	Hospital Quarter G.T. Road (E) W-27	E=88 °21'12" D= 22°48'51"	0.45sqkm	L=50m D=375mm		Do
8.	E.S.I Hospital	Hospital Quarter G.T. Road (E) W-27	E=88 °21'46" D= 22°48'42"	0.45sqkm	L=50m D=375mm		Do
9.	E.S.I Hospital	Hospital Quarter G.T. Road (E) W-27	E=88 °21'12" D= 22°48'51"	0.45sqkm	L=50m D=375mm		Do
10.	E.S.I Hospital	Hospital Quarter G.T. Road (E) W-27	E=88 °21'14" D= 22°48'50"	0.45sqkm	L=50m D=375mm		Do


Report of Drains/Canals/Outfall to River Ganga Under  
Chandernagore Municipal Corporation, Hooghly.  
 Borough No: 4

Sl No.	Name of the Drain/ Canal/Outfall	Location of the out fall.	Latitude/Longitude	Area of catchment	Amount of discharge per day	The name of STD considered	Remarks
11.	E.S.I Hospital	Hospital Quarter G.T. Road (E) W- 27	E=88°21'14" D= 22°48'50"	0.45sqkm	L=50m D=275mm		In-situ Bio-remedial methodology will have to applied
12.	Kachari Ghat			0.3sqkm	L=30m D=900mm		Do
13.	Phari Ghat			CGR=1.25sqkm BDR=1.5sqkm	L=50m D=1250mm		Do
14.	Pipli Ghat			0.25sqkm	L=45m D=500mm		Do

Signature of SAE  
 CMC  


Signature of AE  
 CMC  


Signature of Engineer  
 CMC  


Signature of Commissioner  
 CMC  


Sub-Assistant Engineer  
 Chandernagore Municipal  
 Corporation

Assistant Engineer  
 Chandernagore Municipal  
 Corporation

Engineer  
 Chandernagore Municipal  
 Corporation

Commissioner  
 Chandernagore Municipal  
 Corporation



6

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Report of Drains/ canals/ outfall to River Ganga under CMC hooghly

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Marie Park, P.O. Chander nagore  
Hooghly - 712136, West Bengal.  
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(Annexure - II)

5



**Unitech Water Technologies Pvt. Ltd.**

AN ISO 9001:2008 CERTIFIED COMPANY



Reg No 9985-A

**CONCEPT NOTE  
OF  
IN-SITU BIOREMEDIATION  
METHODOLOGY**

**FOR**



**CHANDERNAGORE MUNICIPAL  
CORPORATION**

**FROM**



**UNITECH WATER TECHNOLOGIES PVT.LTD.  
KOLKATA**

Ref.No.: UWT/CHN/BIORED/12-R0  
Dated: 25/09/2019



**BASIC FIELD DATA**  
**AVAILABLE**


1. Total No. of Drain/ Canal/ Free FlowChannel :44 Nos. (Identified)
2. Accessible Catchment Area :

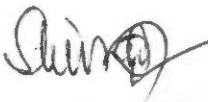
BOROUGH No.	TOTAL CATCHMENT AREA
a) Borough No. - 01	1.2 sq. Km
b) Borough No.- 02	2.64 sq. Km
c) Borough No. - 03	1.25 sq. Km
d) Borough No. -04	4.11 sq. Km CGR- 1.25 sq. Km BDR- 1.5 sq. Km

3. Depth of Channel/ Drain : Between 250mm to 1250mm
4. Length of the Channel/ Drain : Varies between few meters to Km
5. Present Mode of Treatment :Coarse Screen-Fixed Type
6. Sources of Contamination : Overflows- Dwelling Units, Community Toilets; Surface Run-offs, Local Bathing Areas, Storm Run-offs; Septic Tank overflows.

  
Assistant Engineer  
Chandernagore Municipal  
corporation

UWT/CHN/BIORED/12-R0

  
Engineer  
Chandernagore Municipal

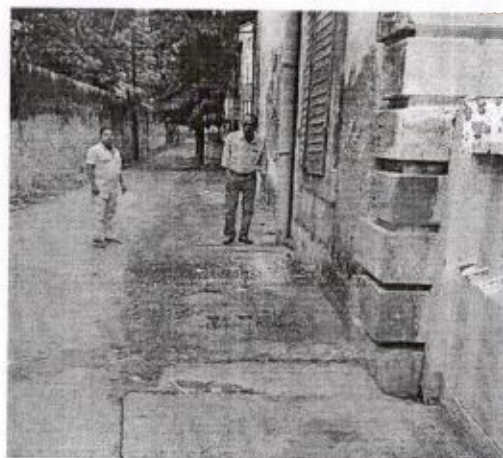
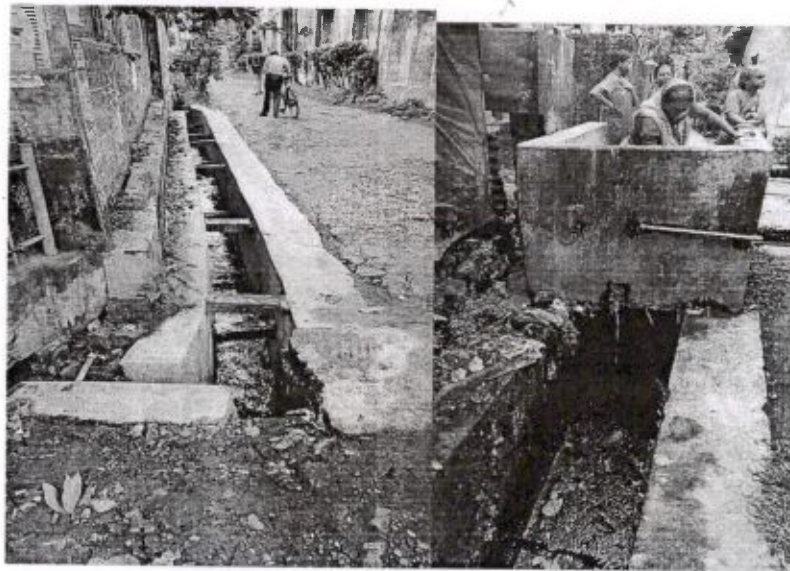
  
Secretary  
Chandernagore Municipal

Page 2 of 11



**DATA TO BE COLLECTED**

1. Actual Coverage/ Length of individual Channel/Drain- Survey & Volumetric Quantification.
2. Diversions and Embankment zones for construction of STOP-GAP for utilizing Bio-remediation tools in upstream giving additional holding time.
3. Understanding the contamination sources and performing the parameter analysis as per effects of the same.

**FEW SITE PICTURES**

UWT/CHN/BIORED/12-R0

Page 3 of 11

32/1, Gariahat Road (South), Kailash Bhawan, 2nd Floor, Kolkata-700031  
 Phone: (033) 40004624 / 40004625 / 32964771 , Fax: (033) 24990411  
 E-mail: contact@unitechwater.net, Website: www.unitechwater.net

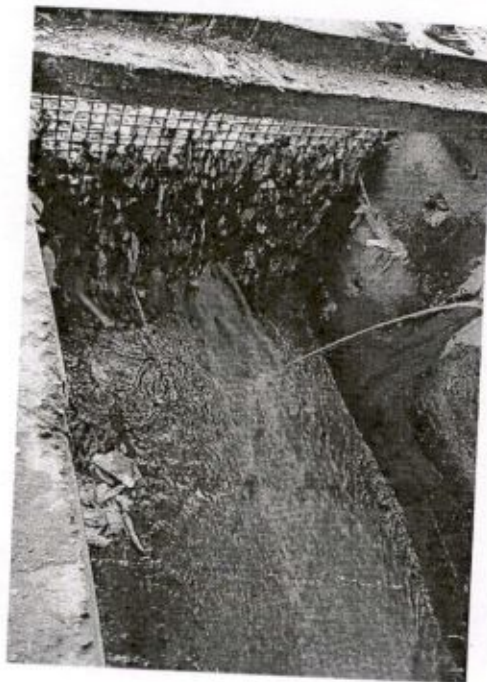
Assistant Engineer  
 Chandernagore Municipal Corporation

Engineer  
 Chandernagore Municipal Corporation

Secretary  
 Chandernagore Municipal Corporation



FEW SITE PICTURES (contd.)



*Key*

**Assistant Engineer**  
Chandernagore Municipal Corporation  
UWT/CHN/BIORED/12-R0

*[Signature]*

**Engineer**  
Chandernagore Municipal Corporation

*Shinda*

**Secretary**  
Chandernagore Municipal Corporation





**CONCEPT FLOWCHART**

**UNTREATED WASTEWATER INLET**

Calculation of Flow - Volumetric

Parameter Analysis of the Channel /Drain

Leachate can be send back to local drain

Positioning Bio-remedial tools engaged in upstream for longer retention and activity initiation.

Positioning proper mechanized screening, removal of solid biodegradable to composting zones.

Monitoring the spillages and solid biodegradable as well as non-biodegradable contaminants and proper removal from the open channel. Co-ordination with Solid Waste Management Program

Positioning proper mechanized screening, removal of solid Non-biodegradable to common disposal

Preparation of Microbial Solutions and dosing at identified zones with help of dozers-manually and vehicle

Preparation of Small Catchments/ Pocket Areas for dosing the Bio-augmentation Microbes. Perform Phyto-remediation zones

**RIVER DISPOSAL**



*Ray*  
**Assistant Engineer**  
Chandernagore Municipal Corporation

*[Signature]*  
**Engineer**  
Chandernagore Municipal Corporation

*[Signature]*  
**Secretary**  
Chandernagore Municipal Corporation





Bioaugmentation is based on the fact that there are Biologically Degradable Solids within the Wastewater. Biological Treatment generally involves the use of intrinsic bacteria which are present in the Wastewater. They are usually present in very small numbers and may or may not be able to biodegrade a specific contaminant. The indigenous population may act but not quickly enough to prevent the spread of the contaminant. Additional of pre-grown microbial cultures to enhance microbial populations at a site to improve contaminant cleanup and reduce clean up time and cost.

**Benefits of Efficient Microbes:**

- ✓ Non-toxic, non-corrosive, Environmental friendly.
- ✓ Safe and natural.
- ✓ Can work effectively within a wide range of pH (3.0 - 14.0).
- ✓ Can convert complex nitrogenous compounds to simpler organic forms, i.e. Purification.
- ✓ Better substrate digestion.
- ✓ Zero chemical dosing.
- ✓ Zero addition of disinfectant.
- ✓ 100% Odor removal

Frequently, the terms bio-remediation and bioaugmentation are used interchangeably. Bioremediation will be defined here as the use of selected microorganisms to accomplish a biological cleanup of a specified contaminated area, such as soil or water, bioaugmentation will be defined as the application of selected microorganisms to enhance the microbial populations of an operating waste treatment process In other words, Bioremediation deals with a finite project or area, while bioaugmentation involves working to improve a continuous process.

Assistant Engineer  
Chandernagore Municipal  
corporation

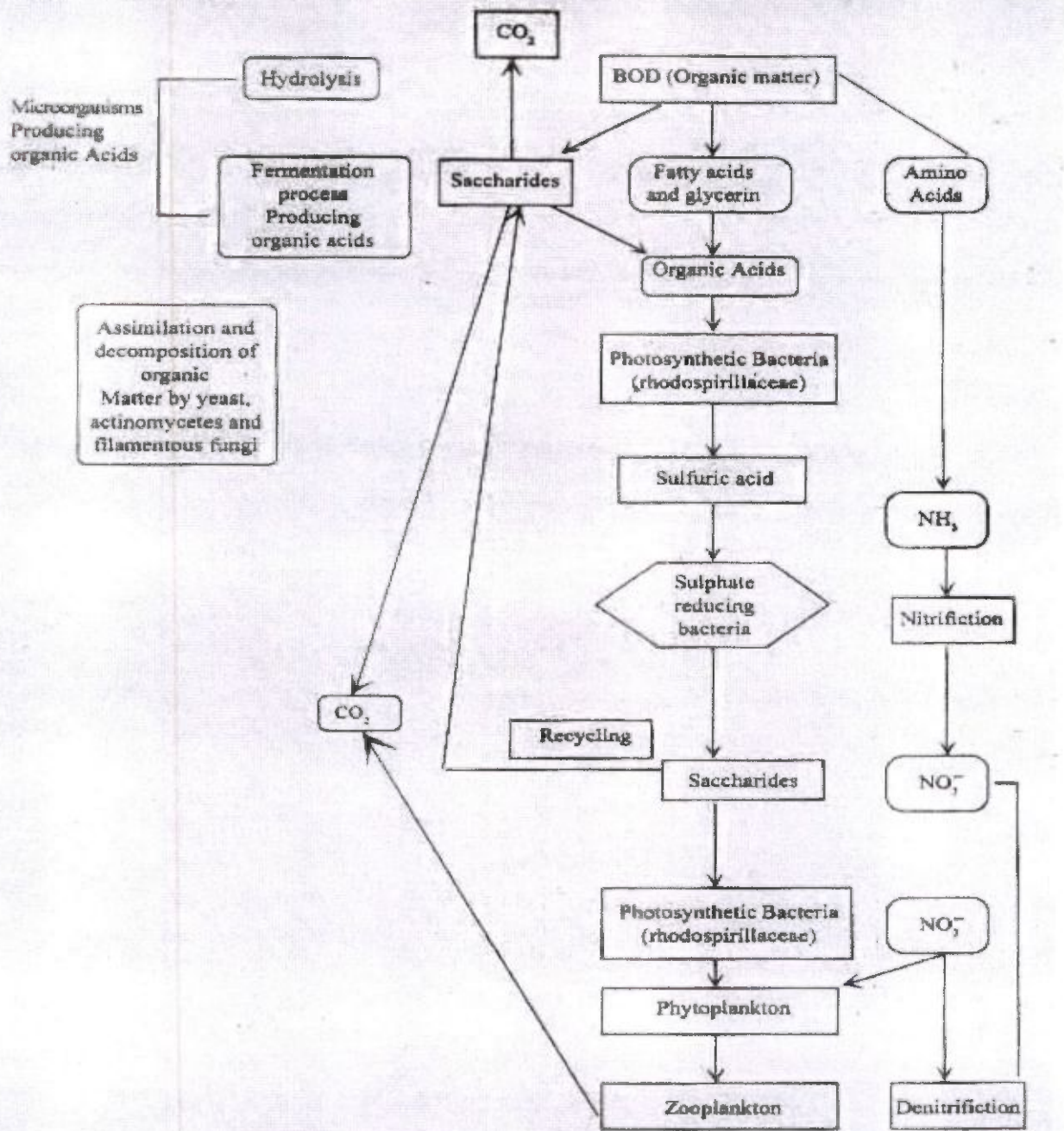
UWT/CHN/BIORED/12-R0

Engineer  
Chandernagore Municipal  
Corporation

Secretary  
Chandernagore Municipal  
Corporation

Page 8 of 11

**BIOREMEDIATION WITH EFFICIENT MICROBES (EM)-DEGRADATION CYCLE**



This flow diagram shows that EM simply enhances the natural cleaning process.

*Key*  
 Assistant Engineer  
 Chandernagore Municipal Corporation

*[Signature]*  
 Engineer  
 Chandernagore Municipal Corporation

*Shirish*  
 Secretary  
 Chandernagore Municipal Corporation

**Provisional Financial Involvement:***For First 12 months of implementation & improvements:-*

i)	Cost of setting up V-Notch Weirs	-	Rs.
ii)	Cost of setting the mechanized screen	-	
iii)	Cost of removal of existing debris, cleaning - of channels		
iv)	Cost of Field Survey	-	Rs.
v)	Cost of microbial accelerator (Stock Solution) -		Rs.
vi)	Data analysis	-	Rs.
vii)			
viii)			
ix)	Travel and transport of the Manpower (including carriage of samples	-	Rs.
		-----	Rs.
	5% Contingencies		Rs.
	10% Overhead		Rs.
		-----	
	Total:		Rs.
		-----	





KMDA/CHN/19-20/EST/01  
17-10-19

To  
**Chandernagore Municipal Corporation**  
Marie Park, P.O. Chandernagore  
Hooghly - 712136, West Bengal.

Sub: Submission of Budgetary Estimate for Pre-Feasibility Study, Design & Implementation of Bio-remedial Treatment Methodology for reducing BOD/COD and other parameters at 41Nos. Outfalls within the Municipal Area.

**Provisional Financial Involvement (all amount in INR):**

i) Site Survey, Field Feasibility Study and Design	-	Rs. 2,50,000.00
ii) Cost of setting up V-Notch Weirs	-	Rs. 3,60,000.00
iii) Cost of microbial accelerator (Stock Solution) with ingredients for extension for 12 months requirement.	-	Rs. 35,00,000.00
Accessories for Solution Preparation, Dosing Arrangement	-	Rs. 40,70,000.00
Manpower Remuneration- Driver, Labour, Helper, Chemist etc, for 12 months operations.	-	
iv) Installation & Maintenance of Environmental Balance Improvement Devices as per site requirement.	-	Rs. 1,70,00,000.00
v) Construction of Embankments and Supporting Structures	-	Rs. 20,00,000.00
vi) Sampling and Laboratory Analysis of 41Nos. outfalls per Qtr for 01 year.	-	Rs. 2,10,000.00
		-----
		Rs. 2, 78,90,000.00
5% Contingencies -	Rs. 13,94,500.00	
15% Overhead -	Rs. 43,92,675.00	
		-----
<b>Total:</b>		<b>Rs. 3,36,77,175.00</b>

(Rupees Three Crores Thirty Six Lacs Seventy Seven Thousand One Hundred and Seventy Five Only)

**Scope under Municipal Authorities (outside estimate)**

- Removal of existing debris, cleaning of channels.
- Installation of screening equipment's.
- Fresh Water for Solution Preparation & Security of Devices from theft.

For Unitech Water Technologies Pvt. Ltd.

FOR UNITECH WATER TECHNOLOGIES PVT. LTD.  
*Indranil Bhattacharya*  
DIRECTOR

**Indranil Bhattacharya**  
Director