IN THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN BENCH, CHENNAI

ORIGINAL APPLICATION NO: 150 OF 2023

IN THE MATTER OF:

Anil Kumar Sastry **APPLICANT**

Versus

Union of India, Represented by its Secretary,

MOEF & CC New Delhi and Ors **RESPONDENT(S)**

AND

ORIGINAL APPLICATION NO: 151 OF 2023

Suo Moto case based on the News item published in "The Hindu" dated 26.04.2022 titled, "Flow of industrial effluents into Phalguni results in fish kill"

Versus

Union of India, Represented by its Secretary,

MOEF & CC New Delhi and Ors. **RESPONDENT(S)**

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18/12/2023

J. Chandra Babu
Scientist-E & Regional Director

Date: 18-12-2023
Place: Bengaluru

J. Chandra Babu
REGIONAL DIRECTOR
CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE - BENGALURU
(MIN.OF ENV,FOREST & CC, GOVT OF INDIA)
BENGALURU - 560 079. MOB: 9868278903

Filed through Counsel

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RESPONDENT(S)

AFFIDAVIT FILED ON BEHALF OF RESPONDENT NO. 2- CENTRAL POLLUTION CONTROL BOARD

I, J. Chandra Babu, S/o Late Shri. J. Balaramaiah, aged about 55 years and having office at the Regional Directorate – Bengaluru, Central Pollution Control Board, Nisarga Bhawan,

13/12/2023

J. Chandra Babu
REGIONAL DIRECTOR
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A Block, 1st & 2nd Floors, Thimmaiah Road, 7th D Main, Shivanagar, Bengaluru-560079, do hereby solemnly affirm and sincerely state as follows:

1. That I am presently working as Scientist 'E' and holding charge of the Regional Director (Bengaluru), Central Pollution Control Board (hereafter referred to as 'the CPCB'). I am authorized to file this Counter Affidavit on behalf of Respondent No. 2 CPCB. I am fully conversant with the facts of the case as disclosed from the records maintained in the offices of the CPCB and hence depose and swear as follows.
2. That the Hon'ble NGT, Principal Bench, New Delhi registered a *suo-moto* complaint in OA No: 307 of 2022 dated: 29.04.2022, based on the **News item published in "The Hindu" dated 26.04.2022 titled, "Flow of industrial effluents into Phalguni results in fish kill".** The media had reported that hundreds of fishes were found dead and floating in Phalguni (Gurupura) river, downstream of Maravooru vented dam, following the flow of industrial and domestic effluents into the river and the colour of the river has turned black due to the effluents released by the industries in Baikampady industrial area in Mangalore, Dakshina Kannada, Karnataka. The Hon'ble NGT considered the matter and prima facie held that untreated effluents are being discharged in the river in question by the industries in the area, without any regulation by the concerned statutory authorities in violation of the Water (Prevention and Control of Pollution) Act, 1974.
3. That in the matter of OA 307/2022 (PB), Hon'ble NGT, constituted a joint committee comprising of the Regional Officers of MoEF&CC and CPCB Bengaluru, State PCB, Director, Fisheries, Karnataka and District Magistrate, Dakshina Kannada District to look in to the cause of the incident and suggest remedial measures. The State PCB was made the nodal agency for Co-ordination and compliance.
4. That it is respectfully submitted that in the matter of OA 307/2022 (PB), in compliance to Hon'ble NGT order dated 29-04-2022, Joint Committee after undertaking visit to the site and carrying out sampling & analysis, submitted detailed report to Hon'ble NGT on 11.10.2022. Copy of the Joint Committee Report dated 11.10.2022 is attached as **Annexure-1.** The main findings and recommendations of the Joint Committee are detailed below:
    a. The Committee from the Monitoring results and from other available data is of the opinion that the present fish kill is an isolated, possibly by the Organic/Sewage load dumped in this particular location leading to oxygen stress during summer season.

12/12/2022

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b. There was no fish kill in the main Gurupura river, fish kill has happened in the stagnant pockets of the storm water drain leading to the river. Measured Dissolved oxygen levels at locations of fish death (along the two stagnant pockets of storm water drain) were 0.8mg/l and 0.9 mg/l, whereas, at the point where storm water joined the river, DO level was 4 mg/l, which shows that the fish death must have occurred due to inadequate tidal flushing in the creek/storm water drain resulting in low D.O levels.

c. The Committee has also observed that there is no traces of any discharge of industrial effluent in that Storm Water Drain in which fish kill has occurred.

d. Committee has observed entry of domestic sewage all along the river through Storm Water Drains; this needs an urgent attention by Mangaluru City Corporation (MCC).

e. There is no Underground drainage (UGD) facility with terminal Sewage

f. Treatment Plant (STP) in Baikampady industrial area to take care of sewage/sullage discharge from Godown, commercial establishments, hotels and some small industries, Labour quarter's/sheds. etc. Responsible organisations like KIADB and Mangaluru City Corporation (MCC) are required to initiate action to construct a proper UGD system with terminal sewage treatment plant.

g. Mangaluru City Corporation also has to initiate action for treatment and disposal of sewage generated from the area around the Baggundi lake such as, MSEZ RR colony, Angaragundi, Kudumbur Villages so as to prevent discharge of untreated sewage into Baggundi lake thereby to Gurupura river.

h. There is no proper Solid waste collection mechanism in the Baikampady industrial Area. Construction debris (C and D waste) and solid waste including plastic waste are being dumped everywhere across the industrial area including the bank of the back water of Gurupura River. KIADB and Mangaluru City Corporation (MCC) being responsible agencies are required to initiate action to bring in a proper collection mechanism of Municipal solid waste/C and D /plastic and other types of waste and create awareness too in coordination with Industrial Associations.

i. There were lot of complaints in Media and by Industries Association that cess pool operators are discharging sewage through tankers and

j. dumping/discharging indirectly in to rivers. Committee suggests that KIADB, MCC, ZP, PRED, Industrial Association and Police shall have to install CCTV

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Camera at Strategic locations in their respective jurisdiction to prevent any unauthorized/illegal dumping of waste water/sewage/solid waste in to the river.

k. The Committee suggests that the Minor Irrigation Department who is in charge of protecting the river boundaries shall initiate steps to conduct a comprehensive survey on river encroachment along with other line departments such as, Revenue, CRZ, MCC and corresponding Town/ Grama Panchayats and take appropriate action on the encroachers.

l. Upstream of the Gurupura river a vented dam is built, which is the drinking water source for Maravooru Grama Panchayath and 14 other villages. Since the construction of the dam, the river doesn't get minimum flow and during summer seasons fish kill incidents are happening in the river during summer seasons due to build-up of organic load as a result of inadequate flushing. Zilla Panchayat, PRED, Mangalore Officials will have to submit compliance to conditions imposed during clearance of vented dam.

5. That it is respectfully submitted that in the matter of OA 307/2022 (PB) with OA 572/2022 (PB), post submission of Joint Committee report, Hon'ble NGT vide order dated 21.11.2022 (Copy placed as **Annexure-II)** added nominee from NCSCM and NIO, Goa as one of the committee member and directed as follows:

   a. To prepare an action plan including remedial action for protection of environment

   b. Action plan to include immediate tapping of sources of pollution and fixing accountability of the industries, Mangalore City Corporation.

   c. An action taken report may specify the gap in sewage generation in the catchment and its treatment, latest compliance status by the violators and remedial measures taken, if any, as on 31.01.2023

6. It is respectfully submitted that in the matter of OA 307/2022 (PB) with OA 572/2022 (PB), in compliance to Hon'ble NGT order dated 21.11.2022, the committee was reconstituted. The committee convened a meeting through online on 16.12.2022 and devised an action plan to comply with the Hon'ble NGT order. A draft action plan proposing the Mangaluru City Corporation, KIADB and Industries have been indicated specific actions with timelines in compliance to Hon'ble NGT order 21.11.2022. The specific action plans were reviewed by the committee and report is prepared. A Copy of action plan submitted by concerned agencies compiled by Karnataka State Pollution Control Board is placed as **Annexure-III.**

J. Chandra Babu
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7. It is respectfully submitted that by order dated 27.07.2023 the Hon'ble NGT transferred the above mentioned OA to the Southern Bench for further proceedings. The OA 572/2022 (PB) was renumbered as OA 150/2023 (SZ) and OA 307/2022 (PB) was renumbered as OA 151/2023(SZ).
8. It is respectfully submitted that as per directions of Hon'ble NGT and as per Joint Committee Report, concerned departments namely Mangaluru City Corporation, Irrigation Department and KIADB have to take actions to prevent the entry of untreated sewage, cess pool water & industrial effluent into the river and Action Plan with timelines is already prepared by the concerned departments. The Joint committee has investigated the matter and filed a report on fish kill and also action taken report.
9. It is respectfully submitted that as part of joint committee, CPCB has already made its submissions. In view of these, it is respectfully submitted that Hon'ble NGT may exclude CPCB from the respondents list.

PRAYER

In the light of the above submissions, it is respectfully prayed that this Respondent No. 2, the Central Pollution Control Board shall abide by any order/direction passed by this Hon'ble Tribunal.

Dated this, the 18th day of December, 2023.

18/12/2023

DEPONENT

Solemnly affirmed and signed before me by the literate deponent, who is personally known to me, on this the 18th day of December, 2023 at Bengaluru.

18/12/2023

DEPONENT

J. Chandra Babu
REGIONAL DIRECTOR
CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE - BENGALURU
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BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL PRINCIPAL BENCH, NEW DELHI, ORIGINAL APPLICATION NO. 307/2022, WITH RESPECT TO: News item published in The Hindu dated 26.04.2022 titled "**Flow of industrial effluents into Phalguni results in fish kill"**

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REPORT OF JOINT COMMITTEE APPOINTED BY HON'BLE NATIONAL GREEN TRIBUNAL PRINCIPAL BENCH, NEW DELHI (NGT) IN MATTER OF O.A NO. 307/2022, ORDER, DATED 29.04.2022, WITH RESPECT TO NEWS ITEM PUBLISHED IN "THE HINDU" DATED 26.04.2022 TITLED "FLOW OF INDUSTRIAL EFFLUENTS INTO PHALGUNI RESULTS IN FISH KILL"

1.0 Preamble:

Hon'ble NGT, Principal Bench, New Delhi has registered a *suo-moto* complaint in OA No: 307 of 2022 dated: 29.04.2022, based on the **News item published in "The Hindu" dated 26.04.2022 titled, "Flow of industrial effluents into Phalguni results in fish kill".** The media had reported that hundreds of fishes were found dead and floating in Phalguni (Gurupura) river, downstream of Maravooru vented dam, following the flow of industrial and domestic effluents into the river and the colour of the river has turned black due to the effluents released by the industries in Baikampady industrial area in Mangalore, Dakshina Kannada, Karnataka.

Hon'ble NGT considered the matter and prima facie held that untreated effluents are being discharged in the river in question by the industries in the area, without any regulation by the concerned statutory authorities in violation of the Water (Prevention and Control of Pollution) Act, 1974.

Further, Hon'ble NGT, constituted a joint committee comprising of the Regional Officers of MoEF&CC and CPCB Bengaluru, State PCB, Director, Fisheries, Karnataka and District Magistrate, Dakshina Kannada District to look in to the cause of the incident and suggest remedial measures. The State PCB was made the nodal agency for Co-ordination and compliance. The Committee was directed to meet within two weeks and undertake visit to the site, interact with the stakeholders, ascertain the cause of the incident and suggest remedial measures. If polluters were identified, it was directed to issue them the notice so that they could also file their response, if any, before the tribunal. Copy of the Hon'ble NGT order is enclosed as **Annexure-1.**

In compliance to Hon'ble NGT order, the Member Secretary, Karnataka State Pollution Board (KSPCB) constituted a Committee vide Office Memorandum No. KSPCB/NEIA-

OB/06/NGT-285/22-2023/813, dated: 07-05-2022 consisting of the following members, the copy of the same is enclosed as **Annexure- 2.**

Table 1: Constitution of Committee as per Hon'ble NGT Order

Sl. No	Name & Designation	Details
1	The District Magistrate, Dakshina Kannada District	Chairman
2	Senior Officer/Scientist, Regional Office, Ministry of Environment, Forest & Climate Change, South Zone Office, E-3/240, Kendriya Sadan, 4th Floor, E & F Wings, 17th Main Road, 2nd Block, Koramangala, Bengaluru -560 034	Member
3	Regional Director, Central Pollution Control Board, Nisarga Bhavan, Basaveshwara Nagar, Bengaluru-560010	Member
4	The Director, Department of Fisheries, Karnataka	Member
5	The Zonal Senior Environmental Officer, Karnataka State Pollution Control Board, Mangaluru	Member
6	Environmental Officer, KSPCB, Mangaluru	Member Convenor

2. Fish Kill Details:

2.1 Fish kill at Storm Water Drain near Gurupura River: Visit by KSPCB

Based on the public complaint received on 25.04.2022, regarding fish kill at Kenjar Guttumane, Bajpe, Mangalore Taluk, Dakshina Kannada District, Regional Officer, KSPCB, Mangalore and his team inspected the location on 25.04.2022. During inspection, following observations were made:

i) Traces of small dead fishes were observed **in the stagnant pockets of storm water drain/creek, but no dead fishes were observed in the main Gurupura River.**

ii) There was no flow of water in the drain except two pools of stagnant water in the low lying area of the drain.

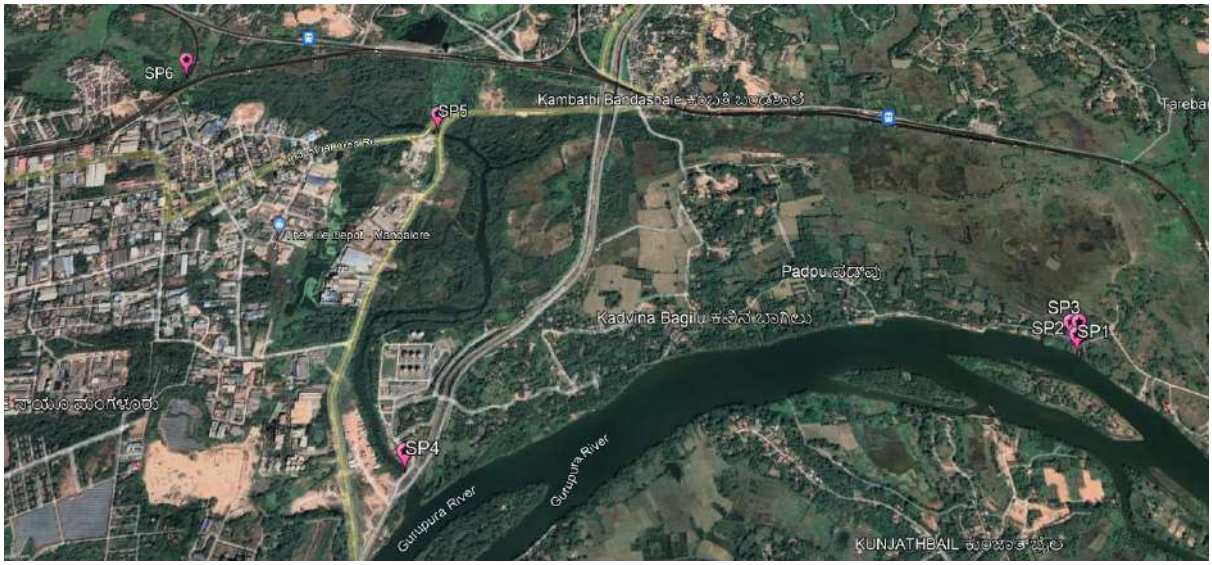
iii) At the outset, it appeared that lack of adequate water flow (lack of tidal flushing) and also high temperature of the summer might have resulted in depletion of oxygen causing the probable death of small fishes. The extent of impact was minimal, meaning fish kill was limited to those two stagnant pools within the Storm water drain.

Location Map of fish Kill spot:

Fish kill points at the stagnant pools in the storm water drain (creek). *As can be seen from the above, storm water drain/creek ultimately joins the river Gurupura.*

Photos of magnified view of stagnant pocket of Storm Water Drain where the small fishes were dead

iv) During inspection, the samples of water were collected for analysis is indicated in the Map-1 below: Please note that SP2 and SP3 are the actual fish kill location.



Map showing the sample collection points during the inspection on 25.04.2022 of magnified view of stagnant pocket of Storm Water Drain where the small fishes were dead

a) **SP1**- Water samples of Gurupura river at the junction where the storm water drain joined the river (Back water of Gurupura river collected near Kenjaru Guthu Mane, Kenjaru, Mangaluru)

b) **SP2 and SP3**- Stagnant water from two low lying pools of the storm water drain where fish kill was observed (Upstream and downstream of storm water drain which finally joins to Gurupura river back water near Kenjaru Guthu Mane Kenjaru

c) **SP-4**: Sample of water collected near ELF gas industry which joins the river Gurupura (Back water collected at ELF gas industry Up stream Centre of the Bridge which finally joins to Gurupura River Back Water)

d) **SP-5:**Back water collected near Thokur Bridge which finally joins to Gurupura River Back Water near ELF Gas Industry

e) **SP-6**:Storm water collected near Thokur railway bridge out let of Baggundi lake which finally joins to Gurupura River Back Water near ELF Gas Industry
(Note: SP-Sampling Point)

v) At the stretch from Back Water (creek) near ELF Gas Industry (SP4), the colour of water was light black by physical observation on 25.04.2022. But, while observing on 26.04.2022 & 27.04.2022, there was no appearance of black colour. But, again during inspection on 28.04.2022 colour of water was light black and on 29.04.2022 it was colourless again.

vi) During inspection, dissolved oxygen (DO) analysis were done and found that the DO values were 0.8 & 0.9 mg/L @ two stagnant pools of storm water drain (SP2 and SP3) where fish kill had occurred. The DO level of Gurupura River was 4 mg/L.(SP1) The results indicated that low DO concentrations could have caused oxygen stress which would have resulted in fish kill in the stagnant pools of storm water drain. Copy of Analysis report is enclosed as **Annexure-3.**

vii) DO level near ELF Gas industry (SP4) was observed to be 0.8 mg/l which could be again due to lack of tidal flushing in the storm water drain/creek near Baikampady Industrial Area which had caused the formation of stagnant water pockets in the low lying areas of the creek ultimately leading to temporary lowering of DO level.

viii) Further, it was observed that in and around Baikampady industrial area, surrounding the Baggundi Lake, there are residential pockets/villages like Kodikere, Kudumburu Colony, Angaragundi etc, with considerable human population. Since there is no UGD system in this area, sullage and sewage discharge from these villages and small establishments end up in the open drains ultimately joining the back water of the river. Apart from this, there is also no proper solid waste collection mechanism in the Baikampady industrial area, neither the Mangalore City Corporation (MCC), nor the Karnataka Industrial Area Development Board (KIADB) is taking lead in the matter.

ix) Industrial area has about 400 industries mostly of small scale sectors. Major sectors of industries are fish processing industries, Chicken rendering plants, vehicular service stations, Plywood industries, edible oil refineries, engineering and fabrication industries; plastic manufacturing industries, hazardous waste reprocessing industries, Cashew processing industries, labour sheds belonging to these sectors, Go downs, Commercial establishments (hotels) etc. Among these, some industries like fish processing and edible oil refineries are water based, but, most of them are small scale and water insignificant industries. Most of the Large and medium industries have provided in house Effluent Treatment Plants (ETP), some of them have ZLD system also.

x) Bacteriological analysis of *Faecal coliforms* and *Total coliforms* revealed that there is abundant microbial load in the sample of Backwater collected on 29.04.2022. Copy of the report is enclosed as **Annexure-4**.

2.2 Meeting called by the Deputy Commissioner, Mangaluru:

Based on the fish kill and blackening of river at Kenjar Guttumane, Bajpe, Mangalore Taluk due to alleged discharge of industrial effluent and sewage effluent which was reported in The Hindu Newspaper on 26.04.2022, Deputy Commissioner called the meeting of all the concerned officers on 16-05-2022.

During the meeting, it was brought to the notice of the Deputy Commissioner that earlier also there was a similar fish kill incident happened in 2017 and at that time the then Deputy Commissioner had constituted a 17 membered monitoring committee involving technical experts from various institutions for monitoring of river water quality and to suggest appropriate actions to the district administration for maintaining good water quality in the river. Further, CMFRI, Mangaluru was given the task of conducting the study on the cause of the river pollution in question and CMFRI, after monitoring the entire stretch of Gurupura river have reported that there is increase in organic load resulting in reduced DO levels in the river and increased levels of Nitrate concentration leading to Eutrophication/algal bloom in the river. Concluding part of the 41-page report is enclosed as **Annexure-5.**

As the 17 membered committee was still in force, the Deputy Commissioner directed the committee members and technical experts to conduct a detailed survey of the river to identify non-point sources of waste water (sewage, sullage, industrial effluent any other waste water) joining the Gurupura river to help formulate concrete action plan to prevent the pollution of Gurupura river. Copy of signed proceedings enclosed as **Annexure-6.**

Accordingly, 17 member monitoring committee along with officials from other Departments took up the inspection of the Gurupura river stretch on 26-05-2022 through the Boat and by Road. During inspection, the committee identified different locations along the river stretch where storm water drains join the river and samples of water at these locations were collected and given for analysis. The analysis results of the samples collected at various points along the river on this date indicate BOD level of 5- 7 mg/l, DO of 4.4 mg/l to 5.4 mg/l, microbial load of >1600 MPN/100 ml and pH between 7.2 to 7.5 units. From the results, its observed that the river water meets the CPCB designated best use standard of **Class- C except for BOD values**. Copies of analysis report enclosed as **Annexure-7.**

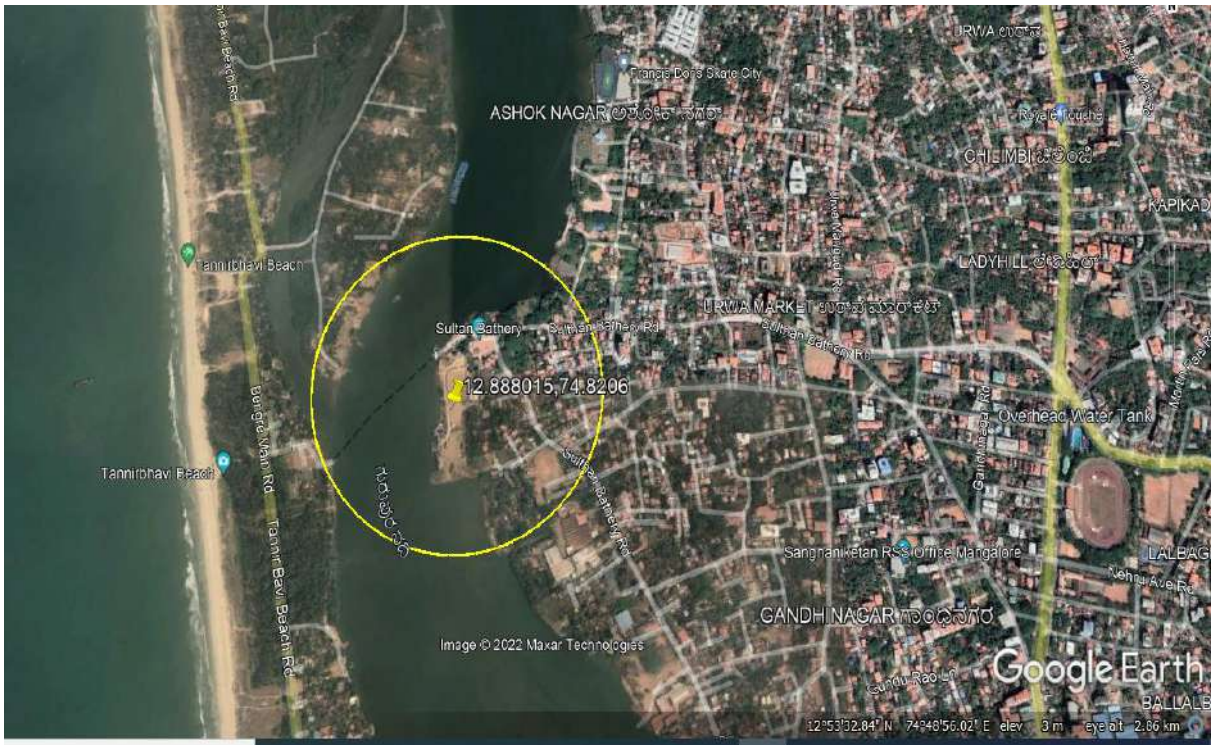
3.0 Meeting of the NGT constituted Committee:

The Joint committee constituted by Hon'ble NGT along with members of the 17 member monitoring committee met for the first time on 08-06-2022 under the chairmanship of Deputy Commissioner. During the meeting, the monitoring Committee members briefed the Deputy Commissioner about the river survey and their findings that there is sewage entry in to the river in question from unsewered areas along the catchment and they requested the Deputy Commissioner to schedule the spot inspection. Accordingly, site inspection was once again scheduled in the leadership of the Deputy Commissioner on 16-06-2022, meeting proceeding copy enclosed as **annexure-8.**

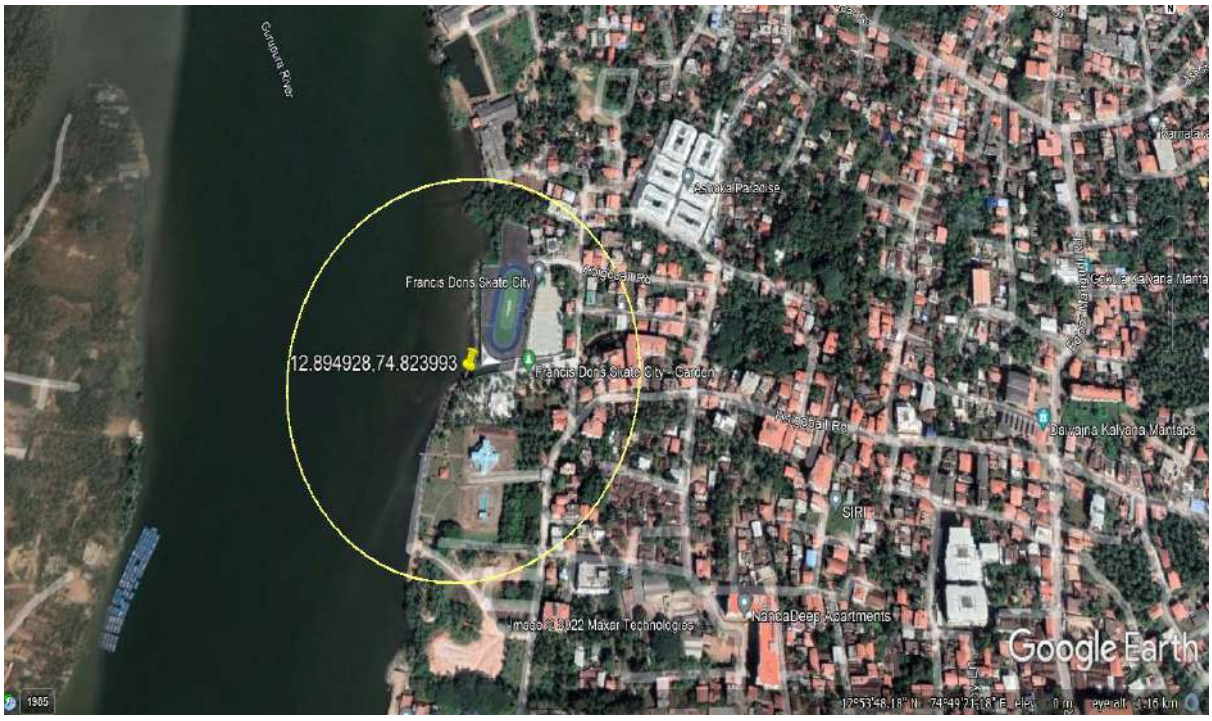
Joint Committee members along with the Deputy Commissioner and other technical experts conducted the spot inspection on 16-06-2022 and observed, proceeding of the inspection of Joint Committee is an enclosed as **Annexure-9.** It was observed that the following major Storm water drains carrying sewage/Sullage/other waste water ultimately joined the Gurupura river.

a. Storm Water drain (Major Drain Entering from Mangalore City) joining point at Backwater of Gurupura river near Kudroli (12.870525,74.829327)

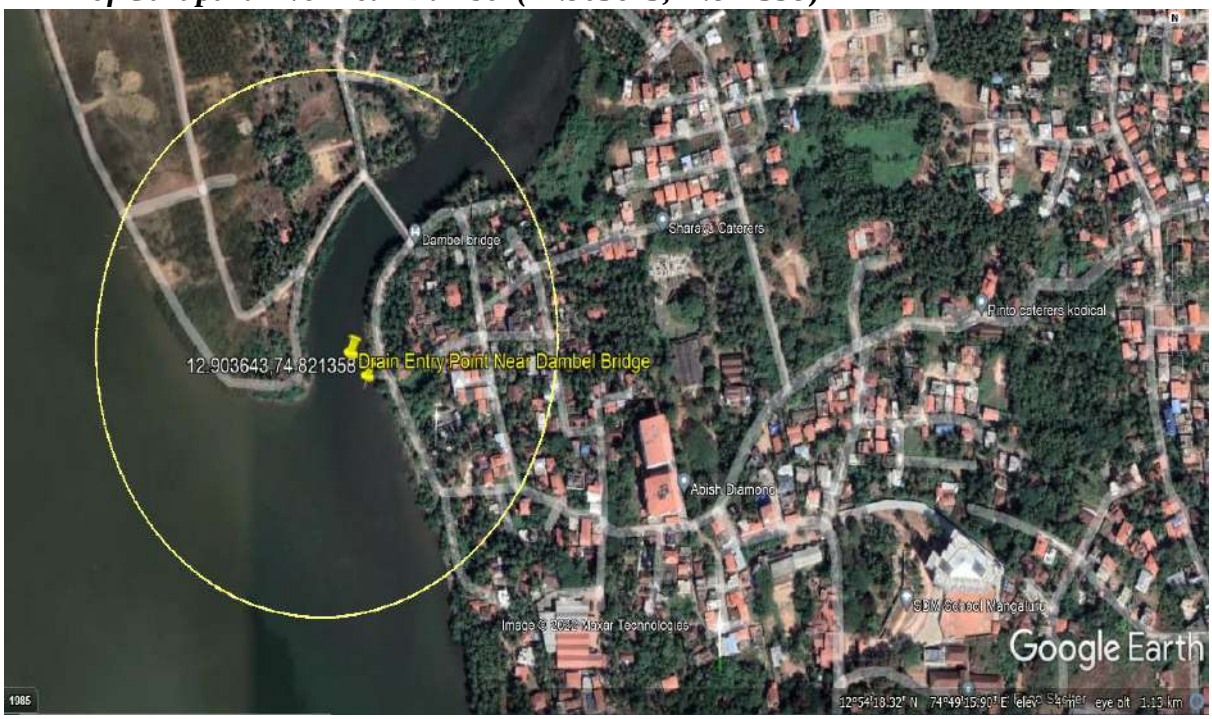
b. Storm Water drain (Drain Entering from Bolor, Thannirbhavi) joining point at Backwater of Gurupura river near Amruth Vidyalaya, Bolor (12.888015,74.8206)



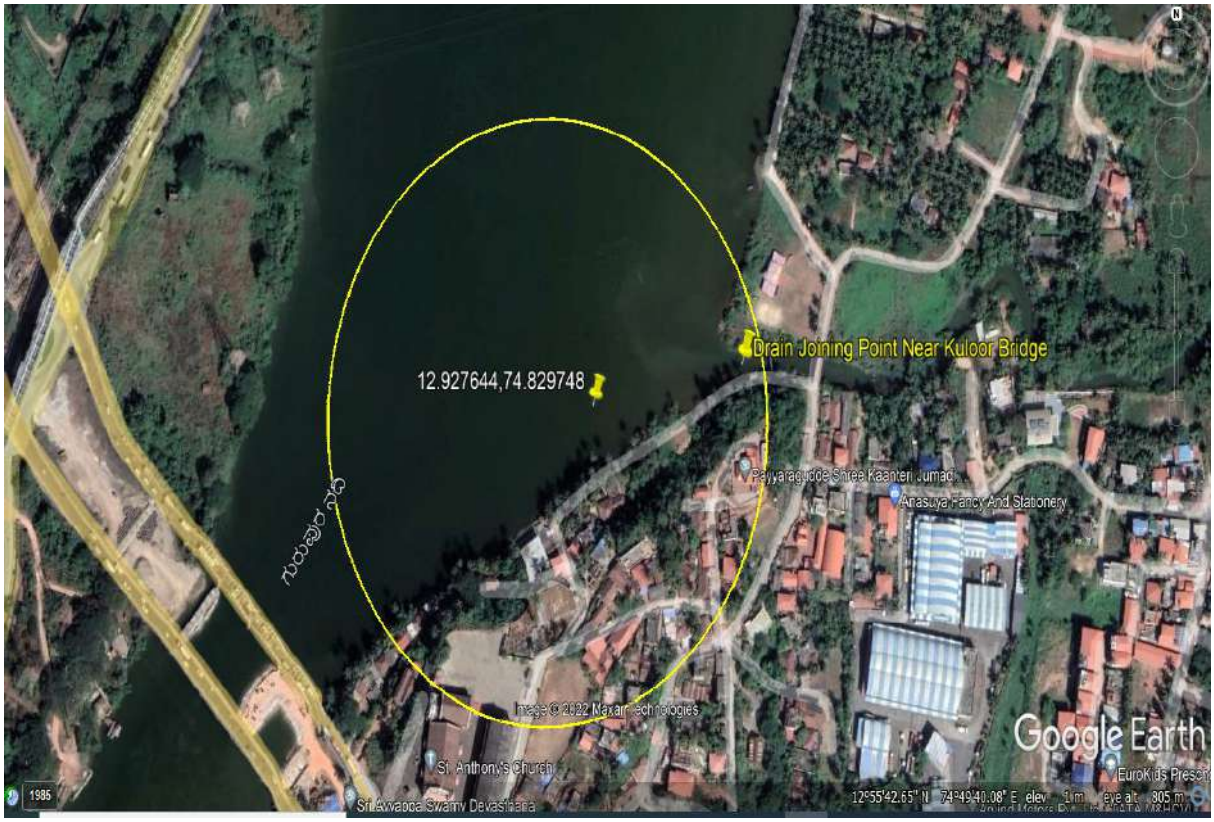
c. Storm water drain -Skate City Garden Point, Near Bolar from the area of Ashoknagar (12.894928,74.823993)



d. ***Storm Water drain (Major Drain Entering from Dambel) joining point at Backwater of Gurupura river near Dambel (12.903643,74.821358)***

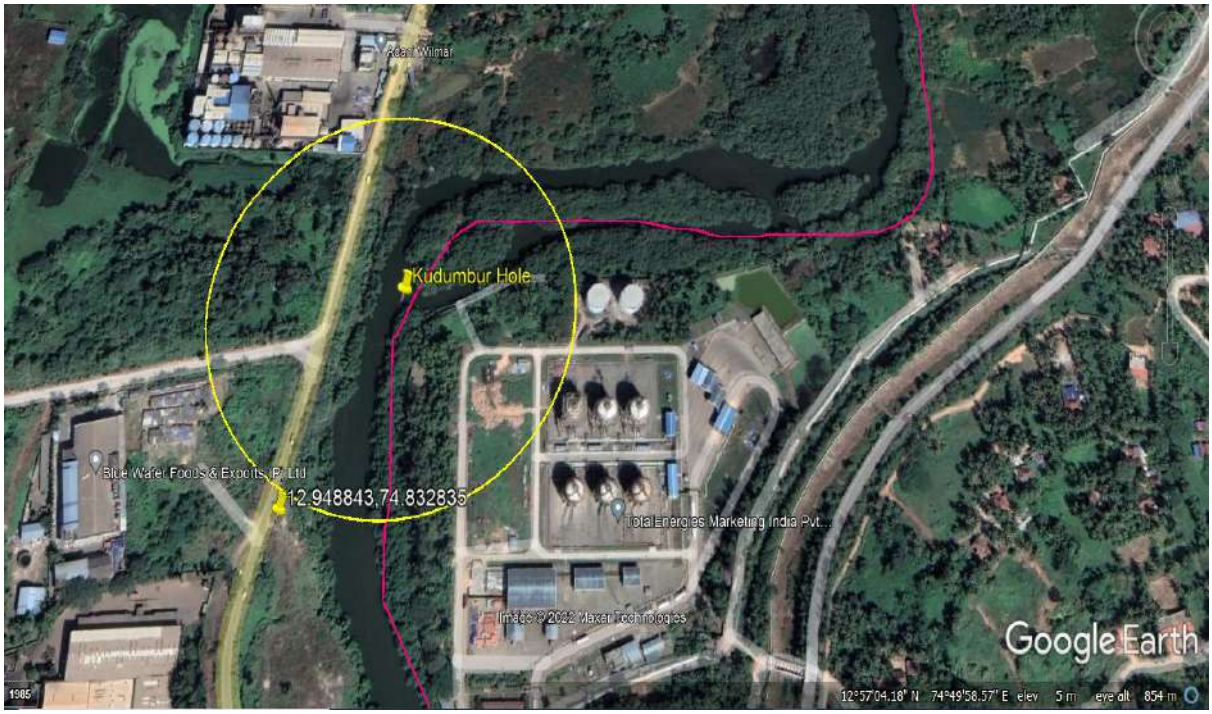


e. Storm Water drain (Drain Entering from Padukodi, Near Kulur Church) joining point at Backwater of Gurupura river near Kulur (12.927644,74.829748)



f. Kudumbur hole (rivulet) Backwater of Gurupura river at ELF Gas (Drain Entering from Baikampady Industrial Area, Jokatte, MSEZ RR Colony, MRPL Marshy land, Baggundi lake outflow, Angaragundi, Kudumburu village) (12.945400,74.835393)

g. Kudumburu Bridge Backwater of Gurupura river (Drain Entering from Jokatte village, MSEZ RR Colony, MRPL Marshy land, Baggundi lake outflow, Angaragundi, Kudumburu village) joining point at Backwater of Gurupura river (12.948843,74.832835)



During inspection, once again, water samples at the same locations as of previous inspection along the river stretch were collected and sent for analysis**.** The analysis results of the samples collected at various points along the river on this date indicate BOD level of 4 to 18mg/l, DO of 3.3 mg/l to 6.7 mg/l except at one place where it was 0.3 mg/l and microbial load of >1600 MPN/100 ml and pH between 6.7 to 7.4 units. From the results, it's observed that the river water meets the CPCB designated best use standard of **Class- C except for BOD values**. Copies of Analysis reports is enclosed as **Annexure-10.**

3.1 : Observations of the Committee:

3.1.1: General Observations:

- Residential/commercial developments on either side of the river and, no UGD in certain areas. Even in sewered areas, there is missing links/gaps.

- Major and minor storm water drains were observed to be joining the river and plenty of Organic load was observed at Kudroli, Sulthan Batteri, Dambel, Kulur Church and ELF Gas. Map showing storm water drains joining Gurupura river at different locations is enclosed as **Annexure-11**.

- Solid waste was found floating in the storm water drains which joined the river.

- Dumping/disposal of sewage collected from Hotels and selected industries and from other residential areas through Cess Pool at selected places along the banks of river back water, **which needs a proper investigation.**

- Upstream of the Gurupura river about 6 K.M. from Baikampady industrial area is built a vented dam which is the drinking water source for Maravooru Grama Panchayath limit. The dam was built in the year 2016-17. Since the construction of the dam, the river doesn't get minimum flow and during summer seasons fish kill incidents are happening in the river during summer seasons due to build-up of organic load as a result of inadequate flushing. It's only during the rainy season that the dam overflow reaches the river.

3.1.2: Observations near Baikampady Industrial Area

:Major water intensive industries in the Baikampady industrial area have provided in house ETP and some of them have Zero liquid discharge (ZLD).

- Few small industries generating less waste water are yet to install ETP and STP.

- Sullage/sewage is being discharged to Storm water drain from many Godowns, commercial establishments, hotels and some small industries, Labour quarter's/shed. etc.
- No proper collection mechanism for Municipal and other Solid Waste in Baikampady industrial area. Solid waste heaps dumped along road sides were observed. Photos enclosed as **Annexure-12.**
- Construction debris and solid waste is being disposed at ODC Road to Jokatte at the bank of the back water of Gurupura River.
- The Back water /Creek at the Baikampady Industrial area is blocked and the water is stagnated, there is no easy flushing.
- During random inspection of industries in the Baikampady industrial area by KSPCB officials, it is observed that the following industries are discharging untreated effluents to the storm water drain, some of them in spite of having ETP facilities.

Table 2: Details of Industries in Baikampady Industrial Area discharging untreated effluents along with action taken:

Sl No.	Name and address of the industries	Activity	Action initiated by the KSPCB
1	M/s Ocean Proteins, Plot No. 281/282, Baikampady Industrial Area, Mangaluru, D K District-575 011.	Fish processing (Surimi)	Personal hearing held and action being initiated to close down the industry and to file criminal case
2	M/s R.K. Industries, Plot No.191-A Baikampady Industrial Area, Mangalore, D K District-575 011.	Vehicular Service station	Notice of proposed directions to close down the industry is issued.
3.	M/s Shree Gurudev Service Station, Plot No. 102, Near Canara Steel Industry, Industrial Area, Baikampady, Mangaluru, Dakshina Kannada District - 575011	Tanker washing /vehicular Service station	

4	M/s Stems and Leaves International, Plot No.162-C, Baikampady Industrial Area, Mangalore, D.K District-575011	Granite cutting and polishing	Notice of proposed directions (NPD) to close down the industry is issued
5	M/s Viceroy Exports India Pvt. Ltd., Plot No.55, Baikampady Industrial Area, Mangalore, D.K District-575011.	Fish Processing (Freezing and Export)	
6	M/s Sunrise Mats, Plot No. 6-16, Baikampady Industrial Estate Area, Mangalore, D.K., District-575011	Plastic waste reprocessing and mat making	Restraining order and NPD issued
7	M/s Marine Food Packers, Industrial Area, Baikampady, Mangaluru, Karnataka 575011	Fish Processing (Freezing and Export)	Show cause notice is issued
8	M/s A. K. Veneers Pvt. Ltd., Plot No. 449, Industrial Area, Baikampady, Mangaluru, D. K. District	Plywood and Veneers manufacturing	Show cause notice is issued

Subsequent to the issue of show cause notices/ Notice of proposed directions/restraining orders, some industries have rectified the problems and initiated action for providing STP/ETP. Industries who have continued the violations even after issue of Notice of proposed directions, KSPCB is in the process of initiating further course of action as per Law.

4.0 Based on Literature: Literature review from various researchers reveals that the incidence of river blackening and fish kill at times is not a very uncommon phenomenon and this bio-geochemical phenomenon has been most of the times co-related to presence of high organic load and inadequate tidal flushing especially in summers. High organic load quickly depletes the dissolved oxygen leading to anaerobic conditions. The anaerobic microbes degrade the dissolved organics which may further react with minerals in water and sediment forming black precipitates. A copy of one of the research review paper published by Zhiwei Leiang *et.al.,* 2018 on subject matter is enclosed for kind reference as **Annexure-13.**

5.0 Conclusions and Recommendations:

1. The Committee from the Monitoring results and from other available data is of the opinion that the present fish kill is an isolated, very small one possibly by the Organic/Sewage load dumped in this particular location leading to oxygen stress during summer season.

2. There was no fish kill in the main Gurupura river, fish kill has happened in the stagnant pockets of the storm water drain leading to the river. Measured Dissolved oxygen levels at locations of fish death (along the two stagnant pockets of storm water drain) were 0.8mg/l and 0.9 mg/l, whereas, at the point where storm water joined the river, DO level was 4 mg/l, which shows that the fish death must have occurred due to inadequate tidal flushing in the creek/storm water drain resulting in low D.O levels.

3. The Committee has also observed that there is no traces of any discharge of industrial effluent in that Storm Water Drain in which fish kill has occurred.

4. Committee has observed entry of domestic sewage all along the river through Storm Water Drains; this needs an urgent attention by Mangaluru City Corporation (MCC).

5. There is no Underground drainage (UGD) facility with terminal Sewage Treatment Plant (STP) in Baikampady industrial area to take care of sewage/sullage discharge from Godown, commercial establishments, hotels and some small industries, Labour quarter's/sheds. etc. Responsible organisations like KIADB and Mangaluru City Corporation (MCC) are required to initiate action to construct a proper UGD system with terminal sewage treatment plant.

6. Mangaluru City Corporation also has to initiate action for treatment and disposal of sewage generated from the area around the Baggundi lake such as, MSEZ RR colony, Angaragundi, Kudumbur Villages so as to prevent joining of untreated sewage into Baggundi lake thereby to Gurupura river.

7. Action plan for Sl No.4,5 and 6 along with cost estimate and timelines shall be prepared by MCC and KIADB and necessary funds have to be released by Urban Development Department, Government of Karnataka and CEO, KIADB respectively for undertaking the above work.

8. Town Panchayath, Bajpe and Grama Panchayath, Jokatte are unsewered area along the catchment of the river Gurupura. Chief Officer, Bajpe has to take action for treatment and disposal of sewage generated in the area near airport and Bajpe village to avoid entering of sewage into the storm water drain ultimately joining the Gurupura river and PDO, Grama Panchayat, Jokatte has to take action for treatment and disposal of Sewage generated from Jokatte areas. Directions have to be issued to DMA and CEO, ZP to release necessary funds required for undertaking the STP work.

9. There is no proper Solid waste collection mechanism in the Baikampady industrial Area. Construction debris (C and D waste) and solid waste including plastic waste are being dumped everywhere across the industrial area including the bank of the back water of Gurupura River. KIADB and Mangaluru City Corporation (MCC) being responsible agencies are required to initiate action to bring in a proper collection mechanism of Municipal solid waste/C and D /plastic and other types of waste and create awareness too in co-ordination with Industrial Associations.

10. There were lot of complaints in Media and by Industries Association that cess pool operators are discharging sewage through tankers and dumping/discharging indirectly in to rivers. Committee suggests that KIADB, MCC, ZP, PRED, Industrial Association and Police shall have to install CCTV Camera at Strategic locations in their respective jurisdiction to prevent any unauthorized/illegal dumping of waste water/sewage/solid waste in to the river.

11. The Committee suggests that the Minor Irrigation department who is in charge of protecting the river boundaries shall initiate steps to conduct a comprehensive survey on river encroachment along with other line departments such as, Revenue, CRZ, MCC and corresponding Town/Grama Panchayats and take appropriate action on the encroachers.

12. Upstream of the Gurupura river a vented dam is built, which is the drinking water source for Maravooru Grama Panchayath and 14 other villages. Since the construction of the dam, the river doesn't get minimum flow and during summer seasons fish kill incidents are happening in the river during summer seasons due to

build-up of organic load as a result of inadequate flushing. Zilla Panchayat, PRED, Mangalore Officials will have to submit compliance to conditions imposed during clearance of vented dam.

13. KSPCB to ensure Zero Liquid Discharge in all industries and establishment of ETP in all small scale industries irrespective of effluent quantity.

14. KSPCB has listed out few non-complying industries which are habituated to discharge into storm water drains in spite of some of them having the ETP units. Continuous monitoring of such non-complying industries followed by action as per law shall be initiated by KSPCB on priority.

15. KSPCB to take up strengthening of its laboratory at Mangaluru, adequate manpower to be deployed and upgrade the laboratory with advanced equipments.

Dr. Rajendra K.V., IAS
Deputy Commissioner,
Dakshina Kannada District
Chairman of the Joint Committee

Dr. Prabhu S., Scientist D
Representative nominated by
Regional Office, MOEF&CC, Bangalore
Member

Smt. Sowmya D., Scientist D.,
Representative nominated by
Regional Director,
Central Pollution Control Board, Bangalore
Member

Dr. Harish Kumar, Deputy Director
Representative nominated by The Director,
Department of Fisheries, Bangalore
Member

Smt. Vijaya Hegde
Senior Environmental Officer,
Zonal Office, KSPCB, Mangaluru
Member

Sri Ramesh K.M.
Environmental Officer,
KSPCB, Mangaluru
Member Convenor

ANNEXURE-1

Item No. 16 (Court No. 1)

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

(By Video Conferencing)

Original Application No. 307/2022

In re : News item published in The Hindu dated 26.04.2022 titled **"Flow of industrial effluents into Phalguni results in fish kill"**

Date of hearing: 29.04.2022

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE PROF. A. SENTHIL VEL, EXPERT MEMBER

ORDER

1. The matter has been put up in the light of captioned media report to the effect that hundreds of fishes were found dead and floating in Phalguni (Gurupura) river, downstream the Malavoor vented dam, following the flow of industrial and domestic effluent into the river. The administration has remained mute to the happening. The photographs in the media report suggest that color of the River has turned black due to the effluents released by the industries in Baikampady industrial area in Mangalore, Dakshina Kannada, Karnataka.

2. We have considered the matter. *Prima facie,* it appears that untreated effluents are being discharged in the river in question by the industries in the area, without any regulation by the concerned statutory authorities in violation of the Water (Prevention and Control of Pollution) Act, 1974.

3. Accordingly, it appears to be necessary to ascertain facts and ensure remedial action for enforcement of Rule of Law, protection of environment and bio-diversity. The stretch of Phalguni river may be treated as polluted river stretch for formulation and execution of restoration plan, defining timelines and budgetary backup. Field survey be conducted to identify sewage and industrial effluent entering into the said river. Target for restoration of water quality is required to be at level of Class B of Primary Water Quality Criteria.

4. We constitute a five-member joint Committee comprising of the Regional Officers of MoEF&CC and CPCB Bengaluru, State PCB, Director, Fisheries, Karnataka and District Magistrate, Dakshina Kannada District. The State PCB will be the nodal agency for coordination and compliance. The Committee may meet within two weeks and undertake visit to the site. It will be open to members of the Committee to participate online except for site visit. The Committee may interact with the stakeholders, ascertain the cause of the incident and suggest remedial measures. If polluters are identified, they may be put to notice so that they can file their response, if any, before this Tribunal. Based on the observations during the proceedings of the Committee, the statutory regulators may take remedial action, following due process of law. A factual and action taken report may be filed within two months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF with a copy to the identified polluters for their response.

List for further consideration on 01.08.2022.

A copy of this order be forwarded to the Regional Officers of MoEF&CC and CPCB Bengaluru, State PCB, Director, Fisheries,

Karnataka and District Magistrate, Dakshina Kannada District by email for compliance.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

Prof. A. Senthil Vel, EM

April 29, 2022
Original Application No. 307/2022
AB

ಫ್ಯಾಕ್ಸ್/Fax : 080-25586321
ಈಮೇಲ್/E-mail : ho@kspcb.gov.in
ವೆಬ್‌ಸೈಟ್/Website : http://kspcb.gov.in

☎ 25581383, 25589112
25588151, 25588270
25588142, 25586520

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
Karnataka State Pollution Control Board
"ಪರಿಸರ ಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ. 49, ಚರ್ಚ್ ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ, ಭಾರತ
"Parisara Bhavana", 1st to 5th Floor, # 49, Church Street, Bengaluru - 560 001, Karnataka, INDIA

No. KSPCB/NEIA-OB/06/NGT-285/22-2023/ 813 Date: 07 MAY 2022

ರವಾನಿಸಲಾಗಿದೆ

OFFICE MEMORANDUM

Sub: Constitution of Joint Committee in the matter of OA No. 307/2022 pertaining to the Flow of Industrial Effluent into Phalguni river resulting in Fish kill-reg.

Ref: The Hon'ble National Green Tribunal, Principal Bench, New Delhi order dated: 26.04.2022 in respect of OA No. **307/2022**

******

Preamble:

The Hon'ble National Green Tribunal, Principal Bench, New Delhi has passed an order Dated: 29.04.2022 in the light of the captioned media report to the effect that hundreds of fishes were found dead and floating in Phalguni (Gurupura) River, downstream the Malavoor vented dam, following the flow of industrial & domestic effluent into the river. The administration has remained mute to the happenings. The photographs in the media report suggest that colour of the River has turned black due to effluents released by the industries in Baikampady Industrial Area in Mangalore, Dakshina Kannada, Karnataka. Prima facia, it appears that untreated effluents are being discharged in the river in question by the industries in the area, without any regulation by the concerned statutory authorities in violation of the Water (Prevention & Control of Pollution) Act 1974.

In view of the above and its order cited under reference, the Hon'ble National Green Tribunal has constituted a five-member Joint Committee comprising of the following Officers of respective Departments with the State PCB will be the Nodal agency for co-ordination and compliance.

Sl. No.	Name & Designation	Details
1.	The District Magistrate, Dakshina Kannada District	**Chairman**
2.	Senior Officer/Scientist, Regional Office, Ministry of Environment, Forest & Climate Change, South Zone Office, E-3/240, Kendriya Sadan, Fourth Floor, E&F wings, 17th Main Road, 2nd Block, Koromangala, Bengaluru-560034.	**Member**
3.	Regional Director, Central Pollution Control Board, Nisarga Bhavan, BasaveshwaraNagar, Bengaluru-560010.	**Member**
4.	The Director, Department of Fisheries, Karnataka	**Member**
5.	The Zonal Senior Environmental Officer- KSPCB, Mangaluru.	**Member**
6.	The Environmental Officer, Regional Office –KSPCB, Mangaluru.	**Member Convener**

The stretch of Phalguni River may be treated as polluted river stretch for formulation & execution of restoration plan, defining timelines & budgetary backups. Field survey be conducted to identify sewage and industrial effluents entering into the said river. Target for restoration of water quality is required to be at level of Class B of Primary Water Quality Criteria.

The Committee shall inspect the area to ascertain as per the directions of NGT as mentioned below:

- The Committee may meet within two weeks, undertake visit to the site. It will be open to members of the Committee to participate online except for site visit.
- The committee may interact with the stakeholders, ascertain the cause of the incident and suggest remedial measures.
- If polluters are identified, they may be put to notice so that they can file their response, if any, before the Tribunal.
- Based on the observations during the proceedings of the Committee, the statutory regulators may take remedial actions, following due process of law.
- A factual & action taken report may be filled within two months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR support PDF and not in the form of Image PDF with a copy to the identified polluters for their response.

It is requested to nominate the Officers from your department to conduct inspection. The matter may be treated as '**Most Urgent**'. It is required to submit the **Joint Inspection report within the time stipulated by the Hon'ble Tribunal.**

Encl.: NGT order dated: 29.04.2022 **in respect of OA No. 307/2022 (PB).**

Draft Approved by Chairman

Sd/-
MEMBER SECRETARY

To,

1. The Deputy Commissioner,
   Dakshina Kannada District

2. Senior Officer/Scientist, Regional Office,
   Ministry of Environment, Forest & Climate Change,
   South Zone Office, E-3/240, Kendriya Sadan,
   Fourth Floor, E&F wings, 17th Main Road, 2nd Block,
   Koramangala, Bengaluru-560034.

3. The Secretary,
   Department of Fisheries, GOK ,
   IIIrd Floor Podium Block,
   Vishweshwaraiah Tower,
   Dr, Ambedkar Veedhi,
   Bengaluru- 560001, Mangalore.

4. Regional Director, Central Pollution Control Board,
   Nisarga Bhavan, BasaveshwaraNagar, B
   Bengaluru-560010.

5. The Zonal Senior Environmental Officer,
   Karnataka State Pollution Control Board, **Zonal Office,**
   Mangalore

6. The Environmental Officer, Regional Office -KSPCB, Mangaluru.

Copy to:

1. Deputy Director, Zilla Panchayat, Mangaluru for kind information and needful action.
2. Case File

SENIOR ENVIRONMENTAL OFFICER

KARNATAKA STATE POLLUTION CONTROL BOARD

No 10 B,Industrial Area Baikampady Mangalore 575011 Ph No: 0824-2408420

ANNEXURE 03

PCB/RO(MNG)/RW-64-69/2022-23/R No : 01

Date: 29/4/22

ANALYSIS REPORT OF WATER QUALITY
REGIONAL LABORATORY

NAME OF THE LOCATION :	M/s Gurupura water samples
SAMPLE COLLECTED BY :	EO, Mangaluru.
DATE OF COLLECTION :	25.04.2022
DATE OF RECEIPT :	25.04.2022
SAMPLE NO & PARTICULARS OF SAMPLE COLLECTED:	1.Back water of Gurupura collected near Kenjaru Guthu mane Kenjaru Mangalore(Back water of Gurupura river)(64) 2.Upstream of storm water drain which bfinally joins to Gurupura river back water near Kenjaru Guthu mane Kenjaru (Storm water drain)(65) 3.Downstream of storm water drain which finally joins to Gurupura river Back water near Kenjaru Guthu mane Kenjaru (Back water of river water)(66) 4.Back water collected at ELF gas industry Upstram centre of the bridge which finally joiuns to Gurupura river (Back water of Gurupura river) (67) 5.Back water collected near Thokur bridge which finally joins to Gurupura river back water near ELF gas industry(Back water of Gurupura river)(68) 6.Storm water collected nera Thokur railway bridge outlet of Bagundi lake which is finally joins to Gurupura river Back water near ELF gas industry (Back water of Gurupura river)(69)

Sl No.	Parameters Analysed	Unit	Standard *	Standard **	Results					
					Sample No.64	Sample No.65	Sample No.66	Sample No.67	Sample No.68	Sample No.69
1	pH	pH unit	6.5-8.5	5.5 - 9.0	**9.8**	7	**11**	7	7.4	6.7
2	Suspended Solids	mg/L	10	100	**336**	**112**	**134**	**34**	**20**	**16**
3	BOD (3 days @ 27 ^{0} C)	mg/L	10	30	**180**	**102**	**510**	**330**	**72**	**13**
4	COD	mg/L	50	250	**3954**	**4858**	**3608**	**3229**	**1052**	**104**
5	Ammoniacal Nitrogen	mg/L	5	50	**11**	**6**	**17**	**12**	**15**	**16**
6	TKN	mg/L	10	100	**16**	**12**	**20**	**15**	**19**	**20**
7	Free Ammonia	mg/L	_	5	**9.355**	0.0339	**16.706**	0.0679	0.2649	0.0906
8	Sulphide	mg/L	_	2	BDL	BDL	BDL	BDL	BDL	BDL
9	Dissolved Phosphate	mg/L	_	5	0.0729	BDL	0.1648	BDL	0.1424	BDL
10	Total Residual Chlorine	mg/L	_	1	BDL	BDL	BDL	BDL	BDL	BDL
11	Oil and Grease	mg/L	_	10	10	**12**	**22**	6	BDL	BDL
12	Total Dissolved Solids	mg/L	_	2100	**17480**	**17890**	**18204**	**12484**	**5840**	748

13	Sulphate	mg/L		1000	945	970	915	805	293	
14	Copper	mg/L		3	**5.94**	0.206	0.187	0.453	0.121	0.032
15	Total Choromium	mg/L		2	BDL	BDL	BDL	BDL	BDL	BDL
16	Cadmium	mg/L		2	BDL	BDL	BDL	BDL	BDL	BDL
17	Nickel	mg/L		3	0.321	0.311	0.482	0.145	0.111	0.054
18	Lead	mg/L		0.1	**0.366**	**0.897**	**1.245**	**0.477**	**0.356**	0.127
19	Zinc	mg/L		5	0.141	0.115	0.135	0.256	0.341	0.054
20	Iron	mg/L		3	0.958	1.055	0.477	0.746	1.029	0.868
21	Dissolved Oxygen	mg/L			**4**	**0.8**	**0.9**	**0.8**	**3.5**	**2.5**
INFERENCE										

Note: * Treated Sewage Standard ** Inland Surface Water

1. The above results pertain only to the sample tested.
2. The method of analysis is as per the Standard Method for the examination of Water and Waste Water, and Indian Standard Publication.
3. ND: Not detected.
4. BDL: Below detection limit

Scientific Assistant
ANALYSED BY

Scientific Assistant
VERIFIED BY

Scientific Officer
LAB HEAD

OneEarth Enviro Labs

1st Floor, KSIA Building, Industrial Area Road, Baikampady,
Mangaluru - 575 011. Ph: 0824-240 9011 Mob: +91 87625 39077
Email: oneearthenviro@gmail.com Website: oneearthenvirolabs.com

OEL/MNG/TC-7847

Certificate No. TC-7847

NABL ISO/IEC 17025:2017

ISO 9001:2015 | ISO 45001:2018 Certified | MOEF & CC RECOGNISED

Report No: W/2021/AP2903
Report Date 03-05-2022

WATER QUALITY ANALYSIS REPORT

Name of the Industry	M/s. Karnataka State Pollution Control Board		
Address	Parisara Bhavana ,10B Baikampady Industrial Area Mangalore-11		
Sample Collected By	Given By the User	Method	--
Sampling Location	River Water of Gurupura collected near old sand extraction area up stream of Kuloor bridge Mangaluru		
Sample Appearance	Clear		
Date of Sampling	29-04-2022	Analysis Start Date	29-04-2022
Date of Sample Receipt	29-04-2022	Analysis End Date	03-05-2022
Sampling Details	River Water Sample for Micro Biological Analysis		

Parameter	Unit	IS 10500-2012 STD PL (MAX)	Results Code:AP2903	Protocol APHA 2017 23rd Edition
Fecal Coliforms MPN	MPN/100ml	A	920	9221E
Fecal Streptococcus MFT	CFU/50ml	NS	60	9230C
Total Coliforms MPN	MPN/100ml	A	920	9221-B

PL-Permissible Limit Std-Standard P-Present A-Absent < 1.8: Shall be treated as – ve

Opinion	Microbial load is abondant.

*** End of the Report ***

One Earth Enviro Labs PHONE 2409011 Mangaluru - 575 011

For OneEarth Enviro Labs

Authorised Signatory
(Dr. Sandesh K, Technical Manager)

Note: 1.The report shall not be reproduced wholly or in part, cannot be used as evidence in court of law. 2. The above result pertains only to the samples collected/received. 3. Samples will be destroyed after fifteen days from the date of issue of test reports unless otherwise specified. Perishable samples are not retained. 4. Any dispute arising out of this test report is subjected to Mangalore Jurisdiction only. 5. Total liability of our lab is limited to the invoice amount only. 6. Conformity statement might be affected due to measurement uncertainty.

OneEarth Enviro Labs

1st Floor, KSIA Building, Industrial Area Road, Baikampady,
Mangaluru - 575 011. Ph: 0824-240 9011 Mob: +91 87625 39077
Email: oneearthenviro@gmail.com Website: oneearthenvirolabs.com

Certificate No. TC-5473/00
NABL ISO/IEC 17025:2017

ISO 9001:2015 | ISO 45001:2018 Certified | MOEF & CC RECOGNISED

Report No: W/2021/AP2904
Report Date 03-05-2022

WATER QUALITY ANALYSIS REPORT

Name of the Industry	M/s. Karnataka State Pollution Control Board		
Address	Parisara Bhavana ,10B Baikampady Industrial Area Mangalore-11		
Sample Collected By	Given By the User	Method	--
Sampling Location	River Water of Gurupura collected near Boating pint downstream of Kuloor bridge Mangaluru		
Sample Appearance	Clear		
Date of Sampling	29-04-2022	Analysis Start Date	29-04-2022
Date of Sample Receipt	29-04-2022	Analysis End Date	03-05-2022
Sampling Details	River Water Sample for Micro Biological Analysis		

Parameter	Unit	IS 10500-2012 STD PL (MAX)	Results Code:AP2904	Protocol APHA 2017 23rd Edition
Fecal Coliforms MPN	MPN/100ml	A	350	9221E
Fecal Streptococcus MFT	CFU/50ml	NS	70	9230C
Total Coliforms MPN	MPN/100ml	A	350	9221-B

PL-Permissible Limit Std-Standard P-Present A-Absent < 1.8: Shall be treated as – ve

Opinion	Microbial load is moderate.

*** End of the Report ***

For OneEarth Enviro Labs

Authorised Signatory
(Dr. Sandesh K, Technical Manager)

OneEarth Enviro Labs

1st Floor, KSIA Building, Industrial Area Road, Baikampady,
Mangaluru - 575 011. Ph: 0824-240 9011 Mob: +91 87625 39077
Email: oneearthenviro@gmail.com Website: oneearthenvirolabs.com

OEL/W/F/13/00
Certificate No. TC-7847
NABL ISO/IEC 17025:2017

ISO 9001:2015 | ISO 45001:2018 Certified | MOEF & CC RECOGNISED

Report No: W/2022/AP2902
Report Date 03-05-2022

WATER QUALITY ANALYSIS REPORT

Name of the Industry	M/s. Karnataka State Pollution Control Board		
Address	Parisara Bhavana ,10B Baikampady Industrial Area Mangalore-11		
Sample Collected By	Given By the User	Method	--
Sampling Location	**Back Water collected at ELF gas industry Up stream centre of the bridge which finally joins to Gurupura River Back Water**		
Sample Appearance	Clear		
Date of Sampling	29-04-2022	Analysis Start Date	29-04-2022
Date of Sample Receipt	29-04-2022	Analysis End Date	03-05-2022
Sampling Details	River Water Sample for Micro Biological Analysis		

Parameter	Unit	IS 10500-2012 STD PL (MAX)	Results Code:AP2902	Protocol APHA 2017 23rd Edition
Fecal Coliforms MPN	MPN/100ml	A	>1600	9221E
Fecal Streptococcus MFT	CFU/50ml	NS	40	9230C
Total Coliforms MPN	MPN/100ml	A	>1600	9221-B

PL-Permissible Limit Std-Standard P-Present A-Absent < 1.8: Shall be treated as – ve

Opinion	Microbial load is abondant.

*** End of the Report ***

11 MAY 2022

One Earth Enviro Labs PHONE 2409011 Mangaluru - 575 011

For OneEarth Enviro Labs

Authorised Signatory
(Dr. Sandesh K, Technical Manager)

केन्द्रीय समुद्री मात्स्यिकी अनुसंधान संस्थान
(भारतीय कृषि अनुसंधान परिषद)
CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
(Indian Council of Agricultural Research)
मंगलूर अनुसंधान केन्द्र, पो.बॉ.सं. 244, होइगे बजार,
मंगलूर - 575 001, कर्नाटक, भारत
Mangalore Research Centre, Post Box No. 244, Hoige Bazar,
Mangalore - 575 001, Karnataka State, India

No. /2-14/461/2018(M)

Dr. Prathibha Rohit
Principal Scientist and Scientist-in-Charge

No.

Date: 31 May 2018

To,

The Deputy Commissioner,
Dakshina Kannada District
Mangaluru-576001

Dear Sir,

Sub. Pollution of Gurupur estuary at downstream portion of Marvoor Dam reg.

Ref. i. CMFRI letter no,. 12-14/399/18 (M) date 9 May 2018

With reference to the above mentioned subject and letter, a detailed report of the analysis carried out is attached herewith for your information.

Yours Sincerely,

Prathibha

Scientist-In-Charge
प्रभारी वैज्ञानिक
SCIENTIST - IN - CHARGE

cc. i. Karnataka State Pollution Control Board
ii. The Deputy Director, Department of Fisheries, Mangaluru

EO. KSCB/CRZ Vio
To discuss the contents of the report

4. Conclusion

Large-scale hydrological alterations on land, such as river damming could cause reductions in river water inputs to downstream and to the sea.

The results of the analysis of this study indicated the following:

- The depth of water at the sampling stations ranged from ranged from 0.6 to 5.63 m
- The bottom water salinity was significantly higher than salinity in surface waters. The relatively lower salinity in the surface waters may be attributed to the rainfall. However, the pronounced stratification near the dam (stn.1-3) may also indicate minimal mixing.
- There was significant variation between the dissolved oxygen levels in the surface and bottom waters. Low DO values were recorded in bottom waters near the dam site (stn.1). The oxidation reduction potential in all stations were <200 mV during the sampling time, corroborating the reduced DO levels.
- The silicate content in the upstream water was higher than the levels recorded in the downstream stations. This may be due to damming of the river, which could cause reductions in river water inputs to downstream. All nutrients (nitrogen, phosphorus, and silicon) may get trapped in reservoirs behind dams.
- Nitrate is a common contaminant in water sources and in excess can contribute to the eutrophication of water. The higher levels of total suspended solids content; chlorophyll concentration and phytoplankton diversity in stn.4 indicates higher primary production or algal blooms in the Baikampady Industrial area. The reduction in nitrate and bottom water phosphate levels and the increase in organic carbon content, benthic biomass and biochemical oxygen demand in this station further corroborates these findings.
- The presence of relatively higher numbers of dead gastropod shells near the dam (stn.1); reduced organic carbon content in sediment; reduced chlorophyll content and TSS; reduced bottom water DO and pH may also indicate the reduced inflow from the river as well as reduced flushing of this area with the estuarine waters during the high tide.

- Higher bacterial loads were recorded in case of bottom water in stn.1 and stn.2, which are located in close proximity to the Malavoor Dam. The presence of *E. coli* all along the sampling area (except in stn.2) indicates the possibility of sewage pollution in the estuary.
- The present one-time water quality investigation of the Malavoor (Maravoor) Dam in Gurupura River undertaken by ICAR-CMFRI, Mangalore Research Centre indicated that all parameters monitored were well within the acceptable limits and therefore conducive for fish survival. However, at stns.4 and 5 the BOD and chlorophyll *a* levels were higher. A higher density of phytoplankton was also observed in these two stations indicating eutrophication.
- Further conclusions on the reasons that could have led to fish kill during May 2017 can be suggested only through regular monitoring of the Malavoor downstream area and on receipt of information on the bathymetry of the area as well as the Environmental Impact Assessment reports from the concerned departments.

ANNEXURE-6

Proceedings of the Meeting held with Committee Members of Gurupura River water Quality Monitoring Committee and invitees on 16 .05.2022 at 3.30 PM, 3rd floor DC office Court hall

****

Presiding Officer/ Chairman to the Meeting		**Dr. Rajendra K.V., IAS** Deputy Commissioner, Dakshina Kannada District
INVITEES PRESENT IN THE MEETING		
1	Akshy Shridhar	Commissioner
2	Dr. B.N Dodamani	Professor, Water Resource and Ocean Engineering, Department, NITK
3	Dr. Bindu Sulochan	Principal Scientist, CMFRI
4	Dr. Lakshmipathi	Professor, College of Fisheries, Mangalore
MEMBERS OF THE COMMITTEE PRESENT IN THE MEETING		
1	Prof: G. Srinikethan,	Director Research, Nitte
2	Dr. Shivakumar	Dean College of Fisheries,Mangalore
3	Sri Harish Kumar	Joint Director, Department of Fisheries, Mangalore
4	Sri Gokuldas Nayak	Joint Director, DIC Mangaluru
5	Sri G. Narendra Babu	Executive Engineer, RAWS Division
6	Sri K. Keerthi Kumar	Environmental Officer, KSPCB, RO-Mangalore
7	Sri Dayanand Anil Poojari	Environmental Engineer, Mangaluru City Corporation
8	Sri Vishnu Kamath	AEE, Minor Irrigation Sub-division, Mangalore
9	Sri Isaac Vas	President, Karnataka Small Scale Industries Association, Baikampady
10	Sri Ashok	Secretary, Grama Panchayath-Gurupura
OTHER OFFICERS/INVITEES PRESENT		
1	Sri Mahesh Kumar	Deputy Director- Fisheries present on behalf of RD-CRZ
2	Sri Chandrashekhar	Executive Engineer, KUWS & DB
3	Sri Prasanna Kumar A	AEE, KUWS & DB
4	Dr. Maheshwari Singh	Deputy Environmental Officer, KSPCB,RO-Mangalore
5	Sri Janardhan Naik	AE, KIADB
6	Smt. Poornakala YK	Chief Officer, Bajpe
7	Sri Ajith	KIA, Past President, KIA

8	Sri Robin Joes	Joint Secretary, KIA
9	Sri Guruprasad K.	Member, KIA
10	Sri Jithendra Bathala	Senior Manager, (HSE), MRPL
	MEMBERS ABSENT FOR THE MEETING	
1	Tahsildar, Mangaluru	
2	President Grama Panchayath Maravooru	
3	Panchayath Development Officer-Gurupura Village	

Preamble: Based on public compliant alleging contamination in Maravooru vented dam downstream committee was formed in 2017 for monitoring of river water quality under the Chairmanship of Deputy Commissioner, Dakshina Kannada. Recently, there was fish kill and blackening of river fish kill at Kenjar Guttumane, Bajpe, Mangalore Taluk, Dakshina Kannada District due to alleged discharge of industrial effluent and sewage effluent which was also reported in The Hindu Newspaper on 26.04.2022.

Further, The Hon'ble National Green Tribunal, Principal Bench, New Delhi has passed Orders vide OA No.307/2022 dated:29.04.2022 where in five-member joint Committee consisting of RO MoEF & CC Bengaluru, CPCB, State PCB, District Magistrate and Secretary, Fisheries, Karnataka was formed to investigate and submit the report on this incident.

In view of recurrence of fish kill and blackening part of river and Suo-moto NGT case, the meeting of committee constituted by Deputy Commissioner, Dakshina Kannada vide No.Edis/MSC (2) CR 771/E-22679/2017/D6 dt: 18.12.2017 along with other concerned departments and technical experts was called on 16 .05.2022 at 3.30 PM, 3rd floor DC office Court hall.

During the meeting, Deputy Commissioner first sought the background of Committee formation of Gurupura river. Prof G. Srinikethan, member of the committee briefed about the background of committee formation and previous similar incidence of Gurupura (Phalguni) river blackening and fish kill incidence. After detailed discussion with the technical experts and concerned department officials, Deputy Commissioner gave the following directions:

1. The technical experts of the committee along with the other officials have to visit and identify non-point sources of waste water (sewage, sullage, industrial effluent any other waste water) joining the Gurupura river to take the solid action plan prevent the pollution of Gurupura river.
2. Deputy Commissioner informed that he would again visit the major identified non-point sources which are joining the Gurupura river along with the committee members.
3. KSPCB to identify the industries who are discharging Sewage, sullage, effluent outside the industry premises **(Action: KSPCB)**
4. To submit the present sewage and solid waste management status by Jokatte Grama Panchayath, Gurupura Gram Panchayath, Bajpe TP **(Action: PDO-Jokatte Grama Panchayath, Gurupura Gram Panchayath, Chief Officer-Bajpe TP)**
5. To submit the action taken/proposal of installation of Common STP to Baikampady Industrial Area and Solid waste Management by MCC and KIADB **(Action: Development Officer KIADB & Commissioner MCC)**
6. Not to allow any industries to discharge the untreated/treated effluent to the Backwater **(Action: KSPCB)**
7. To identify and submit the report on list of godowns, hotels, commercial establishments, hostel, labour sheds those who are discharging sewage/sullage outside the premises **(Action: Development Officer KIADB).**
8. To identify and submit the encroachment details of Backwater of Gurupura river due to which natural flushing is hampered **(Action: RD, CRZ, Revenue Department)**
9. To finalize the points to install the CCTV cameras at vulnerable points non-point source pollution **(Action: KIADB, KASIA & KSPCB)**

COMMITTEE CHAIRMAN &
DEPUTY COMMISSIONER
DAKSHINA KANNADA DISTRICT

KARNATAKA STATE POLLUTION CONTROL BOARD

No 10 B,Industrial Area Baikampady Mangalore 575011 Ph No: 0824-2408420

PCB/RO(MNG)/SW-155-157/2022-23/R No : 70

Date: 15/06/2022

ANALYSIS REPORT OF WATER QUALITY
REGIONAL LABORATORY

NAME OF THE LOCATION :	Storm water drain samples, joining at Back water of Gurupura River, Mangaluru
SAMPLE COLLECTED BY :	EO, Mangaluru.
DATE OF COLLECTION :	26.05.2022
DATE OF RECEIPT :	26.05.2022
SAMPLE NO & PARTICULARS OF SAMPLE COLLECTED:	1.Storm water drain joining at Back water of Gurupur River at Kulur Bridge, Mangaluru (155) 2.Storm water drain joining at Back water of Gurupur River at Padukodi Church, Mangaluru (156) 3.Storm water drain joining at Back water of Gurupur River at Total Gas Indy Bridge, Mangaluru (157)

Sl No.	Parameters Analysed	Unit	Results		
			Sample No.155	Sample No.156	Sample No.157
1	pH	pH unit	7.3	7.2	7.5
2	Suspended Solids	mg/L	54	14	10
3	BOD (3 days @ 27 ^{0} C)	mg/L	7	7	5
4	Ammoniacal Nitrogen	mg/L	2	BDL	BDL
5	TKN	mg/L	4	BDL	BDL
6	Free Ammonia	mg/L	0.0353	BDL	BDL
7	Sulphide	mg/L	BDL	BDL	BDL
8	Dissolved Phosphate	mg/L	BDL	BDL	BDL
9	Total Residual Chlorine	mg/L	BDL	BDL	BDL
10	Oil and Grease	mg/L	BDL	BDL	BDL
11	Total Dissolved Solids	mg/L	4330	3784	1186
12	Sulphate	mg/L	639	565	168
13	Copper	mg/L	BDL	BDL	BDL
14	Total Choromium	mg/L	BDL	BDL	BDL
15	Cadmium	mg/L	BDL	BDL	BDL
16	Nickel	mg/L	BDL	BDL	BDL
17	Lead	mg/L	BDL	BDL	BDL
18	Zinc	mg/L	0.106	0.044	0.119
19	Iron	mg/L	0.192	0.112	0.1192
20	Dissolved Oxygen	mg/L	4.4	4.8	5.4
INFERENCE					

Note:

1. The above results pertain only to the sample tested.
2. The method of analysis is as per the Standard Method for the examination of Water and Waste Water, and Indian Standard Publication.
3. ND: Not detected.
4. BDL: Below detection limit
5. COD was not carried out due to high interference from Chloride

Scientific Assistant
ANALYSED BY

Scientific Assistant
VERIFIED BY

Scientific Officer
LAB HEAD

KARNATAKA STATE POLLUTION CONTROL BOARD

No 10 B,Industrial Area Baikampady Mangalore 575011 Ph No: 0824-2408420

PCB/RO(MNG)/RW-152-154/2022-23/R No : 69

Date: 15/06/2022

ANALYSIS REPORT OF WATER QUALITY
REGIONAL LABORATORY

NAME OF THE LOCATION :	Storm water drain samples, joining at Back water of Gurupura River, Mangaluru
SAMPLE COLLECTED BY :	EO, Mangaluru.
DATE OF COLLECTION :	26.05.2022
DATE OF RECEIPT :	26.05.2022
SAMPLE NO & PARTICULARS OF SAMPLE COLLECTED:	1.Storm water drain joining at Back water of Gurupur River at Bunder, Kudroli Mangaluru (152) 2.Storm water drain joining at Back water of Gurupur River at Skate City Point, Boloor, Mangaluru (153) 3.Storm water drain joining at Back water of Gurupur River at Dambel, Mangaluru (154)

Sl No.	Parameters Analysed	Unit	Results		
			Sample No.152	Sample No.153	Sample No.154
1	pH	pH unit	7.5	7.1	7.4
2	Suspended Solids	mg/L	20	12	10
3	BOD (3 days @ 27 ^{0} C)	mg/L	12	15	13
4	Ammoniacal Nitrogen	mg/L	2	3	2
5	TKN	mg/L	4	6	5
6	Free Ammonia	mg/L	0.0353	0.053	0.0353
7	Sulphide	mg/L	BDL	BDL	BDL
8	Dissolved Phosphate	mg/L	0.0513	BDL	BDL
9	Total Residual Chlorine	mg/L	BDL	BDL	BDL
10	Oil and Grease	mg/L	BDL	BDL	BDL
11	Total Dissolved Solids	mg/L	16106	10794	9618
12	Sulphate	mg/L	1700	1264	1012
13	Copper	mg/L	0.068	0.023	BDL
14	Total Choromium	mg/L	BDL	BDL	BDL
15	Cadmium	mg/L	BDL	BDL	BDL
16	Nickel	mg/L	0.038	0.027	0.019
17	Lead	mg/L	BDL	BDL	BDL
18	Zinc	mg/L	0.616	0.163	0.095
19	Iron	mg/L	0.439	0.29	0.257
20	Dissolved Oxygen	mg/L	3.2	2.1	3.2
INFERENCE					

Note:

1. The above results pertain only to the sample tested.
2. The method of analysis is as per the Standard Method for the examination of Water and Waste Water, and Indian Standard Publication.
3. ND: Not detected. 4. BDL: Below detection limit
5. COD was not carried out due to high interference from Chloride

Scientific Assistant
ANALYSED BY

Scientific Assistant
VERIFIED BY

Scientific Officer
LAB HEAD

OneEarth Enviro Labs

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Certificate No. TC-7847
NABL ISO/IEC 17025:2017
OEL/W/F/13/00

ISO 9001:2015 | ISO 45001:2018 Certified | MOEF & CC RECOGNISED

Report No: W/2022/MY2604B
Report Date 28-05-2022

WATER QUALITY ANALYSIS REPORT

Name of the Industry	M/s. Karnataka State Pollution Control Board		
Address	Parisara Bhavana ,10B Baikampady Industrial Area Mangalore-11		
Sample Collected By	Given By the User		
Sampling Location	Storm water drain joining point at Backwater of Gurupur River at Bunder,Kudroli,Mangaluru	Method	--
Sample Appearance	Clear		
Date of Sampling	26-05-2022		
Date of Sample Receipt	26-05-2022	Analysis Start Date	26-05-2022
Sampling Details	River Back Water Sample for Micro Biological Analysis	Analysis End Date	28-05-2022

Parameter	Unit	IS 10500-2012 STD PL (MAX)	Results Code:MY2604	Protocol APHA 2017 23rd Edition
Fecal Coliforms MPN	MPN/100ml	A	>1600	9221E
Fecal Streptococcus MFT	CFU/100ml	NS	80	9230C
Total Coliforms MPN	MPN/100ml	A	>1600	9221-B

PL-Permissible Limit Std-Standard P-Present A-Absent < 1.8: Shall be treated as – ve

Opinion	Microbial load is abundant.

*** End of the Report ***

One Earth Enviro Labs PHONE 2409011 Mangaluru - 575 011

For OneEarth Enviro Labs

Authorised Signatory
(Dr. Sandesh K, Technical Manager)

Note: 1.The report shall not be reproduced wholly or in part, cannot be used as evidence in court of law. 2. The above result pertains only to the samples collected/received. 3. Samples will be destroyed after fifteen days from the date of issue of test reports unless otherwise specified. Perishable samples are not retained. 4. Any dispute arising out of this test report is subjected to Mangalore Jurisdiction only. 5. Total liability of our lab is limited to the invoice amount only. 6. Conformity statement might be affected due to measurement uncertainty.

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Report No: W/2022/MY2605B
Report Date 28-05-2022

WATER QUALITY ANALYSIS REPORT

Name of the Industry	M/s. Karnataka State Pollution Control Board		
Address	Parisara Bhavana ,10B Baikampady Industrial Area Mangalore-11		
Sample Collected By	Given By the User	Method	--
Sampling Location	Storm water drain joining at Backwater of Gurupur river at Skate City Point,Boloor,Ashoknagar		
Sample Appearance	Clear		
Date of Sampling	26-05-2022		
Date of Sample Receipt	26-05-2022	Analysis Start Date	26-05-2022
Sampling Details	River Back Water Sample for Micro Biological Analysis	Analysis End Date	28-05-2022

Parameter	Unit	IS 10500-2012 STD PL (MAX)	Results Code:MY2605	Protocol APHA 2017 23rd Edition
Fecal Coliforms MPN	MPN/100ml	A	>1600	9221E
Fecal Streptococcus MFT	CFU/100ml	NS	62	9230C
Total Coliforms MPN	MPN/100ml	A	>1600	9221-B

PL-Permissible Limit Std-Standard P-Present A-Absent < 1.8: Shall be treated as – ve

Opinion	Microbial load is abundant.

*** End of the Report ***

For OneEarth Enviro Labs

One Earth Enviro Labs PHONE 2409011 Mangaluru - 575 011

Authorised Signatory
(Dr. Sandesh K, Technical Manager)

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Report No: W/2022/MY2606B
Report Date 28-05-2022

WATER QUALITY ANALYSIS REPORT

Name of the Industry	M/s. Karnataka State Pollution Control Board		
Address	Parisara Bhavana ,10B Baikampady Industrial Area Mangalore-11		
Sample Collected By	Given By the User	Method	--
Sampling Location	Storm water drain joining point at Backwater of Gurupur River at Dambel,Mangaluru		
Sample Appearance	Clear		
Date of Sampling	26-05-2022	Analysis Start Date	26-05-2022
Date of Sample Receipt	26-05-2022	Analysis End Date	28-05-2022
Sampling Details	River Back Water Sample for Micro Biological Analysis		

Parameter	Unit	IS 10500-2012 STD DL (MAX)	Results Code:MY2606	Protocol APHA 2017 23rd Edition
Fecal Coliforms MPN	MPN/100ml	A	>1600	9221E
Fecal Streptococcus MFT	CFU/100ml	NS	65	9230C
Total Coliforms MPN	MPN/100ml	A	>1600	9221-B

PL-Permissible Limit Std-Standard P-Present A-Absent < 1.8: Shall be treated as – ve

Opinion	Microbial load is abundant.

*** End of the Report ***

For OneEarth Enviro Labs

OneEarth Enviro Labs PHONE 2409011 Mangaluru - 575 011

Authorised Signatory
Dr. Sandesh K, Technical Manager

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Report No: W/2022/MY2607B
Report Date 28-05-2022

WATER QUALITY ANALYSIS REPORT

Name of the Industry	M/s. Karnataka State Pollution Control Board		
Address	Parisara Bhavana ,10B Baikampady Industrial Area Mangalore-11		
Sample Collected By	Given By the User	Method	--
Sampling Location	Storm water drain joining at Backwater of Gurupur River at Kulur Bridge		
Sample Appearance	Clear		
Date of Sampling	26-05-2022		
Date of Sample Receipt	26-05-2022	Analysis Start Date	26-05-2022
Sampling Details	River Back Water Sample for Micro Biological Analysis	Analysis End Date	28-05-2022

Parameter	Unit	IS 10500-2012 STD DL (MAX)	Results Code:MY2607	Protocol APHA 2017 23rd Edition
Fecal Coliforms MPN	MPN/100ml	A	>1600	9221E
Fecal Streptococcus MFT	CFU/100ml	NS	74	9230C
Total Coliforms MPN	MPN/100ml	A	>1600	9221-B

PL-Permissible Limit Std-Standard P-Present A-Absent < 1.8: Shall be treated as – ve

Opinion	Microbial load is abundant.

*** End of the Report ***

One Earth Enviro Labs PHONE 2409011 Mangaluru - 575 011

For OneEarth Enviro Labs

Authorised Signatory
(Dr. Sandesh K, Technical Manager)

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Report No: W/2022/MY2608B
Report Date 28-05-2022

WATER QUALITY ANALYSIS REPORT

Name of the Industry	M/s. Karnataka State Pollution Control Board		
Address	Parisara Bhavana ,10B Baikampady Industrial Area Mangalore-11		
Sample Collected By	Given By the User	Method	--
Sampling Location	Storm water drain joining at Backwater of Gurupur River at Padukodi Church,Mangaluru		
Sample Appearance	Clear		
Date of Sampling	26-05-2022	Analysis Start Date	26-05-2022
Date of Sample Receipt	26-05-2022	Analysis End Date	28-05-2022
Sampling Details	River Back Water Sample for Micro Biological Analysis		

Parameter	Unit	IS 10500-2012 STD PL (MAX)	Results Code:MY2608	Protocol APHA 2017 23rd Edition
Fecal Coliforms MPN	MPN/100ml	A	>1600	9221E
Fecal Streptococcus MFT	CFU/100ml	NS	63	9230C
Total Coliforms MPN	MPN/100ml	A	>1600	9221-B

PL-Permissible Limit Std-Standard P-Present A-Absent < 1.8: Shall be treated as – ve

Opinion	Microbial load is abundant.

*** End of the Report ***

For OneEarth Enviro Labs

OneEarth Enviro Labs PHONE 2409011 Mangaluru - 575 011

Authorised Signatory
(Dr. Sandesh K, Technical Manager)

Note: 1.The report shall not be reproduced wholly or in part, cannot be used as evidence in court of law. 2. The above result pertains only to the samples collected/received. 3. Samples will be destroyed after fifteen days from the date of issue of test reports unless otherwise specified. Perishable samples are not retained. 4. Any dispute arising out of this test report is subjected to Mangalore Jurisdiction only. 5. Total liability of our lab is limited to the invoice amount only. 6. Conformity statement might be affected due to measurement uncertainty.

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Report No: W/2022/MY2609B

Report Date 28-05-2022

WATER QUALITY ANALYSIS REPORT

Name of the Industry	M/s. Karnataka State Pollution Control Board		
Address	Parisara Bhavana ,10B Baikampady Industrial Area Mangalore-11		
Sample Collected By	Given By the User	Method	--
Sampling Location	Storm water drain joining at Backwater of Gurupur River at Total Gas Industry Bridge.		
Sample Appearance	Clear		
Date of Sampling	26-05-2022	Analysis Start Date	26-05-2022
Date of Sample Receipt	26-05-2022	Analysis End Date	28-05-2022
Sampling Details	River Back Water Sample for Micro Biological Analysis		

Parameter	Unit	IS 10500-2012 STD PL (MAX)	Results Code:MY2609	Protocol APHA 2017 23rd Edition
Fecal Coliforms MPN	MPN/100ml	A	>1600	9221E
Fecal Streptococcus MFT	CFU/100ml	NS	88	9230C
Total Coliforms MPN	MPN/100ml	A	>1600	9221-B

PL-Permissible Limit Std-Standard P-Present A-Absent < 1.8: Shall be treated as – ve

Opinion	Microbial load is abundant.

*** End of the Report ***

For OneEarth Enviro Labs

One Earth Enviro Labs PHONE 2409011

Authorised Signatory
(Dr. Sandesh K, Technical Manager)

ANNEXURE-8

Proceedings of the Meeting of the Joint Committee along with members of Gurupura River Monitoring Committee and other officials/Invitees in the matter of NGT OA No. 307/2022 pertaining to the flow of industrial/sewage effluent into Phalguni River resulting in fish kill on 08 .06.2022 at 12.30 PM, NIC Hall, ZP Office.

****

Presiding Officer/ Chairman to the Committee		**Dr. Rajendra K.V., IAS** Deputy Commissioner, Dakshina Kannada District
Members of Joint Committee appointed by NGT in the matter of OA 307/2022		
1. Dr. S. Prabhu, Scientist D., **(Joined through VC)**		Scientist D., Ministry of Environment, Forest & Climate Change, Integrated Regional Office, Bengaluru.
2. Smt. Sowmya D., Scientist 'D',		Regional Directorate, Central Pollution Control Board,1st Floor, "Nisarga Bhawan",7 C Main, Thimmaiah Road, Shivanagar, Bengaluru-560 010
3. Smt. Vijaya Hegde, Senior Environmental Officer **(Joined through VC)**		Zonal Senior Environmental Officer, Karnataka State Pollution Control Board, Mangaluru, D.K
4. Sri K. Keerthi Kumar Environmental Officer, KSPCB, RO-Mangalore		Member Convenor
INVITEES PRESENT IN THE MEETING		
1	Dr. Prathibha Rohith	Principal Scientist and Head, CMFRI
2	Dr. B.N Doddamani	Professor, Water Resource and Ocean Engineering, Department, NITK
3	Dr. Bindu Sulochan	Principal Scientist, CMFRI
MEMBERS OF THE GURUPURA RIVER MONITORING COMMITTEE PRESENT IN THE MEETING		
1	Prof: G. Srinikethan,	Director Research, Nitte
2	Sri Gokuldas Nayak	Joint Director, DIC Mangaluru
3	Sri G. Narendra Babu	Executive Engineer, RAWS Division
4	Sri Gokuldas	EE, Minor Irrigation Sub-division, Mangalore
5	Smt. Deepthi	Assistant Executive Engineer (Env), Mangaluru City Corporation
6	Sri Isaac Vas	President, Karnataka Small Scale Industries Association, Baikampady
OTHER OFFICERS/INVITEES PRESENT		
1	Sri Ganeshan R.	Deputy Commissioner- Development, MCC
2	Sri Shivalingappa M.N	AEE, MCC

3	Sri Mahesh Kumar	Deputy Director- Fisheries present on behalf of RD-CRZ
4	Smt. Manjulashree	Assistant Director, Dept. of Fisheries, Mangalore
5	Dr. Maheshwari Singh	Deputy Environmental Officer, KSPCB,RO-Mangalore
6	Smt. Poornakala Y.K.	Chief Officer, Bajpe
	MEMBERS/INVITEES ABSENT FOR THE MEETING	
1	**The Director of fisheries is yet to depute concerned member from Joint Committee**	
2	Dean Fisheries, Mangalore	
3	Tahsildar, Mangaluru	
4	President Grama Panchayath Maravooru	
5	Panchayath Development Officer-Gurupura Village	

Preamble:

Hon'ble NGT, Principal Bench, New Delhi has passed an order OA No:307 of 2022 dated: 29.04.2022 based on the **"News item published in The Hindu dated 26.04.2022 titled "Flow of industrial effluents into Phalguni results in fish kill"** which ***reported as "hundreds of fishes were found dead and floating in Phalguni (Gurupura) river, downstream the Maravooru vented dam, following the flow of industrial and domestic effluent into the river. The administration has remained mute to the happening. The photographs in the media report suggest that colour of the river has turned black due to the effluents released by the industries in Baikampady industrial area in Mangalore, Dakshina Kannada, Karnataka".***

Hon'ble NGT considered the matter. Prima facie, it appears that untreated effluents are being discharged in the river in question by the industries in the area, without any regulation by the concerned statutory authorities in violation of the Water (Prevention and Control of Pollution) Act, 1974.

Hon'ble NGT, Principal Bench, New Delhi constituted joint committee comprising of the Regional Officers of MoEF&CC and CPCB Bengaluru, State PCB, Director, Fisheries, Karnataka and District Magistrate, Dakshina Kannada District. Hence, a joint Committee consisting of above members were constituted by Board Office vide Office Memorandum No. KSPCB/NEIA-OB/NGT-307/22-2023/813 dated: 07.05.2022. First meeting of the Joint Committee along with members of Gurupura River Water Quality Monitoring Committee was held on 08.06.2022 at 1rd

Floor NIC Hall, Zilla Panchayath Office, Mangalore D.K District under the Chairmanship of Deputy Commissioner, Dakshina Kannada District.

During the meeting, Deputy Commissioner sought the details on progress made by the based on the proceedings of meeting conducted under the Chairmanship of Deputy Commissioner on 16.05.2022. **To this, Prof G. Srinikethan, member of the committee briefly presented the progress made so far which is reported as follows:**

1. Internal Meeting of Committee members to discuss on further action plan was held at Regional Office, Mangalore on 21.05.2022. Based on the discussion, it was decided to obtain the maps of land use, land cover, drainage pattern and location sketches of Gurupura river area from NRDM ZP Office and KRSSAC, Bangalore, Accordingly, the maps were obtained by KSPCB from concerned Departments.
2. The Gurupura river water quality monitoring Committee members with other officials conducted the spot inspection on 26-05-2022 by Boat and by Road to identify point/ non-point sources which causes pollution.
3. Basically, the fish kill occurred in two stagnant water ponds where there was no flushing from Phalguni River. At the outset, it appears that lack of adequate water flow, high organic load and also high temperature of the summer might have resulted in depletion of oxygen causing the probable death of small fishes and the extent of impact is minimal (i.e., at area of two small stagnated water pool at Storm water drain). Fish kill was not observed in the Gurupura (Phalguni) river.
4. Deputy Commissioner was informed that earlier also there was a similar fish kill incident happened in 2017 and a committee was formed in the year 2017 for monitoring of river water quality and suggest appropriate actions to DC for maintaining good water quality.
5. At the stretch from Back Water (creek) near ELF Gas Industry, the colour of water was light black by physical observation on 25.04.2022 during inspection by KSPCB. But while observing on 26.04.2022 & 27.04.2022, there was no appearance of black colour. But while observing on 26.04.2022 & 27.04.2022, there was no appearance of black colour. But again, during inspection on 28.04.2022 colour of water was light black and on 29.04.2022 it was colourless again. This phenomenon is as well reported in many research papers. Literature by various researchers reveals that the incidence of river blackening and fish kill at times is not a very uncommon phenomenon and this bio-geochemical phenomenon has been most of the times co-related to

presence of high organic load and inadequate tidal flushing especially in summers. High organic load quickly depletes the dissolved oxygen leading to anaerobic conditions. The anaerobic microbes degrade the dissolved organics which may further react with minerals in water and sediment forming black precipitates.

6. Bacteriological analysis of *Faecal coliforms* and *Faecal streptococci* reveals that there is abundant microbial load in the sample of Backwater collected on 29.04.2022 and the ratio of these parameters indicates sewage as the main source of pollution load. In the year 2018 also CMFRI has monitored the Gurupura river stretch and submitted a comprehensive report where in, they have concluded that the increase in the Organic load into the river indicates the possibility of discharge of sewage.
7. Dumping/disposing of sewage collected from Hotels and selected industries and in other residential areas through Cess Pool at selected places **which needs a proper investigation.**
8. Cess Pool discharge by tankers and lorries across Kudumburu stream and solid waste dumping/ C& D Waste dumping on Jokatte ODC Road illegally was reported Kanara Industrial Association and Industries and informed that they have complained to MCC, Police and KSPCB. KSPCB has addressed letter to MCC and RTO to take suitable action.
9. An old video pertaining to solid waste dumping was displayed during the presentation. To this Deputy Commissioner informed the KASSIA to monitor through CCTV and also look into previous cases booked. He also directed to inform the Concerned RTO Officer and DYSP, Panambur/ACP South to be present for spot inspection and to attend subsequent meetings.
10. Further, there is no UGD with STP and Solid Waste Management in Baikampady Industrial Area and surrounding areas and also towards Kudroli, Dambel and Kulur side which is urgently required. Domestic sewage entry is observed at different places through Storm Water Drain from entire area to all along the river on both sides which needs an urgent attention by MCC.
11. Most of the Large and Medium scale industries have adopted Zero Liquid Discharge (ZLD). Defaulting industries have been identified and notices have been issued.
12. There is no adequate minimum flow from the dam resulting improper flushing causing stagnation of water and increased organic load.
13. Due to sand mining, lot of depth variation is observed. CMFRI in their report has suggested detailed bathymetric studies. Stagnated water pockets all along

- Not to allow any industries to discharge the treated/untreated effluent to the Backwater **(Action: KSPCB)**
- To identify and submit the report on list of godowns, hotels, commercial establishments, hostel, labour sheds with total number of people and water consumption details. **(Action: Development Officer KIADB).**
- To submit details on the number of houses, population, sewage and solid waste management in areas located at Kudroli, Dambel, Bangrakulur, Thannirbhavi area, Angaragundi village. Kudumburu village, surrounding areas of Baggundi Lake, MSEZ RR Colony **(Action: MCC).**

16. In the said meeting, Deputy Commissioner directed to **schedule the spot inspection on 16.06.2022** and directed the member convenor to put up spot inspection intimation letter to all the Joint Committee members and Gurupura river water quality monitoring committee members along with other officials to be present along with details mentioned above.

COMMITTEE CHAIRMAN &
DEPUTY COMMISSIONER
DAKSHINA KANNADA DISTRICT

ANNEXURE-9

Proceedings of the Inspection of the Joint Committee along with members of Gurupura River Monitoring Committee and other officials and in the matter of NGT OA No. 307/2022 pertaining to the flow of industrial/sewage effluent into Phalguni River resulting in fish kill and invitees on 16.06.2022

****

Presiding Officer/ Chairman to the Meeting		**Dr. Rajendra K.V., IAS** Deputy Commissioner, Dakshina Kannada District
Members of Joint Committee appointed by NGT in the matter of OA 307/2022		
1. Dr. S. Prabhu, Scientist D., **(Joined through VC)**		Scientist D., Ministry of Environment, Forest & Climate Change, Integrated Regional Office, Bengaluru.
2. Smt. Sowmya D., Scientist 'D',		Regional Directorate, Central Pollution Control Board,1st Floor, "Nisarga Bhawan",7 C Main, Thimmaiah Road, Shivanagar, Bengaluru-560 010
3. Smt. Vijaya Hegde, Senior Environmental Officer		Zonal Senior Environmental Officer, Karnataka State Pollution Control Board, Mangaluru, D. K
4. Sri K. Keerthi Kumar Environmental Officer, KSPCB, RO-Mangalore		Member Convenor
INVITEES PRESENT IN THE JOINT INSPECTION		
1	Dr. Prathibha Rohith	Principal Scientist and Head, CMFRI
2	Dr. Bindu Sulochan	Principal Scientist, CMFRI
MEMBERS OF THE COMMITTEE PRESENT IN THE MEETING		
1	Prof: G. Srinikethan,	Director Research, Nitte
3	Sri Harish Kumar	Joint Director, Department of Fisheries, Mangalore
4	Sri Gokuldas Nayak	Joint Director, DIC Mangaluru
5	Sri G. Narendra Babu	Executive Engineer, RAWS Division
	Sri Gokuldas	EE, Minor Irrigation Sub-division, Mangalore
7	Smt. Deepthi	Assistant Executive Engineer (Env), Mangaluru City Corporation
9	Sri Isaac Vas	President, Karnataka Small Scale Industries Association, Baikampady
OTHER OFFICERS/INVITEES PRESENT		
1	Sri Ganeshan R.	Deputy Commissioner- Development, MCC
2	Sri Shivalingappa M. N.	AEE, MCC
3	Sri Mahesh Kumar	Deputy Director- Fisheries present on behalf of RD-CRZ

4	Smt. Manjulashree	Assistant Director, Dept. of Fisheries, Mangalore
5	Dr. Maheshwari Singh	Deputy Environmental Officer, KSPCB, RO-Mangalore
6	Smt. Poornakala Y.K.	Chief Officer, Bajpe
	MEMBERS/OFFICERS ABSENT FOR THE MEETING	
1	**The Director of fisheries is yet to depute concerned member from Joint Committee**	
2	Tahsildar, Mangaluru	
3	President Grama Panchayath Maravooru	
4	Panchayath Development Officer-Gurupura Village	
5	Dean College of Fisheries, Mangalore	
6		

Preamble:

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Hon'ble NGT considered the matter. Prima facie, it appears that untreated effluents are being discharged in the river in question by the industries in the area, without any regulation by the concerned statutory authorities in violation of the Water (Prevention and Control of Pollution) Act, 1974.

Hon'ble NGT, Principal Bench, New Delhi constituted joint committee comprising of the Regional Officers of MoEF&CC and CPCB Bengaluru, State PCB, Director, Fisheries, Karnataka and District Magistrate, Dakshina Kannada District. Hence, a joint Committee consisting of above members were constituted by Board Office vide Office Memorandum cited vide ref (2).

First meeting of the Joint Committee along with members of Gurupura River Water Quality Monitoring Committee was held on 08.06.2022 at 1rd Floor NIC Hall, Zilla Panchayath Office, Mangalore D.K District under the Chairmanship of Deputy Commissioner, Dakshina Kannada District. During the meeting, Deputy Commissioner sought the details on progress made by the based on the proceedings of meeting conducted under the Chairmanship of Deputy

Commissioner on 16.05.2022. In the said meeting, Deputy Commissioner **directed to schedule the spot inspection on 16.06.2022 and accordingly spot inspection by all the Joint Committee members and Gurupura river water quality monitoring committee members along with other officials was conducted on 16.06.2022 and during inspection following Locations were inspected:**

1. Inspection of various drain joining points through Boat:
   Following drain joining points to backwater of river Phalguni were inspected
   - Storm Water drain (Major Drain Entering from Mangalore City) joining point at Backwater of Gurupura river near Kudroli (12.870525,74.829327)
   - Storm Water drain (Drain Entering from Bolor, Thannirbhavi) joining point at Backwater of Gurupura river near Amruth Vidyalaya, Bolor (12.888015,74.8206)
   - Storm water drain -Skate City Garden Point, Near Bolar from the area of Ashoknagar (12.894928,74.823993)
   - Storm Water drain (Major Drain Entering from Dambel) joining point at Backwater of Gurupura river near Dambel (12.903643,74.821358)
   - Storm Water drain (Drain Entering from Padukodi, Near Kulur Church) joining point at Backwater of Gurupura river near Kulur (12.927644,74.829748)

   During inspection, Deputy Commissioner and Chairman of the Committee highlighted following issues
   - To verify the Ship Breaking/ship building activities in CRZ Area.
   - Action plan by MCC for entry of Solid waste, C& D waste and sewage entry to the river.
   - Carry out dredging activity to ensure free flowing of water during low tide
   - Stake holders to propose for action plans with estimated budgetary provisions

Further, the area surrounding Baikampady industrial area was

- Kudumbur hole Backwater of Gurupura river at ELF Gas (Drain Entering from Baikampady Industrial Area, Jokatte, MSEZ RR Colony, MRPL Marshy land, Baggundi lake outflow, Angaragundi, Kudumbur village) (12.945400,74.835393)
- Kudumburu Bridge Backwater of Gurupura river (Drain Entering from Jokatte village, MSEZ RR Colony, MRPL Marshy land, Baggundi lake outflow, Angaragundi, Kudumburu village) joining point at Backwater of Gurupura river (12.948843,74.832835)

To this, Prof G. Srinikethan, member of the committee briefly presented the progress made so far which is reported as follows:

1. Internal Meeting of Committee members to discuss on further action plan was held at Regional Office, Mangalore on 21.05.2022. Based on the discussion, it was decided to obtain the maps of land use, land cover, drainage pattern and location sketches of Gurupura river area from NRDM ZP Office and KRSSAC, Bangalore of. Accordingly, the maps were obtained by KSPCB from concerned Departments.
2. The Gurupura river water quality monitoring Committee members with other officials conducted the spot inspection to identify point/ non-point sources of pollution boat and by road on 26.05.2022.
3. Basically, the fish kill occurred in two stagnant water ponds where there was no flushing from Phalguni River. At the outset, it appears that lack of adequate water flow, high organic load and also high temperature of the summer might have resulted in depletion of oxygen causing the probable death of small fishes and the extent of impact is minimal (i.e., at area of two small stagnated water pool at Storm water drain). Fish kill was not observed in the Gurupura (Phalguni) river.
4. Deputy Commissioner was informed that earlier also there was a similar fish kill incident happened in 2017 and a committee was formed in the year 2017 for monitoring of river water quality and suggest appropriate actions to DC for maintaining good water quality.

5. At the stretch from Back Water (creek) near ELF Gas Industry, the colour of water was light black by physical observation on 25.04.2022 during inspection by KSPCB. But while observing on 26.04.2022 & 27.04.2022, there was no appearance of black colour. But while observing on 26.04.2022 & 27.04.2022, there was no appearance of black colour. But again during inspection on 28.04.2022 colour of water was light black and on 29.04.2022 it was colourless again. This phenomenon is as well reported in many research papers. Literature by various researchers reveals that the incidence of river blackening and fish kill at times is not a very uncommon phenomenon and this bio-geochemical phenomenon has been most of the times co-related to presence of high organic load and inadequate tidal flushing especially in summers. High organic load quickly depletes the dissolved oxygen leading to anaerobic conditions. The anaerobic microbes degrade the dissolved organics which may further react with minerals in water and sediment forming black precipitates.
6. Bacteriological analysis of *Faecal coliforms* and *Faecal streptococci* reveals that there is abundant microbial load in the sample of Backwater collected on 29.04.2022 and the ratio of these parameters indicates sewage as the main source of pollution load. In the year 2018 also CMFRI has monitored the Gurupura river stretch and submitted a comprehensive report where in, they have concluded that the increase in the Organic load into the river indicates the possibility of discharge of sewage.
7. Dumping/disposing of sewage collected from Hotels and selected industries and in other residential areas through Cess Pool at selected places **which needs a proper investigation.**
8. Cess Pool discharge by tankers and lorries across Kudumburu stream and solid waste dumping/ C& D Waste dumping on Jokatte ODC Road illegally was reported Kanara Industrial Association and Industries and they informed that they have complained to MCC, Police and KSPCB. KSPCB has addressed letter to MCC and RTO to take suitable action.
9. An old video pertaining to solid waste dumping was displayed during the presentation. To this Deputy Commissioner informed the KASSIA to monitor through CCTV and also look into previous cases booked. He also directed to inform the Concerned RTO Officer and DYSP, Panambur/ACP South to be present for spot inspection and to attend subsequent meetings.
10. Further, there is no UGD with STP and Solid Waste Management in Baikampady Industrial Area and surrounding areas and also towards

Kudroli, Dambel and Kulur side which is urgently required. Domestic sewage entry is observed at different places through Storm Water Drain from entire area to all along the River on both sides which needs a urgent attention by MCC.

11. Most of the Large and Medium scale industries have adopted Zero Liquid Discharge (ZLD).Defaulting industries have been identified and notices have been issued.
12. There is no adequate minimum flow from the dam resulting improper flushing causing stagnation of water and increased organic load.
13. Due to sand mining, lot of depth variation is observed. CMFRI in their report has suggested detailed bathymetric studies. Stagnated water pockets all along the creeks near Baikampady industrial area and lack of tidal effect, Siltation of the Creek could have caused the Block. Further lot of filings, encroachments, Mangroves death, Dumping of Non-Hazardous Waste and Construction Waste, could have lead to blockages and effected the tidal flushing ***which needs the Comprehensive study***.
14. Minor Irrigation Department Officials have to submit compliance to conditions imposed during clearance of vented dam.
15. **Deputy Commissioner, Mangalore D.K District and Chairman of Joint Committee directed the member convenor KSPCB to issue notices to obtain the details as follows:**
    - KIADB and DIC to provide the list of industries located in Baikampady Industrial Area and KSSIDC Estate **(Action: KIADB & DIC)**
    - KSPCB to identify the industries who are discharging Sewage, sullage, effluent outside the industry premises **(Action: KSPCB)**
    - To submit the present sewage and solid waste management status by Jokatte Grama Panchayath, Gurupura Gram Panchayath, Bajpe TP **(Action: PDO-Jokatte Grama Panchayath, Gurupura Gram Panchayath, Chief Officer-Bajpe TP)**
    - To submit the action taken/proposal of installation of Common STP to Baikampady Industrial Area and Solid waste Management by MCC and KIADB **(Action: Development Officer KIADB & Commissioner MCC)**
    - To submit details on land use change for last 10 years on CRZ area all along the river on either side and also to report on reduced water flow

due to stagnation because of lot of fillings on backwater and their impact on mangroves **(Action: RD, CRZ)**

- To install CCTV Cameras and caution sign Boards at Jokatte ODC Road to prevent and identify the illegal discharge of sewage through cess pool to the backwater of Gurupura river and dumping of solid waste (**Action: KIADB, KIA, PDO Jokatte Grama Panchayath**)
- To take action on vehicles dumping the cess pool **(Action: RTO, KIA, MCC/Grama Panchayath).**
- Minor Irrigation Department Officials have to submit compliance to conditions imposed during clearance of vented dam ((**Action: Minor Irrigation)**
- Major Irrigation Department Officials have to submit the details pertaining to minimum flow, current flow rate and desirable flow rate etc. any obstructions to vented dam if any ((**Action: Major Irrigation)**
- Not to allow any industries to discharge the treated/untreated effluent to the Backwater **(Action: KSPCB)**
- To identify and submit the report on list of godowns, hotels, commercial establishments, hostel, labour sheds with total number of people and water consumption details. **(Action: Development Officer KIADB).**
- To submit the number of houses and population located at Kudroli, Dambel, Bangrakulur, Thannirbhavi area, Angaragundi village. Kudumburu village, surrounding areas of Baggundi Lake, MSEZ RR Colony **(Action: MCC)**

COMMITTEE CHAIRMAN &
DEPUTY COMMISSIONER
DAKSHINA KANNADA DISTRICT

KARNATAKA STATE POLLUTION CONTROL BOARD

No 10 B,Industrial Area Baikampady Mangalore 575011 Ph No: 0824-2408420

PCB/RO(MNG)/SW-217-219/2022-23/R No : 124 Date: 2 | 7 | 2022

ANALYSIS REPORT OF WATER QUALITY
REGIONAL LABORATORY

NAME OF THE LOCATION :	Storm water drain samples, joining at Back water of Gurupura River, Mangaluru
SAMPLE COLLECTED BY :	EO, Mangaluru.
DATE OF COLLECTION :	16.06.2022
DATE OF RECEIPT :	16.06.2022
SAMPLE NO & PARTICULARS OF SAMPLE COLLECTED:	1.Storm water drain joining at Back water of Gurupur River at Padukodi Church, Mangaluru (217) 2.Storm water drain joining at Back water of Gurupur River at Total Gas Indy Bridge, Mangaluru (218) 3.Storm water drain collected at Jokatte Bridge (219)

Sl No.	Parameters Analysed	Unit	Results		
			Sample No.217	Sample No.218	Sample No.219
1	pH	pH unit	7.1	7.2	7.3
2	Suspended Solids	mg/L	10	10	8
3	BOD (3 days @ 27 ^{0} C)	mg/L	13	7	4
4	Ammoniacal Nitrogen	mg/L	BDL	BDL	5
5	TKN	mg/L	BDL	BDL	7
6	Free Ammonia	mg/L	BDL	BDL	0.0883
7	Sulphide	mg/L	BDL	BDL	BDL
8	Dissolved Phosphate	mg/L	BDL	BDL	BDL
9	Total Residual Chlorine	mg/L	BDL	BDL	BDL
10	Oil and Grease	mg/L	BDL	BDL	BDL
11	Total Dissolved Solids	mg/L	4636	3982	3300
12	Sulphate	mg/L	546	412	230
13	Copper	mg/L	0.047	0.323	BDL
14	Total Choromium	mg/L	BDL	BDL	BDL
15	Cadmium	mg/L	BDL	BDL	BDL
16	Nickel	mg/L	0.032	BDL	BDL
17	Lead	mg/L	BDL	BDL	BDL
18	Zinc	mg/L	0.054	0.079	0.033
19	Iron	mg/L	0.062	0.063	0.021
20	Dissolved Oxygen	mg/L	3.3	4.8	6.7
INFERENCE					

Note:

1. The above results pertain only to the sample tested.
2. The method of analysis is as per the Standard Method for the examination of Water and Waste Water, and Indian Standard Publication.
3. ND: Not detected. 4. BDL: Below detection limit
5. COD was not carried out due to high interference from Chloride

Scientific Assistant
ANALYSED BY

Scientific Assistant
VERIFIED BY

Scientific Officer
LAB HEAD

KARNATAKA STATE POLLUTION CONTROL BOARD

No 10 B,Industrial Area Baikampady Mangalore 575011 Ph No: 0824-2408420

PCB/RO(MNG)/SW-214-216/2022-23/R No : 123 Date: 21/7/2022

ANALYSIS REPORT OF WATER QUALITY
REGIONAL LABORATORY

NAME OF THE LOCATION :	Storm water drain samples, joining at Back water of Gurupura River, Mangaluru
SAMPLE COLLECTED BY :	EO, Mangaluru.
DATE OF COLLECTION :	16.06.2022
DATE OF RECEIPT :	16.06.2022
SAMPLE NO & PARTICULARS OF SAMPLE COLLECTED:	1.Storm water drain joining at Back water of Gurupur River at Kudroli Mangaluru (214) 2.Storm water drain joining at Back water of Gurupur River at Skate City Point, Boloor, Mangaluru (215) 3.Storm water drain joining at Back water of Gurupur River at Dambel, Mangaluru (216)

Sl No.	Parameters Analysed	Unit	Results		
			Sample No.214	Sample No.215	Sample No.216
1	pH	pH unit	6.7	7.1	7.4
2	Suspended Solids	mg/L	12	16	22
3	BOD (3 days @ 27 ^{0} C)	mg/L	18	8	6
4	Ammoniacal Nitrogen	mg/L	BDL	BDL	BDL
5	TKN	mg/L	BDL	BDL	BDL
6	Free Ammonia	mg/L	BDL	BDL	BDL
7	Sulphide	mg/L	BDL	BDL	BDL
8	Dissolved Phosphate	mg/L	BDL	BDL	BDL
9	Total Residual Chlorine	mg/L	BDL	BDL	BDL
10	Oil and Grease	mg/L	BDL	BDL	BDL
11	Total Dissolved Solids	mg/L	548	10870	15662
12	Sulphate	mg/L	98	892	860
13	Copper	mg/L	BDL	0.011	0.037
14	Total Choromium	mg/L	BDL	BDL	BDL
15	Cadmium	mg/L	BDL	BDL	BDL
16	Nickel	mg/L	0.029	BDL	BDL
17	Lead	mg/L	BDL	BDL	BDL
18	Zinc	mg/L	0.039	0.062	0.05
19	Iron	mg/L	0.121	0.162	0.198
20	Dissolved Oxygen	mg/L	0.3	4.2	5
INFERENCE					

Note:

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Scientific Assistant	Scientific Assistant	Scientific Officer
ANALYSED BY	VERIFIED BY	LAB HEAD

Head of the Department

COLLEGE OF FISHERIES

Department of Aquatic Animal Health Management
Kankanady, Mangalore - 575 002
Karnataka, INDIA

Telefax : 0824-2246384 (Off)
Mobile : 09900136070
Email fishmicrobiolmangalore@gmail.com

NO. FCM/AAHM/Rev.Fund/Analysis/2022-23/73 29.06.2022

SAMPLE DETAILS

SAMPLE SUBMITTED BY	KARNATAKA STATE POLLUTION CONTROL BOARD, PARISARA BHAVANA, 10B, BAIKAMPADY INDUSTRIAL AREA, MANGALURU – 575 011		
TYPE OF SAMPLE	SAMPLE No. 1 (Storm water drain joining point at back water of Gurupur river at Bunder, Kudroli, Mangaluru) RIVER BACK WATER		
ANALYSIS REQUIRED	MICROBIOLOGICAL ANALYSIS		
SAMPLE GIVEN BY CUSTOMER/~~SAMPLE COLLECTED BY LAB~~		CONDITION OF SAMPLE	-
SAMPLE RECEIVED ON	17.06.2022	TEST COMPLETED ON	22.06.2022
REFERENCE STANDARD	-		

TEST REPORT

Sl. No.	Parameters	Units	Result
1.	Total coliform count	MPN/100 ml	**>1600**
	Faecal coliform count	MPN/100 ml	**>1600**
2.	Faecal Streptococci	MPN/100 ml	**>1600**

Professor & Head
Professor and Head
Department of Aquatic Animal Health Management
Karnataka Veterinary Animal & Fisheries Sciences University, Nadar
College of Fisheries, Mangalore - 575 002

Note: This report of analysis is for your information and guidance only and not valid for commercial or legal purposes

COLLEGE OF FISHERIES

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Karnataka, INDIA

Head of the Department

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Mobile : 09900136070
Email fishmicrobiolmangalore@gmail.com

NO. FCM/AAHM/Rev.Fund/Analysis/2022-23/74 23.06.2022

SAMPLE DETAILS

SAMPLE SUBMITTED BY	KARNATAKA STATE POLLUTION CONTROL BOARD, PARISARA BHAVANA, 10B, BAIKAMPADY INDUSTRIAL AREA, MANGALURU – 575 011		
TYPE OF SAMPLE	SAMPLE No. 2 (Storm water drain joining at Back Water of Gurupur river at Skate City Point, Boloor, Ashoknagar) RIVER BACK WATER		
ANALYSIS REQUIRED	MICROBIOLOGICAL ANALYSIS		
SAMPLE GIVEN BY CUSTOMER/~~SAMPLE COLLECTED BY LAB~~		CONDITION OF SAMPLE	-
SAMPLE RECEIVED ON	17.06.2022	TEST COMPLETED ON	22.06.2022
REFERENCE STANDARD	-		

TEST REPORT

Sl. No.	Parameters	Units	Result
1.	Total coliform count	MPN/100 ml	**>1600**
	Faecal coliform count	MPN/100 ml	**>1600**
2.	Faecal Streptococci	MPN/100 ml	**>1600**

Professor & Head
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NO. FCM/AAHM/Rev.Fund/Analysis/2022-23/75 23.06.2022

SAMPLE DETAILS

SAMPLE SUBMITTED BY	KARNATAKA STATE POLLUTION CONTROL BOARD, PARISARA BHAVANA, 10B, BAIKAMPADY INDUSTRIAL AREA, MANGALURU – 575 011		
TYPE OF SAMPLE	SAMPLE No.3 (Storm water drain joining point at Backwater of Gurupur River at Dambel, Mangaluru) RIVER BACK WATER		
ANALYSIS REQUIRED	MICROBIOLOGICAL ANALYSIS		
SAMPLE GIVEN BY CUSTOMER/~~SAMPLE COLLECTED BY LAB~~		CONDITION OF SAMPLE	-
SAMPLE RECEIVED ON	17.06.2022	TEST COMPLETED ON	22.06.2022
REFERENCE STANDARD	-		

TEST REPORT

Sl. No.	Parameters	Units	Result
1.	Total coliform count	MPN/100 ml	>1600
	Faecal coliform count	MPN/100 ml	>1600
2.	Faecal Streptococci	MPN/100 ml	>1600

Professor & Head
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NO. FCM/AAHM/Rev.Fund/Analysis/2022-23/76 23.06.2022

SAMPLE DETAILS

SAMPLE SUBMITTED BY	KARNATAKA STATE POLLUTION CONTROL BOARD, PARISARA · BHAVANA, 10B, BAIKAMPADY INDUSTRIAL AREA, MANGALURU – 575 011		
TYPE OF SAMPLE	SAMPLE No.4 (Storm water drain joining at Backwater of Gurupur River at Padukodi Church, Mangaluru) RIVER BACK WATER		
ANALYSIS REQUIRED	MICROBIOLOGICAL ANALYSIS		
SAMPLE GIVEN BY CUSTOMER/~~SAMPLE COLLECTED BY LAB~~		CONDITION OF SAMPLE	-
SAMPLE RECEIVED ON	17.06.2022	TEST COMPLETED ON	22.06.2022
REFERENCE STANDARD	-		

TEST REPORT

Sl. No.	Parameters	Units	Result
1.	Total coliform count	MPN/100 ml	**>1600**
	Faecal coliform count	MPN/100 ml	**>1600**
2.	Faecal Streptococci	MPN/100 ml	**>1600**

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NO. FCM/AAHM/Rev.Fund/Analysis/2022-23/77 23.06.2022

SAMPLE DETAILS

SAMPLE SUBMITTED BY	KARNATAKA STATE POLLUTION CONTROL BOARD, PARISARA BHAVANA, 10B, BAIKAMPADY INDUSTRIAL AREA, MANGALURU – 575 011		
TYPE OF SAMPLE	SAMPLE No.5 (Storm water drain joining at Backwater of Gurupur River at Total Gas Industry Bridge) RIVER BACK WATER		
ANALYSIS REQUIRED	MICROBIOLOGICAL ANALYSIS		
SAMPLE GIVEN BY CUSTOMER/~~SAMPLE COLLECTED BY LAB~~		CONDITION OF SAMPLE	-
SAMPLE RECEIVED ON	17.06.2022	TEST COMPLETED ON	22.06.2022
REFERENCE STANDARD	-		

TEST REPORT

Sl. No.	Parameters	Units	Result
1.	Total coliform count	MPN/100 ml	**>1600**
	Faecal coliform count	MPN/100 ml	**>1600**
2.	Faecal Streptococci	MPN/100 ml	**300**

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NO. FCM/AAHM/Rev.Fund/Analysis/2022-23/78 23.06.2022

SAMPLE DETAILS

SAMPLE SUBMITTED BY	KARNATAKA STATE POLLUTION CONTROL BOARD, PARISARA BHAVANA, 10B, BAIKAMPADY INDUSTRIAL AREA, MANGALURU – 575 011		
TYPE OF SAMPLE	SAMPLE No.6 (Storm water drain collected at Jokatte Bridge , Kudumbur) STORM WATER		
ANALYSIS REQUIRED	MICROBIOLOGICAL ANALYSIS		
SAMPLE GIVEN BY CUSTOMER/~~SAMPLE COLLECTED BY LAB~~		CONDITION OF SAMPLE	-
SAMPLE RECEIVED ON	17.06.2022	TEST COMPLETED ON	22.06.2022
REFERENCE STANDARD	-		

TEST REPORT

Sl. No.	Parameters	Units	Result
1.	Total coliform count	MPN/100 ml	**>1600**
	Faecal coliform count	MPN/100 ml	**>1600**
2.	Faecal Streptococci	MPN/100 ml	**1600**

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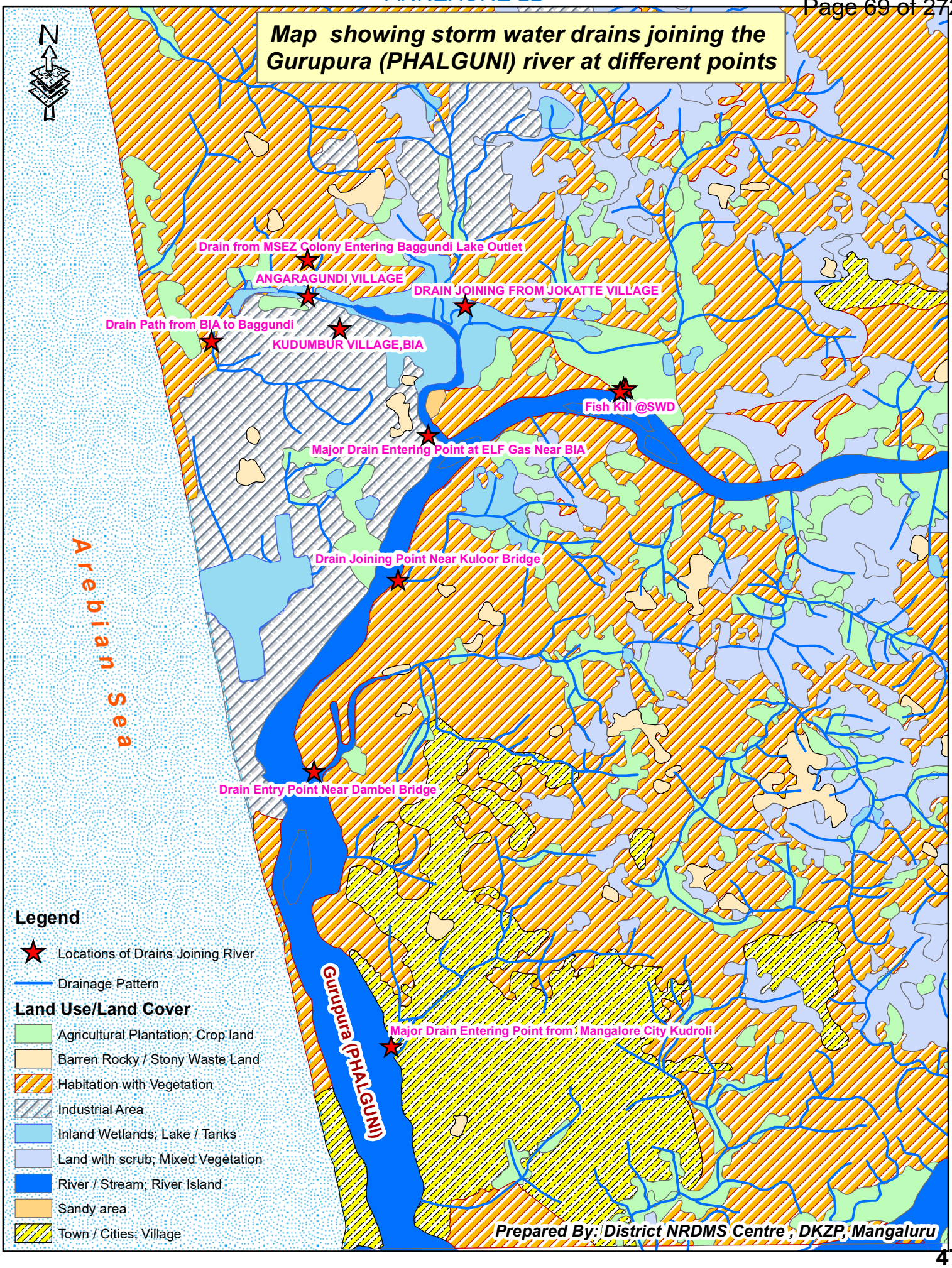
Map showing storm water drains joining the Gurupura (PHALGUNI) river at different points
N
Drain from MSEZ Colony Entering Baggundi Lake Outlet
ANGARAGUNDI VILLAGE
DRAIN JOINING FROM JOKATTE VILLAGE
Drain Path from BIA to Baggundi
KUDUMBUR VILLAGE,BIA
Fish Kill @SWD
Major Drain Entering Point at ELF Gas Near BIA
Drain Joining Point Near Kuloor Bridge
Arebian Sea
Drain Entry Point Near Dambel Bridge
Gurupura (PHALGUNI)
Major Drain Entering Point from Mangalore City Kudroli
Legend
Locations of Drains Joining River
Drainage Pattern
Land Use/Land Cover
Agricultural Plantation; Crop land
Barren Rocky / Stony Waste Land
Habitation with Vegetation
Industrial Area
Inland Wetlands; Lake / Tanks
Land with scrub; Mixed Vegetation
River / Stream; River Island
Sandy area
Town / Cities; Village
Prepared By: District NRDMS Centre , DKZP, Mangaluru

ANNEXURE 12

Annexure-12: ***Photographs a. taken during the Inspection by the Joint Committee and b. Photographs of Municipal and other Solid Waste heaps dumped along road sides in Baikampady industrial area***

Photographs of Joint Committee taken during Spot Inspection

Points of Drain Joining river Gurupura (Phalguni) as observed by the Joint Committee during inspection

Heaps of Solid Waste packed in bags dumped on the roadside along the backwater of river

Plastic Waste dumped on the roadside in Baikampady Industrial Area

Various Types of Waste dumped in and around Baikampady Industrial Area

C&D Waste dumped in and around Baikampady Industrial Area

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Minireview

MINIREVIEW

Blackening and odorization of urban rivers: a bio-geochemical process

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One sentence summary: This review comprehensively summarizes the complex bio-geochemical processes in blackening and odorization of urban rivers.
Editor: Marcus Horn
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ABSTRACT

Urban rivers constitute a major part of urban drainage systems, and play critical roles in connecting other surface waters in urban areas. Black-odorous urban rivers are widely found in developing countries experiencing rapid urbanization, and the mismatch between urbanization and sewage treatment is thought to be the reason. The phenomena of blackening and odorization are likely complex bio-geochemical processes of which the microbial interactions with the environment are not fully understood. Here, we provide an overview of the major chemical compounds, such as iron and sulfur, and their bio-geochemical conversions during blackening and odorization of urban rivers. Scenarios explaining the formation of black-odorous urban rivers are proposed. Finally, we point out knowledge gaps in mechanisms and microbial ecology that need to be addressed to better understand the development of black-odorous urban rivers.

Keywords: black-odorous; urban river; bio-geochemical process; blackening and odorization; sediment

INTRODUCTION

Rivers and lakes serve urban populations as water resources and drainage systems. They play important roles as domestic, industrial and agricultural water resources. Urban rivers are also a convenient route of transportation and as centers for aquatic recreation impact on property prices and city development decisions. However, rapid urbanization caused by fast population growth often does not keep pace with construction of sewage treatment systems, resulting in visible and smellable pollution of urban rivers. Historically, rapid urbanization has always been accompanied by urban river pollution. In London in 1855, the English scientist and inventor Michael Faraday wrote to *The Times* after his passage across the river Thames: 'The smell [of the river] was very bad, and common to the whole of the water; it was the same as that which now comes up from the

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Table 1. Differences between organic matter in soil and surface water.

Soil			Surface water		
Soil type	SOM content (%)	Humus (%)	Source	DOC (mg/L)	Humus (mg/L)
Histosols	>80	32–60	Sea water	0.2–2.0	0.06–0.6
Most mineral soils	<5	<3	River	1.0–10	0.5–4.0
Tropical soils	2	0.8–1.2	Lake	1–50	0.5–40

DOC, dissolved organic carbon; SOM, soil organic matter.
Sources: Thurman 1985; Stanley 2000; Juo and Franzluebbers 2003; He *et al.* 2010; Zhang *et al.* 2012; Osman 2013; Tfaily *et al.* 2017.

gully-holes in the streets; the whole river was for the time a real sewer' (Faraday 1855). More recently, many developing countries have experienced the problem of polluted urban rivers as well. River pollution's most visible manifestation is a change in color, usually to black, often accompanied by strong unpleasant odors.

In China, after the first report of blackening and odorization of the Huangpu River in 1983 (Gu and Cai 1983), similar phenomena were observed in other urban rivers as well as in their tributaries throughout the whole country, e.g. the Suzhou River in Shanghai (Ying, Zhang and Wu 1997), the Pearl River Delta, in particular in Guangzhou (Luo 2001), and the Weigong River in Shenyang (Li, Zhang and Yu 2003). By the end of 2016, there were around 1880 identified black-odorous urban rivers in 295 Chinese cities, and 64% of those rivers were located in coastal areas of southern China (Zhu 2016). The Chinese government recently released a national plan for water pollution control, the 'Action Plan for Prevention and Treatment of Water Pollution', and set targets for cleaning up polluted urban rivers. Nevertheless, only 45% of the identified black-odorous urban rivers were under or had finished treatment at that time (Kong 2016).

Better pollution control is an urgent need to address blackening and odorization of urban rivers. However, it is often unclear what the exact reasons for the observed phenomena are. To better allocate resources for effective pollution control, it is necessary to identify the sources of pollution. A thorough understanding of the bio-geochemical processes underlying formation of black-odorous rivers is the first step, not only to apply effective pollution control but also to monitor the success of these measures and make adjustments if necessary. Organic pollutants from untreated waste streams or other non-point sources, e.g. agricultural and urban storm water runoffs (McCoy *et al.* 2015), along river banks are believed to trigger blackening and odorization of urban rivers (Zhou, Gibson and Foy 2000; Fang *et al.* 2012; Zhu 2016). The common understanding of the process is that high organic loading quickly depletes dissolved oxygen, leading to anaerobic conditions. Then, anaerobic microorganisms degrade dissolved organics, such as carbohydrates, fatty acids and proteins, into smaller molecules including odorous organic acids and reduced sulfur compounds, e.g. H_2S and organic sulfides. These small molecules may then further react with minerals in the water and sediment, and, mediated by microorganisms, form black precipitates (Stahl 1979; Ji *et al.* 2016).

Inorganic fertilizer pollutants, such as phosphorous and nitrogen, are involved in odorization of urban rivers as well. They, for example, accelerate growth of phototrophs, a phenomenon known as eutrophication. In summer 2007, an odorous tap water crisis occurred in Wuxi, China, in which odorous volatile sulfide compounds, including methyl thiols, dimethyl sulfide and dimethyl disulfide, were produced in the river from the decomposition of massive cyanobacterial blooms (Zhang *et al.* 2010). While such events are well documented for seawater environments (Yan, Zhou and Zou 2002), freshwater blooms have been less monitored in China. For example, the notoriously cyanobacteria-infested Lake Taihu in China experienced major blooms about every 3 years between 1960 and 1996 with increasing magnitude and frequency in recent years due to massive fertilizer pollution (Chen *et al.* 2003).

In this review, we focus on the key mechanisms and compounds involved in blackening and odorization of urban rivers. Based on the most relevant bio-geochemical processes, we propose scenarios to describe the formation of black-odorous urban rivers. We describe microbial communities in polluted and pristine freshwater systems that catalyze these processes. Lastly, we discuss challenges and possible strategies to control blackening and odorization, and propose key questions to be addressed in future studies.

ELEMENTS AND COMPOUNDS CONTRIBUTING TO BLACKENING AND ODORIZATION OF URBAN RIVERS

Large quantities of anthropogenic pollutants, both organic and inorganic, destabilize urban river ecosystems. The composition and concentration of organic matter in water, soil and sediment varies (Table 1). Biorecalcitrant humus, which is dominating fully decomposed organic matter, accounts for ≥40% of total organic matter present in urban rivers (Thurman 1985). These humic substances are resistant to further microbial degradation, and form black chelates with metal ions (Davies, Ghabbour and Khairy 1998; Fiedler *et al.* 2002).

The abundance of inorganic substances in urban river sediments is similar to that in the Earth's crust and soil (Table 2). Dominant metallic elements in river waters are iron, magnesium, aluminum and manganese, which originate from major clay minerals in sediments (Table 3; Abdullah *et al.* 2014). Abundant metals in the Earth's crust such as Fe and Mn are major blackening ingredients in black-odorous urban rivers (Tables 2 and 3; Metzger *et al.* 2014). Other major metallic elements, e.g. Al, Ca, Mg and Zn, are either of white color when forming minerals or their redox potentials are too low (≤−760 mV at standard conditions) for participation in natural redox processes. Sulfur, nitrogen and carbon are the three major non-metallic elements contributing to the stench of urban rivers through formation of volatile compounds, e.g. H_2S, organic sulfides, NH_3, amines and short chain fatty acids (Tables 2 and 3; Ginzburg *et al.* 1999; Bentley and Chasteen 2004; Ebil, Dursun and Dentel 2014). In coastal areas, urban rivers are often tributaries of tidal rivers with high concentrations of sulfate and magnesium (Latha and Rao 2012).

Table 2. The content of main elements in crust, soil, surface sediment and surface water.

Elements	Crust (%)	Soil (%)	Surface sediments (%)	Surface water (ppm)
O	46–50	49		
Si	26–27	33		
Al	7.5–8.3	7.1	6.72	0.72084
Fe	4.7–5.8	4	2.61	0.80041
Ca	3.39–5.2	1.5	1.2	
K	2.3–2.64	1.4	2.46	
Na	1.7–2.4	0.15	2.39	
Mg	1.87–2.8	0.5	1.24	6.158
Ti	0.45–0.64	0.5	0.3186	
Cl	0.13–0.19	0.01		
P	0.09–0.12	0.08	0.05485	
C	0.02–0.09	2		
Mn	0.08–0.10	0.1	0.06239	0.01697
S	0.026–0.048	0.07		
N	0.002–0.003	0.2		
Cr	0.01–0.03	0.007	0.00997	0.00588
F	0.054–0.059	0.02		
Ni	0.008–0.009	0.005	0.00829	0.00188
V	0.009–0.019	0.009	0.00547	
Co	0.0018–0.0025	0.0008	0.00114	0.00045
Cu	0.005–0.006	0.003	0.0108	0.00626
Zn	0.007–0.009	0.0009	0.0388	0.010943
Pb	0.0012–0.0016	0.0035	0.00547	0.00807
As	0.00018–0.00022	0.0006	0.000885	0.003108
Br	0.00021–0.00025	0.001		
Cd	0.000015–0.00002	3.5E-05	0.0000778	0.00007

Sources: Gaillardet, Viers and Dupré 2003; Yang *et al.* 2003; JeffersonLab 2007; Liu *et al.* 2007; Landaud, Helinck and Bonnarme 2008; Viers, Dupré and Gaillardet 2009; Feng *et al.* 2010; Lin *et al.* 2012; Song *et al.* 2013; Gao *et al.* 2016; Song *et al.* 2017.

Additionally, metallic elements, e.g. Fe, Mn and Mg, are mobile between sediment and water phase, sometimes mediated by microorganisms (Rzepecki 2012). These exchange rates are accelerated by organic pollution of urban rivers (Odigie *et al.* 2014).

BIO-GEOCHEMICAL TRANSFERS OF THE KEY ELEMENTS INVOLVED IN WATER BLACKENING AND ODORIZAITON

Black color formation via metal precipitates

Black matter in urban rivers comprises black metallic precipitates and precipitates of brown, green, or other colors that together form a dark color. In O_2-depleted surface waters, metals precipitate with sulfide and stain the water black (Fig. 1; Table 4; Nealson and Little 1997; Metzger *et al.* 2014). Common metals such as iron and nickel form black or dark sulfides. Iron, nickel and copper sulfides are the thermodynamically most favorable precipitates (Table 4). Stahl (1979) investigated a black water lake in Illinois and demonstrated that ferrous sulfide was responsible for the black color. Mixed minerals such as copper–iron sulfides have been observed as well, for example, in the Danube River Basin (Brankov, Milijašević and Milanović 2012). Copper and other heavy metal precipitates were also detected in the Pearl River Estuary, China (Fang, Li and Zhang 2005) as well as the Reno River watershed, Italy (Ferronato *et al.* 2013). In reduced environments, Mn exists as soluble Mn^{2+}, due to its low affinity for sulfur, and dose not precipitate (Nealson and Little 1997).

While iron sulfide formation is spontaneous, microorganisms such as *Geobacter*, *Geothrix*, *Rhodoferax* and *Shewanella* can harvest the released energy for their cell growth (Fig. 1; Lovley 1991). Thermodynamically, formation of FeS is favored followed by FeS_2 and Fe_3S_4 (Table 4). Greigite (Fe_3S_4) is formed in excess of sulfide. Elemental sulfur (S^0) and polysulfide (S_n^{2-}) formation are thought to be the intermediate steps leading to pyrite and greigite (Table 4; Rickard 1975; Luther 1991). Similar to biogeochemical transfers in marine sediments, the FeS and FeS_2 as well as other metals play central roles in the sulfur cycle in urban rivers (Schippers and Jørgensen 2002). That is, metals and

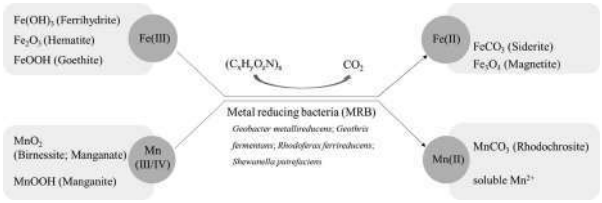

Figure 1. The microbially mediated reduction of Fe/Mn-minerals in urban rivers.

Table 3. Major clay minerals composition and content (%) in river sediments.

Minerals	Pearl River	Pearl River estuary	Huanghe River	Changjiang River	Changjiang estuary	Molecular formula
Kaolinite	46	40	10	16	10	$Al_2Si_2O_5(OH)_4$
Chlorite	25	28	16	12	26	Clinochlore: $(Mg_5Al)(AlSi_3)O_{10}(OH)_8$ Chamosite: $(Fe_5Al)(AlSi_3)O_{10}(OH)_8$ Nimite: $(Ni_5Al)(AlSi_3)O_{10}(OH)_8$ Pennantite: $(Mn,Al)_6(Si,Al)_4O_{10}(OH)_8$
Illite	26	26	62	66	58	$(K,H_3O)(Al,Mg,Fe)_2(Si,Al)4O_{10}[(OH)_2,(H_2O)$
Smectite	<2	<6	<12	<6	3	Montmorillonite: $(Na,Ca)_{0.33}(Al,Mg)_2(Si_4O_{10})(OH)_2{\cdot}nH_2O$ Nontronite: $Na_{0.3}Fe_2((Si,Al)_4O_{10})(OH)_2{\cdot}nH_2O$ Saponite: $Ca_{0.25}(Mg,Fe)_3((Si,Al)_4O_{10})(OH)_2{\cdot}nH_2O$
Minor mineral (Pyrite)	<1	<1	NP	NP	<3	FeS_2

NP, not provided.
Sources: Liu *et al.* 2007; Wang *et al.* 2006; Yang *et al.* 2003.

Table 4. Thermodynamics of some black or dark metal mineral reactions.

Net reaction			$\Delta G^{\circ\prime}$/M (kJ mol^{-1})	$\Delta G^{\circ\prime}$/S (kJ mol^{-1})
Reductive environments				
$SO_4^{2-} + H_3C–COO^- + 3\ H^+$	→	$HS^- + 2\ HCO_3^- + 3\ H^+$	n/a	−48
$Fe^{2+} + HS^- + H^+$	→	FeS[a] + 2 H^+	−231	−231
8 FeOOH[b] + 9 $H_3C–COO^-$ + 8 SO_4^{2-} + 25 H^+	→	8 FeS + 18 HCO_3^- + 18 H^+ + 12 H_2O	−93	−93
2 FeOOH + 3 HS^- + 3 H^+	→	FeS + FeS_2[c] + 4 H_2O	−74	−50
Fe3O4 + 4 HS^- + 4 H^+	→	2 FeS + FeS_2 + 4 H_2O	−61	−46
FeS + S^0	→	FeS_2	−60	−30
4 FeOOH + 6 HS^- + 6 H^+	→	FeS_2 + Fe_3S_4[d] + 8 H_2O	−57	−38
2 FeOOH + 3 HS^- + 3 H^+	→	2 FeS + S^0 + 4 H_2O	−45	−30
Fe_3O_4[e] + 4 HS^- + 4 H^+	→	Fe_3S_4 + 4 H_2O	−38	−28
9 FeS + 5 HS^- + 5 H^+	→	3 FeS_2 + 2 Fe_3S_4	−2	−1
4 S^0 + $H_3C–COO^-$ + H^+ + 4 H_2O	→	4 HS^- + 2 HCO_3^- + 6 H^+	n/a	−2
24 FeOOH[a] + $H_3C–COO^-$ + H^+	→	8 Fe_3O_4 + 2 HCO_3^- + 2 H^+ + 12 H_2O	−5	n/a
8 FeOOH + $H_3C–COO^-$ + 17 H^+	→	8 Fe^{2+} + 2 HCO_3^- + 2 H^+ + 12 H_2O	186	n/a
$Ni^{2+} + HS^- + H^+$	→	NiS[f] + 2 H^+	−184	−184
$Cu^{2+} + HS^- + H^+$	→	CuS[g] + 2 H^+	−171	−171
CuS + S^0	→	CuS_2[h]	−33	−16
$Pb^{2+} + HS^- + H^+$	→	PbS[i] + 2 H^+	−126	−126
$Zn^{2+} + HS^- + H^+$	→	ZnS[j] + 2 H^+	−106	−106
$Mn^{2+} + HS^- + H^+$	→	MnS[k] + 2 H^+	−42	−42
MnS + S^0	→	MnS_2[l]	167	167
Oxidative environments			$\Delta G^{\circ\prime}$/Fe (kJ mol^{-1})	$\Delta G^{\circ\prime}$/ox (kJ mol^{-1})
2 Cr_2O_3[m] + 3 O_2 + 4 H_2O	→	4 $HCrO_4^-$ + 4 H^+	−1094	−1459
10 FeS + 6 NO_3^- + 6 H^+ + 2 H_2O	→	10 FeOOH + 10 S^0 + 3 N_2	−250	−417
4 FeS + 3 O_2 + 5 H_2O	→	4 FeOOH + 4 S^0 + 3 H_2O	−270	−359
$HS^- + MnO_2$[n] + 3 H^+	→	$S^0 + Mn^{2+}$ + 2 H_2O	n/a	−130
2 FeS + 3 MnO_2 + 6 H^+	→	2 FeOOH + 3 Mn^{2+} 2 S^0 + 2 H_2O	−150	−100
2 FeS_2 + 3 MnO_2 + 6 H^+	→	2 FeOOH + 3 Mn^{2+} + 4 S^0 + 2 H_2O	−90	−60

Black or dark minerals: [a]iron sulfide, [b]goethite, [c]pyrite, [d]greigite, [e]magnetite, [f]millerite, [g]covellite, [h]α-chalkosite, [i]lead sulfide, [j]sphalerite (disulfide not known for Zn and Pb), [k]alabandite (pink, orange or green), [l]hauerite, [m]eskolaite, [n]pyrolusite (light grey). M, metal; n/a, not applicable; ox. oxidant.

especially abundant iron, are reduced by organic pollutants, such as volatile fatty acids (such as acetic, butyric and propionic acids), or other reducing equivalents (Table 4). If iron then again enters oxidizing zones, for example by currents or shift of oxic zones, it can be re-oxidized by dissolved oxygen, nitrate, or manganese oxides. Iron oxides, such as goethite, can also be reduced biologically. Humic substances enhance the bioavailability of insoluble Fe(III) oxides as electron acceptors and therefore improve the thermodynamics of biological iron reduction (Lovley *et al.* 1996, 1998). Quinone moieties in humic substances serve as electron shuttles in Fe(III)-respiring microorganisms, e.g. *Ferribacterium limneticum* and *Geobacter metallireducens*, accelerating the rate of both Fe(III) oxide reduction in river sediments and contaminant oxidation coupled to Fe(III) reduction (Lovley *et al.* 1996; Finneran and Lovley 2001; Nevin and Lovley 2000). Other iron reducers such as *Shewanella oneidensis* (Venkateswaran *et al.* 1999), *Paludibaculum fermentans* (Kulichevskaya *et al.* 2014) and *Anaeromyxobacter dehalogenans* (Sanford, Cole and Tiedje 2002) are able to utilize a number of different electron donors including sugars and long chain fatty acids. The broad variety of electron acceptors and donors used by iron reducers makes these microorganisms ubiquitous in freshwater sediments.

In sediments, pyrite (FeS_2) is oxidized abiotically at mineral interfaces, for example between FeS_2 and MnO_2 (Table 4; Schippers and Jørgensen 2002). Immediate products of this oxidation are thiosulfate and polythionates, which can be further oxidized to sulfate by manganese-reducing bacteria (Jørgensen and Nelson 2004). Additionally, Fe(II) and Mn(II) were released from sediment pore waters to form black oxides in anoxic–oxic water interface zone of the black rivers (Atkinson *et al.* 2007). Small amounts of dissolved ferrous iron released from FeS_2 in sediments can be re-oxidized by oxygen, nitrate and MnO_2 and precipitated as black magnetite in river beds. After reentry in oxic zones or through mediation, reduced Mn(II) is recycled to MnO_2 via microbial oxidation in the presence of, even trace amounts of, O_2 or nitrate in surface waters (Boogerd and de Vrind 1987; Marcus *et al.* 2017). Nitrate has therefore been suggested as a cost-effective remediation method for black urban rivers (He *et al.* 2017).

Odorous volatile compounds

Sulfur compounds

Odorous compounds in urban rivers are volatile organic and inorganic compounds. Volatile sulfur compounds generated from microbial sulfate reduction or degradation of sulfur-containing organic matter normally have an unpleasant odor, including that of inorganic H_2S and organic sulfides (Kadota and Ishida 2003). Sources of such reduced sulfur compounds vary. River deltas discharging into oceans often experience seawater influx due to tidal activity. Therefore, sulfide, as a result of microbial sulfate reduction, is detected in significant amounts in urban rivers connecting to major deltas in coastal areas, particularly in the Pearl River estuary where 3 mM sulfide in the sediment was reported as a result of sulfate reduction (Fang *et al.* 2005). Most sulfide in estuaries is produced by sulfate reducing

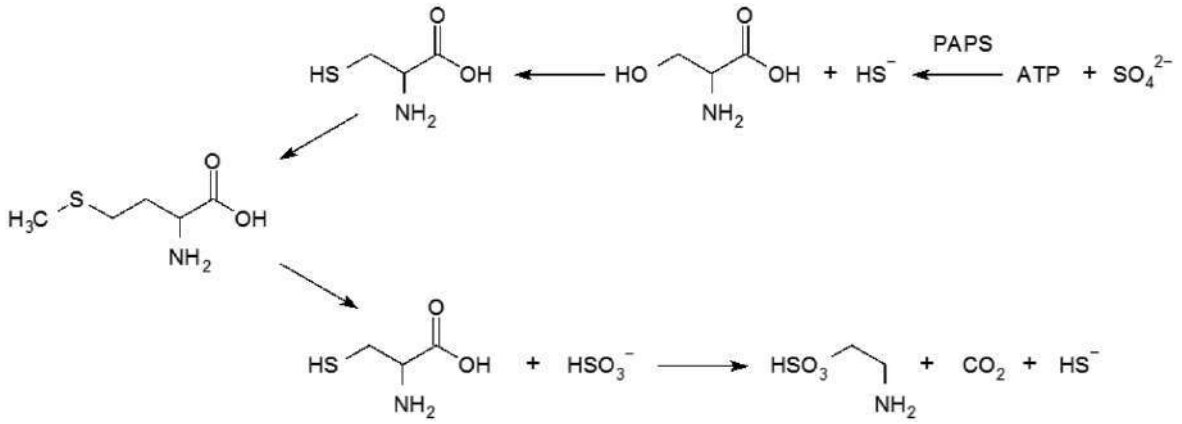

Figure 2. Methionine biosynthesis (top) and degradation (bottom) proceed via cysteine. The biosynthetic pathway requires ATP for sulfate reduction to sulfide, producing the intermediate 3′-phosphoadenosine-5′-phosphosulfate (PAPS). Together with serine, sulfide then forms cysteine and ultimately methionine. Under anaerobic conditions, methionine is degraded to taurine, CO_2 and sulfide in exchange for sulfite.

microorganisms using dissimilatory sulfate reduction for respiration. Sulfate reducing microorganisms are broadly dispersed across the prokaryotic phylogenetic tree but are often found among *δ-Proteobacteria* and *Firmicutes* as well as *Archaea* (Zhou *et al.* 2011). In addition to the production of odorous H_2S, sulfate reduction may eventually lead to the formation of black iron sulfide species even with trace amounts of iron in the water and sediment (Wu *et al.* 2016).

Another source of sulfide in urban rivers is organic sulfur (Giordano *et al.* 2005). It enters the sulfur cycle via assimilatory sulfate reduction (Fig. 2). The amount of sulfur in domestic waste streams or other anthropogenic sources, however, is negligible compared with the massive cyanobacterial blooms in the surface waters (Zhang *et al.* 2010). CO_2-fixing cyanobacteria frequently are the main source of organic matter in surface waters. They assimilate sulfur via cysteine/methionine biosynthetic pathways (Fig. 2). This organic sulfur is subsequently released in the form of volatile organic sulfur compounds, which include thiols and thioethers in methylated sulfide species, e.g. methyl sulfide, dimethyl sulfide and dimethyl disulfide, as byproducts—all of which are characterized by their notoriously bad smell (Bentley and Chasteen 2004).

Nitrogen and organic carbon compounds

Nitrogen compounds are the largest group of malodorous compounds generated by proteolytic microorganisms, and their smells range from that of ammonia to the typical smell of corpse decomposition (Wang *et al.* 2017). Microbiogenic malodorous nitrogen compounds include organic amines such as cadaverine (1,5-pentanediamine) and putrescine (1,4-butanediamine). Cadaverine is produced via decarboxylation of lysine, whereas putrescine is a product of degradation of ornithine, an essential building block of bacterial cell walls (Wunderlichová *et al.* 2014; Ma *et al.* 2017). Other abundant malodorous nitrogen compounds are volatile alkylated amines of characteristic fishy smell, which is sensed even in trace amounts. These compounds comprise alkylated amines, such as methylamine, dimethylamine, trimethylamine, ethaneamine, propaneamine and butaneamine (Ge *et al.* 2011). Methylamines are degradation products of N-methylated amino acids, with glycine, betaine, choline, trimethylamine and carnitine as their natural precursors in biomass, which, in turn, is introduced into urban rivers via wastewater or algal blooms (Ikawa and Taylor 1973).

All organisms are able to hydrolyze proteins using proteases as this is an essential part of their metabolism. Cell internal proteolysis is necessary in every organism, for example to tune its enzymatic machinery to novel environmental conditions or to control vital cell functions. Microorganisms specifically feeding on peptides can be isolated using casamino acids and tryptic case peptone media, and often yield strains closely related to *Clostridium* species when grown anaerobically. Such proteolytic microorganisms are ubiquitous in anaerobic and aerobic environments alike. Examples of anaerobic environments are rumens (Blackburn and Hobson 1962), anaerobic digesters (Abendroth *et al.* 2015), peat bogs (Juottonen *et al.* 2005) and rice paddies (Weber *et al.* 2001). Typical aerobic environments are many processed food products such as cabbage (Borla, Davidovich and Roura 2010) and dairy products (Frazier and Rupp 1931). Despite the presence of proteolytic microorganisms, none of the mentioned environments are known for their obnoxious smell. The reason is that protein concentrations are either relatively low or, in the case of food products, aerobic conditions prevail. When oxygen is absent, alkylated amines cannot be further oxidized and serve as substrates for sulfate reducers or methanogens (Lovley and Klug 1983). However, since alkylated amines are gaseous or at least volatile, they often escape before slow growing anaerobic microorganisms are able to degrade them, causing the typical smell in surface waters.

Odorous organic compounds without S and N elements are mostly VFAs, which are generated by anaerobic fermentation of organic pollutants in the waste streams or of decomposed compounds produced by algal blooms (Verstraete *et al.* 1996; Pham *et al.* 2012). VFAs in urban rivers play critical roles in coupling organic carbon compounds with iron and sulfur cycles in the surface water (Fig. 4). For example, when sulfate is present, VFAs can be further used as electron donors by sulfate reducing microorganisms and produce malodorous sulfide (Hao *et al.* 2009).

MICROBIAL ECOLOGY OF PRISTINE AND POLLUTED FRESHWATER ENVIRONMENTS

Urban river pollution affects microbial communities in water and sediments with measurable effects in the short (Schöll and Szövényi 2011) and long term (Ibekwe, Ma and Murinda 2016; Lu, Chen and Zheng 2017). This makes microbial community analysis an additional monitoring tool for water quality (Drury, Rosi-Marshall and Kelly 2013; García-Armisen *et al.* 2014; Li, Sharp

and Drewes 2016; Xie *et al.* 2016; Köchling *et al.* 2017). Diversity (Drury, Rosi-Marshall and Kelly 2013; Staley *et al.* 2013), richness (Lin *et al.* 2014) and variability (Lu, Chen and Zheng 2017) of microbial communities have been affected by anthropogenic pollutants. As expected, coliform growth is correlated with fecal anthropogenic contamination, for example in large rivers such as the Danube (Hoch *et al.* 1996; Kirschner *et al.* 2009) and the Mississippi (Staley *et al.* 2013), as well as smaller rivers such as the Jaboatão River in Brazil (Köchling *et al.* 2017), the Reno River in Italy (Ferronato *et al.* 2013) and small creeks of a California watershed (Ibekwe, Ma and Murinda 2016). A clear impact of treated wastewater on community composition and metabolism was reported for the Taif River in Saudi Arabia, where pristine samples showed a higher representation of carbohydrate metabolic genes along with fatty acid and amino acid anabolic genes as opposed to samples impacted by wastewater (Li, Sharp and Drewes 2016). The latter were enriched in genes associated with nitrogen and sulfur metabolism, as would be expected in nutrient rich environments. Inverse metabolic patterns were reported for river sediments in China where energy-, carbohydrate- and amino acid-related genes were enriched or equal to pristine control sediments (Lu, Chen and Zheng 2017).

Algal growth is often considered to be linked to anthropogenic contamination in freshwater systems such as Taihu Lake in China (Huang *et al.* 2017) or the Zenne River in Belgium (García-Armisen *et al.* 2014). However, the mechanisms by which pollution and algal growth are connected are not always clear. For example, Huang *et al.* (2017) found that phosphate as well as organic matter concentration were correlated with cyanobacterial growth in the Taihu Lake, whereas in the Danube River, Kirschner *et al.* (2009) identified only a link to organic matter but not any other of the factors investigated, such as phosphate, nitrogen and temperature. This suggests that cyanobacteria live heterotrophically or that low bioavailability of inorganic nutrients are responsible for algal blooms.

Despite the ongoing DNA sequencing revolution, it is not clear which factors shape river sediment communities. Some recent attempts indicate that, indeed, organic matter released into urban rivers by sewage streams promotes growth of certain microbial lineages such as *Acinetobacter*, *Flaviobacterium*, *Thauera* and *Rhodococcus* in the Zenne River flowing through the Brussels metropolitan area (García-Armisen *et al.* 2014). A similar correlation between organic matter and *Cyanobacteria* was linked to fecal coliforms and *Enterococci* in the Danube (Kirschner *et al.* 2009). The dependence of fecal coliforms on environmental factors, however, was stronger in the water column than in the sediments studied in selected creeks of a southern California watershed (Ibekwe, Ma and Murinda 2016). In the Rhône River prodelta, microbial variation could be explained by organic matter as well (Fagervold, *et al.* 2014). In addition to organic matter, Ji *et al.* (2016) found that iron and sulfate concentrations as well as pH were associated with methanogenic networks identified in Amazonian lake sediments.

The pioneering works of Zwart *et al.* (2002) and Newton *et al.* (2011) identified an appreciable bacterial diversity in freshwater systems showing that river and lake communities are similar. In addition, our own comparison of published 16S rRNA gene-sequencing data of three Chinese lakes, two rivers and one reservoir from three distant areas shows that geographical location best explained the differences between the investigated freshwater environments (Fig. 3). Though microbial populations of contaminated and pristine sites of the same region cluster closely, communities still show some difference.

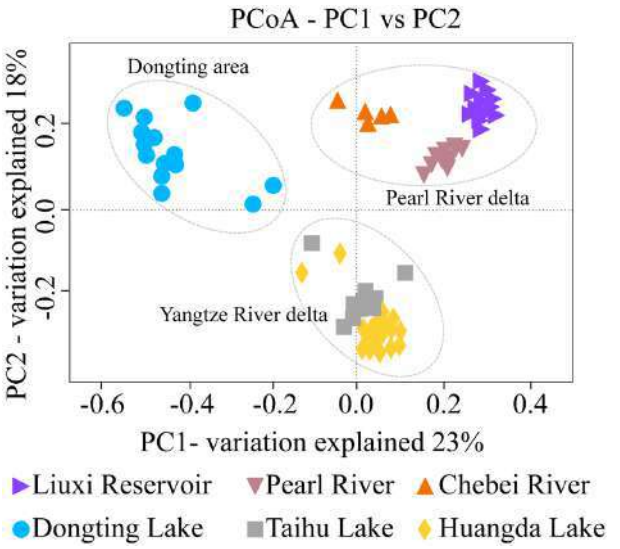

Figure 3. Principal coordinate analysis (PCoA with Bray–Curtis distance matrices) of six surface-water sediment samples collected from three different geographic areas, i.e. Pearl River Delta, Yangtze River Delta and Dongting area. This figure is plotted with published 16S rRNA gene-sequencing data (Wang *et al* 2012; Liu *et al* 2014; He *et al* 2017; Huang *et al* 2017). The trophic states of the six surface waters are: eutrophic for Taihu Lake and Chebei River (black-odorous river); mesotrophic for Dongting Lake, Huangda Lake and Pearl River; and oligotrophic for Liuxi Reservoir.

Proteobacteria are the largest phylum in the prokaryotic tree of life and are therefore also highly abundant in river sediments—polluted or not. Nearly all river and lake sediments surveyed here harbored α-, β- and γ-*Proteobacteria*. The most prominent representative of freshwater α-*Proteobacteria* is the SAR11 clade (*Pelagibacter*; Salcher *et al.* 2011; Savio *et al.* 2015). Also *Bacteroidetes* were found in nearly all freshwater sediments. Together, these four groups cover 40% of all cultured prokaryotic species, making their dominance in freshwater sediments only natural. Consequently, microbial communities in freshwater sediments are often very similar at the phylum level (Ji *et al.* 2016). Nonetheless, a study screening 68 publications of lake microbial communities using only high quality Sanger-sequencing data reported a large heterogeneity at lower taxonomic levels, termed tribes (Newton *et al.* 2011). This finding was confirmed for Mississippi River sediments where only 12% of the identified operational taxonomic units (>97% sequence identity) were shared across all sites (Staley *et al.* 2013). It is hence the less abundant groups, such as *Acidobacteria*, *Actinobacteria*, *Verrucomicrobia*, *Chloroflexi*, *Planctomycetes*, *Gemmatimonadetes* and *Archaea*, or tribes that may act as distinctive indicators for metabolic processes. Many such tribes are uncultured representatives of freshwater environments and do not match with Linnaean taxonomic boundaries. While broad surveys of our drinking water resources need to be continued, it remains unclear how under-represented parts of microbial communities adapt to pollution. Indeed, a recent metagenomic survey of a wastewater impacted river showed that small community factions are major hubs in microbial assemblages (Li, Sharp and Drewes 2016). This is an observation that has also been made in the pristine Lake Cadagno, Switzerland, where 0.3% of the cells in the lake were responsible for 40% of the substrate turnover (Musat *et al.* 2008). In conclusion, more studies on natural environments are necessary to understand the

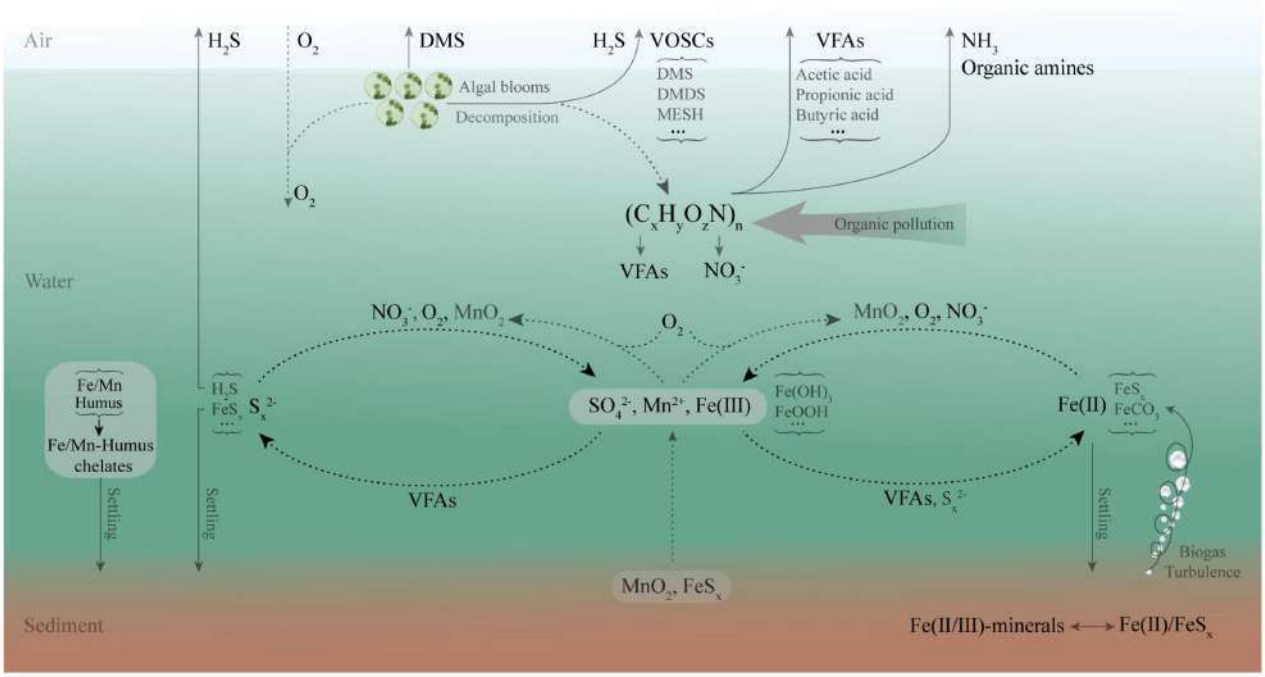

Figure 4. Scenarios describing bio-geochemical transfers of major black and odorous elements/compounds in urban rivers. In the process of organic matter degradation, odors result from production of volatile organic sulfur compounds, methylamines and VFAs, which escape into the atmosphere. In addition, organic matter supplies reducing power for SO_4^{2-} and Fe(III) to form FeS_x. The processes for black/odorous compounds are shown with solid lines, and others with dotted lines. DMS, dimethyl sulfide; VFAs, volatile organic sulfur compounds; VOSCs, volatile organic sulfur compounds.

above mentioned discrepancies and to establish a baseline for future research on pollution affected environments.

A SCENARIO OF THE BIO-GEOCHEMICAL PROCESS IN BLACKENING AND ODORIZAITON OF URBAN RIVERS

In the scenario depicted in Fig. 4, organic matter originates either directly from anthropogenic sources, e.g. waste streams and other non-point source pollution, or from decomposition of cyanobacteria biomass. These are the main suspects in generating odors by production of volatile (organic) sulfides, odorous amines and VFAs (Van Neste *et al.* 1987; Ginzburg *et al.* 1998; Hu *et al.* 2007; Zhang *et al.* 2010). Organic matter is also the major source of reducing equivalents for the reduction of sulfate and iron to produce black minerals such as iron sulfides, which link the sulfur and iron cycles in urban rivers (Fig. 4; Berner *et al.* 1985; Lovley 1987). Therefore, input of organic matter into urban rivers is likely the key factor for triggering water blackening and odorization. Sulfur input from sediment, seawater, or decomposing algal biomass is directly involved in the formation of black- and odorous-matter in urban rivers, e.g. via formation of sulfide species such as H_2S and iron sulfides. Alkylated sulfides are often byproducts of cyanobacterial metabolism and biomass degradation and their volatility makes them strong odorous constituents of some urban rivers' stench. Sulfate reduction by diverse sulfate reducing microorganisms dominates in sediments because their redox potential confers growth advantages to these microorganisms over their competitors. For example, the standard redox potential of sulfate reduction (−217 mV) is slightly more positive than that of hydrogenotropic methanogenic process (−240 mV). This and the higher energy gain compared with iron reduction suggest that sulfur is the link between the different element cycles as shown for Black Sea sediments (Siegert *et al.* 2013).

CONCLUSIONS AND FUTURE PERSPECTIVES

The blackening and odorization of urban rivers is a complex bio-geochemical process involving five key elements, i.e. Fe, Mn, S, N and C. Outstanding issues include the following.

(i) While we propose several mechanisms that contribute to blackening and odorization of urban rivers such as organic matter degradation and metal precipitation, there is no evidence yet that these are indeed the driving factors. In the past, measures to counter river pollution were taken, such as widespread treatment of industrial wastewater in the Pearl River Delta and sediment removal, yet they only mitigated the problem for a short time. Evidence for our hypothesized mechanisms needs to be collected in order to take targeted action. Gathering this evidence requires application of standard tests to assess water quality (listed in Table 5) along with novel molecular techniques and may involve the development of new methods that are more efficient. As shown in this review, the suspected blackening elements (metal sulfides) and three odor-forming elements (S, N and C) should be first targets for water quality analysis investigating blackening and odor formation in the urban rivers.

(ii) What, if any, are the core microbial communities, taxonomically and physiologically, mediating bio-geochemical transfers of the key elements in black-odorous urban rivers? Despite the progress in studies of metabolism and element cycles in surface waters, many puzzles remain, for example, the discrepancy in some reports and our own investigations showing that pollution sometimes does not affect microbial communi-

Table 5. Routine methods for surface water quality assessment.

Analyte	Method	References
Dissolved inorganic carbon	Spectrophotometry/potentiometry/conductimetry	Oshima *et al.* 2001; Carlson 1978; Linares *et al.* 1989
Dissolved organic carbon	Chemical oxidation	Sharp 1973
	Ultraviolet oxidation	Beattie *et al.* 1961; Armstrong *et al.* 1966
	High-temperature combustion	Sharp 1973; Salonen 1979
Chemical oxygen demand	Dichromate oxidation method	Moore *et al.* 1949; Jirka and Carter 1975
	Potassium permanganate oxidation method	Korenaga 1980
Metal content (Fe, Mn, Cu, Zn, etc.)	Spectroscopic analysis method (inductively coupled plasma mass spectrometry)	Houk *et al.* 1989
Total dissolved nitrogen	Alkaline persulfate digestion	Solorzano and Sharp 1980
	High temperature oxidation	Suzuki *et al.* 1985
Dissolved inorganic nitrogen	Phenol hypochlorite reaction method (NH_3/NH_4^+)	Bolleter *et al.* 1961
	Nessler's reagent spectrophotometry (NH_3/NH_4^+)	Vanselow 1940; Leonard 1963
	Ion chromatography (NO_2^-, NO_3^-)	Gjerde *et al.* 1979
	Colorimetry (NO_2^-)	APHA 1998
	Ultraviolet spectrophotometry (NO_3^-)	Hoather and Rackham 1959
Dissolved organic nitrogen	High-temperature catalytic oxidation	Badr *et al.* 2003
Dissolved and precipitated sulfides	CuS colloidal solution method	Cord-Ruwisch 1985
Dissolved sulfate	Turbidimetry	Tabatabai 1974
Volatile organic sulfur compounds	Chromatography analysis method (gas chromatography–sulfur chemiluminescence detection)	Sun *et al.* 2014
	Chromatography analysis method (gas chromatography–mass spectrometry)	Van Langenhove *et al.* 1985
Element content (C, H, N, S)	Elemental analysis	Kirsten 1971; Fadeeva *et al.* 2008

ties. There is a need for better understanding of the core communities coupling all these element cycles in black-odorous urban rivers. Current meta-omic technologies may help to provide in-depth insights.

(iii) What is the role of minor elements, e.g. Cu and Zn, in the blackening and odorization of urban rivers? Hitherto, very few studies have investigated their contribution to blackening and odorization in surface waters. Whether these trace elements play critical roles in connecting the Fe, Mn, S, N and C cycles warrants future investigation.

(iv) New water quality standards to address blackening and odorous surface waters need to be developed in China. Current guidelines are insufficient, mostly because it is not clear what the reasons for blackening and odorization are. Defining baselines will be essential to develop standards. Understanding the pathways involved in blackening and malodor-generating metabolism is key to controlling these processes and developing environmentally friendly microbial technologies. For example, scaling bio-electrochemical technologies to use polluted rivers for power production can be an environmentally friendly alternative to current treatment strategies (Ewing *et al.* 2014). Also, microbial inhibitors may be used to block microbial participation in Fe, Mn, S, N and C cycles.

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Conflict of interest. None declared.

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Annexure-II

Item Nos. 04&05 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

(By Video Conferencing)

Original Application No. 307/2022

(With report dated 11.10.2022)

In re: News item published in The Hindu dated 26.04.2022 titled **"Flow of industrial effluents into Phalguni results in fish kill"**

WITH

Original Application No. 572/2022

Anil Kumar Sastry Applicant

Versus

State of Karnataka Respondent

Date of hearing: 21.11.2022

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER
HON'BLE PROF. A. SENTHIL VEL, EXPERT MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

Respondent: Mr. Mukesh Kumar, Advocate for KSPCB

ORDER

1. The matter has been put up in the light of captioned media report to the effect that hundreds of fish were found dead and floating in Phalguni (Gurupura) river, downstream the Malavoor vented dam, following flow of industrial and domestic effluent into the river. The administration has remained mute to the happening. The photographs in the media report suggest that color of the river has turned black due to

the effluents released by the industries in Baikampady industrial area in Mangalore, Dakshina Kannada, Karnataka.

2. Vide order dated 29.04.2022, the Tribunal constituted a five-member joint Committee comprising of Regional Officers of MoEF&CC and CPCB, Bengaluru, State PCB, Director, Fisheries, Karnataka and District Magistrate, Dakshina Kannada District to undertake site visit, ascertain factual position and furnish a report to this Tribunal. It was further directed that identified polluters may be put to notice of these proceedings so that they can file their response, if any.

3. The operative part of the order is reproduced below:-

> *"2. We have considered the matter. Prima facie, it appears that untreated effluents are being discharged in the river in question by the industries in the area, without any regulation by the concerned statutory authorities in violation of the Water (Prevention and Control of Pollution) Act, 1974.*
>
> *3. Accordingly, it appears to be necessary to ascertain facts and ensure remedial action for enforcement of Rule of Law, protection of environment and bio-diversity. The stretch of Phalguniriver may be treated as polluted river stretch for formulation and execution of restoration plan, defining timelines and budgetary backup. Field survey be conducted to identify sewage and industrial effluent entering into the said river. Target for restoration of water quality is required to be at level of Class B of Primary Water Quality Criteria.*
>
> *4. We constitute a five-member joint Committee comprising of the Regional Officers of MoEF&CC and CPCB Bengaluru, State PCB, Director, Fisheries, Karnataka and District Magistrate, Dakshina Kannada District. The State PCB will be the nodal agency for coordination and compliance. The Committee may meet within two weeks and undertake visit to the site. It will be open to members of the Committee to participate online except for site visit. The Committee may interact with the stakeholders, ascertain the cause of the incident and suggest remedial measures.* ***If polluters are identified, they may be put to notice so that they can file their response, if any, before this Tribunal****. Based on the observations during the proceedings of the Committee,* ***the statutory regulators may take remedial action, following due process of law****. A factual and action taken report may be filed within two months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF with a copy to the identified polluters for their response."*

4. In pursuance of above, the joint Committee has filed its report on 11.10.2022 after undertaking visit to the site, collecting water samples and getting them analyzed finding that pollution is caused by the industries and the Municipal Corporation. However, the identified polluters do not appear to have been notified about these proceedings nor adequate remedial action taken.

5. Relevant extracts from the report are:-

"3.1: Observations of the Committee:

3.1.1: General Observations:

- *Residential/commercial developments on either side of the river and, no UGD in certain areas. Even in sewered areas, there is missing links/gaps.*

- *Major and minor storm water drains were observed to be joining the river and* ***plenty of Organic load was observed at Kudroli, SulthanBatteri, Dambel, Kulur Church and ELF Gas. Map showing storm water drains joining Gurupurariver at different locations*** *is enclosed as Annexure-11.*

- ***Solid waste was found floating in the storm water drains*** *which joined the river.*

- ***Dumping/disposal of sewage collected from Hotels and selected industries and from other residential areas through Cess Pool at selected places along the banks of river back water****, which needs a proper investigation.*

- *Upstream of the Gurupurariver about 6 K.M. from Baikampady industrial area is built a vented dam which is the drinking water source for MaravooruGramaPanchayath limit. The dam was built in the year 2016-17. Since the construction of the dam, the river doesn't get minimum flow and* ***during summer seasons fish kill incidents are happening in the river during summer seasons due to build-up of organic load as a result of inadequate flushing****. It's only during the rainy season that the dam overflow reaches the river.*

3.1.2: Observations near Baikampady Industrial Area

:Major water intensive industries in the Baikampady industrial area have provided inhouse ETP and some of them have Zero liquid discharge (ZLD).

- ***Few small industries generating less waste water are yet to install ETP and STP.***

- ***Sullage/sewage is being discharged to Storm water drain from many Godowns, commercial establishments, hotels and some small industries, Labourquarter's/shed. Etc.***

- ***No proper collection mechanism for Municipal and other Solid Waste in Baikampady industrial area. Solid waste heaps dumped along road sides were observed****. Photos enclosed as Annexure-12.*

- ***Construction debris and solid waste is being disposed at ODC Road to Jokatte at the bank of the back water of Gurupura River.***

- ***The Back water /Creek at the Baikampady Industrial area is blocked and the water is stagnated, there is no easy flushing.***

- ***During random inspection of industries in the Baikampady industrial area by KSPCB officials, it is observed that the following industries are discharging untreated effluents to the storm water drain, some of them in spite of having ETP facilities.***

Table 2: Details of Industries in Baikampady Industrial Area discharging untreated effluents along with action taken:

Sl No.	***Name and address of the industries***	***Activity***	***Action initiated by the KSPCB***
1	*M/s Ocean Proteins, Plot No. 281/282, Baikampady Industrial Area, Mangaluru, D K District-575 011.*	*Fish processing(Surimi)*	*Personal hearing held and action being initiated to close down the industry and to file criminal case*
2	*M/s R.K. Industries, Plot No.191-A Baikampady Industrial Area, Mangalore, D K District-575 011.*	*Vehicular Servicestation*	*Notice of proposed directions to close down the industry is issued.*
3.	*M/s Shree Gurudev ServiceStation, Plot No. 102, Near Canara Steel Industry, Industrial Area,Baikampady, Mangaluru,Dakshina Kannada*	*Tanker washing /vehicular Servicestation*	
4	*M/s Stems and Leaves International, Plot No.162-C, Baikampady Industrial Area, Mangalore, D.K District-575011*	*Granite cutting and polishing*	*Notice of proposeddirections (NPD) to close down the industry is issued*
5	*M/s Viceroy Exports India Pvt. Ltd., Plot No.55, Baikampady Industrial Area, Mangalore, D.K District-575011.*	*Fish Processing (Freezing andExport)*	
6	*M/s Sunrise Mats, Plot No. 6-16, Baikampady Industrial Estate Area, Mangalore, D.K., District-575011*	*Plastic wastereprocessing and mat making*	*Restraining order and NPD issued*

7	*M/s Marine Food Packers, Industrial Area, Baikampady, Mangaluru, Karnataka 575011*	*Fish Processing (Freezing andExport)*	*Show cause notice is issued*
8	*M/s A. K. Veneers Pvt. Ltd., Plot No. 449, Industrial Area, Baikampady, Mangaluru, D. K. District*	*Plywood andVeneers manufacturing*	*Show cause notice is issued*

Subsequent to the issue of show cause notices/ Notice of proposed directions/restraining orders, ***some industries have rectified the problems and initiated action for providing STP/ETP. Industries who have continued the violations even after issue of Notice of proposed directions, KSPCB is in the process of initiating further course of action as per Law.***

4.0 Based on Literature: *Literature review from various researchers reveals that the incidence of river blackening and fish kill at times is not a very uncommon phenomenon and this bio-geochemical phenomenon has been most of the times co-related to presence of high organic load and inadequate tidal flushing especially in summers. High organic load quickly depletes the dissolved oxygen leading to anaerobic conditions. The anaerobic microbes degrade the dissolved organics which may further react with minerals in water and sediment forming black precipitates. A copy of one of the research review paper published by ZhiweiLeianget.al., 2018 on subject matter is enclosed for kind reference as* ***Annexure-13.***

5.0 Conclusions and Recommendations:

1. *The Committee from the Monitoring results and from other available data is of the opinion that the present fish kill is an isolated, very small one possibly by the Organic/Sewage load dumped in this particular location leading to oxygen stress during summer season.*

2. *There was no fish kill in the main Gurupura river, fish kill has happened in the stagnant pockets of the storm water drain leading to the river. Measured Dissolved oxygen levels at locations of fish death (along the two stagnant pockets of storm water drain) were 0.8mg/l and 0.9 mg/l, whereas, at the point where storm water joined the river, DO level was 4 mg/l, which shows that the fish death must have occurred due to inadequate tidal flushing in the creek/storm water drain resulting in low D.O levels.*

3. *The Committee has also observed that there is no traces of any discharge of industrial effluent in that Storm Water Drain in which fish kill has occurred.*

4. *Committee has observed entry of domestic sewage all along the river through Storm Water Drains; this needs an urgent attention by Mangaluru City Corporation (MCC).*

5. *There is no Underground drainage (UGD) facility with terminal Sewage Treatment Plant (STP) in Baikampady industrial area to take care of sewage/sullage discharge from Godown,*

commercial establishments, hotels and some small industries, Labour quarter's/sheds. etc. Responsible organisations like KIADB and Mangaluru City Corporation (MCC) are required to initiate action to construct a proper UGD system with terminal sewage treatment plant.

6. *Mangaluru City Corporation also has to initiate action for treatment and disposal of sewage generated from the area around the Baggundi lake such as, MSEZ RR colony, Angaragundi, Kudumbur Villages so as to prevent joining of untreated sewage into Baggundilake thereby to Gurupura river.*

7. *Action plan for Sl No.4,5 and 6 along with cost estimate and timelines shall be prepared by MCC and KIADB and necessary funds have to be released by Urban Development Department, Government of Karnataka and CEO, KIADB respectively for undertaking the above work.*

8. *Town Panchayath, Bajpe and GramaPanchayath, Jokatte are unsewered area along the catchment of the river Gurupura. Chief Officer, Bajpe has to take action for treatment and disposal of sewage generated in the area near airport and Bajpe village to avoid entering of sewage into the storm water drain ultimately joining the Gurupurariver and PDO, Grama Panchayat, Jokatte has to take action for treatment and disposal of Sewage generated from Jokatte areas. Directions have to be issued to DMA and CEO, ZP to release necessary funds required for undertaking the STP work.*

9. *There is no proper Solid waste collection mechanism in the Baikampady industrial Area. Construction debris (C and D waste) and solid waste including plastic waste are being dumped everywhere across the industrial area including the bank of the back water of Gurupura River. KIADB and Mangaluru City Corporation (MCC) being responsible agencies are required to initiate action to bring in a proper collection mechanism of Municipal solid waste/C and D /plastic and other types of waste and create awareness too in co-ordination with Industrial Associations.*

10. *There were lot of complaints in Media and by Industries Association that cess pool operators are discharging sewage through tankers and dumping/discharging indirectly in to rivers. Committee suggests that KIADB, MCC, ZP, PRED, Industrial Association and Police shall have to install CCTV Camera at Strategic locations in their respective jurisdiction to prevent any unauthorized/illegal dumping of waste water/sewage/solid waste in to the river.*

11. *The Committee suggests that the Minor Irrigation department who is in charge of protecting the river boundaries shall initiate steps to conduct a comprehensive survey on river encroachment along with other line departments such as, Revenue, CRZ, MCC and corresponding Town/Grama Panchayats and take appropriate action on the encroachers.*

12. *Upstream of the Gurupurariver a vented dam is built, which is the drinking water source for MaravooruGramaPanchayath and 14 other villages. Since the construction of the dam, the river doesn't get minimum flow and during summer seasons fish kill incidents are happening in the river during summer seasons due to build-up of organic load as a result of inadequate flushing. Zilla Panchayat, PRED, Mangalore Officials will have to submit compliance to conditions imposed during clearance of vented dam.*

13. *KSPCB to ensure Zero Liquid Discharge in all the industries and establishment of ETP in all small-scale industries irrespective of effluent quantity.*

14. *KSPCB has listed out few non-complying industries which are habituated to discharge into storm water drains in spite of some of them having the ETP units. Continuous monitoring of such non-complying industries followed by action as per law shall he initiated by KSPCB on priority.*

15. *KSPCB to take up strengthening of its laboratory at Mangaluru, adequate manpower to be deployed and upgrade the laboratory with advanced equipments."*

6. From the report, it is self-evident that sources of pollution include dumping of solid waste and discharge of untreated sewage and effluent by the local bodies, hotels and industries. There is no collection mechanism for municipal waste, construction debris and preventing discharge of untreated effluents. Inspite of such gross violations which amount to serious offences, the State Pollution Board who act as the custodian of environmental law does not appear to have performed its statutory functions of fixing accountability of the violators by initiating prosecution, stopping polluting activity and fixing liability on polluter pays principle for past violations. Even identified industries have not been suitably dealt with resulting in failure of rule of law. It further appears that at the joining point at backwater of Gurupura river, mangroves have been damaged. Cess pools are operated in the river catchment and discharge through tankers is also not ruled out. Absence of underground drainage and lack of connectivity to the existing STPs/not setting up required STPs appears to be patent. Existing STPs at

Mangaluru appear to be underutilized. We fail to understand reasons for such failure of the statutory regulators. Vide order dated 18.11.2022 in *OA No. 383/2022, In re : News item published in the Newspaper named, DHNS, Mangaluru dated: 15th May, 2022, titled "**Officials term disclouring of water in beaches as algal bloom**"*, the Tribunal observed:-

> *"5. We note that as per status report about waste management filed by the State of Karnataka on 12.10.2022 in O.A. No. 606/2018, In re: Compliance of Municipal Solid Waste Management Rules, 2016 and other environmental issues, there are four STPs at Mangalore - Pachanady (8.75 MLD), Kavoor (43.50 MLD), Surathkal (16.50 MLD) and Bajal (20 MLD) which are underutilized. The Tribunal has directed Karnataka State to bridge gaps in waste management for which compensation has been levied for restoration measures by ring-fencing an amount of Rs. 2900 crores. The relevant extract from the order is reproduced below:-*
>
> > *"61……xxx……xxx……xxx*
> >
> > *(iii) Admitted gap in generation and scientific handling of waste has resulted in damage to the environment and public health for which the State of Karnataka is liable to pay compensation of Rs. 2900 crores as per details already mentioned above (para 58). The amount of compensation is to be utilized for restoration measures preferably by evolving a suitable centralized single window mechanism by the Chief Secretary, Karnataka in the light of above observations in paras 31 to 34 & 38 to 51 above. The laid down timelines need to be strictly adhered to and monitored."*

7. Thus, there is immediate need for remedial action for protection of environment. The joint Committee already constituted, with addition of nominee of NCSCM and NIO, Goa, may prepare an action plan in light of its report and above observations within one month. It will be at liberty to co-opt any other Expert/Institution and interact with the stakeholders. The action plan may include immediate stopping of sources of pollution and fixing accountability of the industries, Mangalore Municipal Corporation and KIADB for past violations. The action plan may be executed within one month thereafter.

8. An action taken report may specify the gap in sewage generation in the catchment and its treatment, latest compliance status by the violators and remedial measures taken, if any, as on 31.01.2023. The report may be filed before this Tribunal by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF on or before 15.02.2023. A copy of the action taken report may be placed on the website of the State PCB with intimation to the violators by email that if they wish to respond to the report before this Tribunal, they may do so within two weeks thereafter by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF.

List for further consideration on 14.03.2023.

A copy of this order be forwarded to the Regional Officers of MoEF&CC and CPCB Bengaluru, State PCB, Director, Fisheries, Karnataka, District Magistrate, Dakshina Kannada District, NCSCM and NIO, Goa by email for compliance.

Adarsh Kumar Goel, CP

Arun Kumar Tyagi, JM

Prof. A. Senthil Vel, EM

Dr. Afroz Ahmad, EM

November 21, 2022
Original Application No. 307/2022&
Original Application No. 572/2022
SN

Regional Office :
Karnataka State Pollution Control Board
Parisara Bhavana, 10B, Baikampady Industrial Area,
Mangaluru - 575 011
Tel.: 0824-2408239
e-mail: manglore@kspcb.gov.in website: http:kspcb.gov.in

ಪ್ರಾದೇಶಿಕ ಕಛೇರಿ :
ಪರಿಸರ ಭವನ, 10ಬಿ
ಬೈಕಂಪಾಡಿ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ
ಮಂಗಳೂರು - 575 011

ಕರ್ನಾಟಕ ರಾಜ್ಯ
ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ

towards a cleaner Karnataka

PCB/RO (MNG)/NGT (PB)/OA.No. 307/2023-24/811 Date: 17/7/2023

To,

The Member Secretary
Karnataka State Pollution Control Board
#49, Parisara Bhavana
Church Street, Bengaluru-01

Through: Law Officer-Legal Cell, KSPCB

Sir,

Sub: Submission of Action Plan in the matter pertaining to NGT Suo-Moto case vide OA No. 307/2022 with respect to Joint Committee Report submitted to NGT-Reg.

Ref: The Hon'ble National Green Tribunal, Principal Bench, New Delhi Order dated: 21.11.2022 in respect of OA No.307/2022

***

With respect to above subject and reference, please find herewith the enclosed action plan submitted by the concerned agencies as per the recommendation of Joint Committee Report submitted to NGT. In the matter pertaining to Hon'ble NGT case (suo-moto) vide OA No. 307/2022. The soft copy of the PDF of the report along with annexures is mailed for onward submission to Hon'ble NGT.

Thanking you,

Yours faithfully

ENVIRONMENTAL OFFICER,
KSPCB, Mangaluru

Encl: As above

Submission of Action Plan in the matter of OA 307/2022 (PB) In compliance with the Honb'le NGT order dated: 21.11.2022

Submitted to

Hon'ble National Green Tribunal

Principal Bench

New Delhi

INDEX

1 Preamble

Hon'ble NGT, Principal Bench, New Delhi has taken Suo moto case based on the "News item published in "The Hindu" dated 26.04.2022 titled "Flow of industrial effluents into Phalguni river results in fish kill". While issuing an Order vide order dated 29.04.2022, Hon'ble NGT has constituted a committee comprising of MOEF *& CC and CPCB Bengaluru, State PCB, Director, Fisheries, Karnataka and District Magistrate, Dakshina Kannada District. The State PCB will be the nodal agency for coordination and compliance. Hon'ble NGT has directed the committee to undertake field survey to ascertain the causes of the incident and suggest remedial measures.*

*In compliance to the Hon'ble NGT order dated 26-04-2022, MOEF&CC and CPCB Bengaluru, State PCB, the Director, Fisheries, Karnataka and District Magistrate, Dakshina Kannada District. The State PCB will be the nodal agency for coordination and compliance. In compliance to Hon'ble NGT order dated 29-04-2022, th*e committee submitted the report on 11.10.2022 to Hon'ble NGT and same was considered during the hearing on 21-11-2022. **The NGT Order dated 29.04.2022 is attached as Annexure-1.**

2 Composition of the committee

In compliance to the Hon'ble NGT order, committee comprising of following members was constituted:

Sl. No	Name & Designation	Details
1	The District Magistrate, Dakshina Kannada District	Chairman
2	Senior Officer/Scientist, Regional Office, Ministry of Environment, Forest & Climate Change, South Zone Office, E-3/240, Kendriya Sadan, 4th Floor, E & F Wings 17th Main Road, 2nd Block, Koramangala, Bengaluru -560 034	Member
3	The Regional Director, Central Pollution Control Board, Nisarga Bhavan, Basaveshwara Nagar, Bengaluru-560010	Member
4	The Director, Department of Fisheries, Karnataka	Member
5	The Zonal Senior Environmental Officer, Karnataka State Pollution Control Board, Mangaluru	Member
6	Environmental Officer, KSPCB, Mangaluru	Member Convenor

3 Submission of Joint Committee report, dated 11.10.2022;

In pursuance to the above, the joint committee has submitted its report on 11.10.2022, after carrying out visit to the site, collecting water samples and obtaining analysis report of the water samples, concluding that pollution of

water is being caused by the discharge of industrial effluent and sewage from the City Municipal Corporation.

4 Hon'ble NGT Orders dated 21-11-2022

After submissions of report by the committee, the Hon'ble NGT vide order dated 21.11.2022 has directed as follows:

"Thus, there is immediate need for remedial action for protection of environment. The joint Committee already constituted, with addition of nominee of NCSCM and NIO, Goa, may prepare an action plan in light of its report and above observations within one month. It will be at liberty to co-opt any other Expert/Institution and interact with the stake holders. The action plan may include immediate stopping of sources of pollution and fixing accountability of the industries, Mangalore Municipal Corporation and KIADB for past violations. The action plan may be executed within one month thereafter.

An action taken report may specify the gap in sewage generation in the catchment and its treatment, latest compliance status by the violators and remedial measures taken, if any, as on 31.01.2023. The report may be filed before this Tribunal by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF on or before 15.02.2023. A copy of the action taken report may be placed on the website of the State PCB with intimation to the violators by email that, if they wish to respond to the report before this Tribunal, they may do so within two weeks there after by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF."

Copy of the Hon'ble NGT order dated: 21.11.2022 is placed as Annexure-2.

5 Scope of the Present Committee:

The committee constituted by the Hon'ble NGT vide order dated 21.11.2022 is vested with the following scope:

- To prepare an action plan including remedial measures for the protection of environment.
- Action plan to include immediate stopping of sources of pollution and fixing accountability of the industries, Mangalore Municipal Corporation.
- An action taken report may specify the gap in sewage generation in the catchment and its treatment, latest compliance status by the violators and remedial measures taken, if any, as on 31.01.2023

6 Meeting of the Committee:

The committee convened a meeting through online on 16.12.2022 and devised an action plan to comply with the Hon'ble NGT order.

7 Action plan w.r.t addressing the sewage Management issues

The joint committee in its report dated 11.10.2022 submitted to Hon'ble NGT had observed that, the entry of domestic sewage all along the river is discharged through Storm Water Drains drom Mangaluru City Corporation area, Baikampady Industrial area and MSEZ RR Colony, Angaragundy and Kudumburu village , Bajpe Town Panchayat and Jokatte Village Panchayat. This needs to be urgent attention by the concerned ULBs and Panchayat. The committee first ascertained the gap in sewage generation and treatment capacity. The current status is as follows:

SL.No	Area covered under Action plan	Quantity of Estimated Sewage generation	Quantity of Sewage treated	Treatment gap	Capacity of existing treatment facility	Present operational capacity	STP operational gap
1	*Mangaluru City (South bank of the river through missing links of UGD)*	40.04 MLD	25 MLD	15.04 MLD	52.25 MLD	25 MLD	27.5 MLD
2	*Baikampady industrial area*	6 MLD	0	0	0	0	0
3	*MSEZ RR colony, Angaragundi, Kudumbur Villages*	1.17 MLD	0	0	0	0	0
4	Town Panchayath, Bajpe	1.64 MLD	0	0	0	0	0
5	*Jokatte village*	0.94 MLD	0	0	0	0	0

As per The Hon'ble NGT, an action taken report on the same may specify the gap in sewage generation within the catchment area and its treatment, latest compliance status by the violators and remedial measures taken, if any, as on 31.01.2023 shall be submitted and this action taken report has to be placed on the website of the State PCB with intimation to the violators by email that if they wish to respond to the report before this Tribunal,

ACTION PAN/ACTION TAKEN IN COMPLIANCE TO THE NGT ORDER DATED:21.11.2022

<table>
<tr><th>Sl.No</th><th>Direction/Observations of Hon'ble NGT</th><th>Responsible Department /Authority</th><th>Remarks</th></tr>
<tr><td>1</td><td>Entry of domestic sewage all along the river through Storm Water Drain from the South bank of the river through missing links of UGD</td><td>Mangaluru City Corporation (MCC)</td><td>The details of Number of Wards Covered, total Pollution, total Sewage generation, Wet Well Capacity etc. related to Phalguni River catchment area are submitted as below;
<table>
<tr><th>Sl.No</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1</td><td>Total Area</td><td>----</td></tr>
<tr><td>2</td><td>Wards covered</td><td>12 to 36, 40 to 47 and 56</td></tr>
<tr><td>3</td><td>Estimated Population (2026)</td><td>3,70,816</td></tr>
<tr><td>4</td><td>Total area covered under UGD</td><td>50%</td></tr>
<tr><td>5</td><td>Estimated sewage generation</td><td>40.04 MLD</td></tr>
<tr><td>6</td><td>Wet well capacity</td><td>52.25 MLD</td></tr>
<tr><td>7</td><td>Pump Capacity</td><td>35 MLD</td></tr>
<tr><td>8</td><td>Sewage taken into the STP for treatment</td><td>25 MLD</td></tr>
<tr><td>9</td><td>Treatment Gap</td><td>15.04 MLD</td></tr>
</table>
<u>The details of the existing STP :-</u>
Under KUDCEM project sewage treatment system was designed for ultimate population during the year 2026 with over all treatment capacity of 88.75 MLD.

Under KUDCEMP, 4 STPs are constructed. Out of these two STPs are related with the sewage generated in the Phalguni River Catchment area and details are submitted as follows;
<table>
<tr><th>Sl.No.</th><th>STP Location</th><th>Capacity in MLD</th><th>Technology</th><th>Location</th></tr>
<tr><td>1</td><td>STP at Kavoor</td><td>43.5</td><td>Extended aeration followed by</td><td>Lat:12.915591^{o}
Long:74.853707^{o}</td></tr>
</table></td></tr>
</table>

			tertiary treatment system	
4	STP at Pachanady	8.75	Extended aeration followed by the tertiary treatment System	Lat:12.925126º Long:74.884412º

Outlet point of Pacchanady STP

STP at Kavoor

Utilization Gap of STPs

Sl.No	Location of STP	Design Capacity in MLD	Operational Capacity in MLD	Gap in utilization
1	STP at Kavoor	43.5	21	22.5
4	STP at Pacchanady	8.75	4.0	4.75
Total		52.25	25	27.25

Long term measures:

- Proposed to construct new UGD network in un-sewered area
- Replacement of old lines, installation of additional pump and increasing the capacity of existing Wet well, so as to transport the sewage from wet well to STP.

<table>
<tr><td></td><td></td><td></td><td>

- Augmenting the capacity of STP, so as to treat the total sewage with the time line for implementation from One Month to Twenty-Four Months.

Detailed Action Plan submitted by the Mangaluru City Corporation is attached as Annexure-3
</td></tr>
<tr><td>2</td><td>Underground drainage (UGD) facility with terminal Sewage Treatment Plant (STP) in Baikampady industrial area to Take care of sewage /sullage discharge from Godown, commercial establishments, hotels and some small industries, Labour quarter's /sheds .etc.</td><td>KIADB and Mangaluru City Corporation (MCC)</td><td>

<table>
<tr><th>Sl.No</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1</td><td>Total Area</td><td>9.46 Sq, Km</td></tr>
<tr><td>2</td><td>Total area covered under UGD</td><td>NIL</td></tr>
<tr><td>3</td><td>Total Houses Industrial Plots</td><td>506</td></tr>
<tr><td>4</td><td>Total Industrial Plots allotted</td><td>506</td></tr>
<tr><td>5</td><td>Total Commercial Establishments</td><td>12</td></tr>
<tr><td>6</td><td>Total Housing Units</td><td>80</td></tr>
<tr><td>7</td><td>Total floating population</td><td>10,000.00 (AVG)</td></tr>
<tr><td>8</td><td>Estimated Sewage generation</td><td>6 MLD</td></tr>
<tr><td>9</td><td>Sewage taken into the STP</td><td>-Nil-</td></tr>
<tr><td>10</td><td>Treatment Gap</td><td>100 %</td></tr>
</table>

Action plan

<table>
<tr><td>Sl. No</td><td>Ward Number</td><td>Identified Gap</td><td>Action plan</td><td>Fund</td><td>Scheme</td><td>Time Limit</td></tr>
<tr><td>1</td><td>10</td><td>Baikampady Industrial Area 15 Kms network, Construction of 1 Wet Well & 3MLD capacity STP</td><td>Line estimate prepared</td><td>40 Cr</td><td>NA</td><td>18 months</td></tr>
</table>

</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>The estimation of quantity of Sewage generation and cost of UGD and STP construction submitted by the Mangaluru City Corporation is attached as Annexure-3 a</td></tr>
<tr><td>3</td><td>Initiate action for treatment and disposal of sewage generated from the area around the Baggundi lake such as, MSEZ RR colony, Angaragundi, Kudumbur Villages</td><td>Mangaluru City Corporation (MCC)</td><td>
<table>
<tr><th>Sl.No.</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1</td><td>Total Area</td><td>8.49 Sq Km</td></tr>
<tr><td>2</td><td>Total wards covered</td><td>8,9 & 10</td></tr>
<tr><td>3</td><td>Total Population</td><td>MSEZ RR Colony -3000
Angaragundi, Kudumbur Villages – 7126</td></tr>
<tr><td>4</td><td>Total area covered under UGD</td><td>0%</td></tr>
<tr><td>5</td><td>Estimated sewage generation</td><td>MSEZ RR Colony i.e. 0.32 MLD
Angaragundi & Kudumburu Village(0.85MLD)
Total-1.17 MLD</td></tr>
<tr><td>8</td><td>Wet well capacity</td><td>0 MLD</td></tr>
<tr><td>9</td><td>Sewage taken into the STP</td><td>0 MLD</td></tr>
<tr><td>10</td><td>Treatment Gap</td><td>1.17MLD</td></tr>
<tr><td>11</td><td>Proposed STP capacity</td><td>1.5 MLD</td></tr>
</table>
Action Plan
<table>
<tr><th>Sl. No</th><th>Ward Number</th><th>Identified Gap</th><th>Action plan</th><th>Fund</th><th>Scheme</th><th>Time Limit</th></tr>
<tr><td>1</td><td>8 & 9</td><td>MSEZ R & R Colony – Construction of 2 Wet-well</td><td>Work awarded for the constructi</td><td>GOK</td><td>KIUWMIP</td><td>24 months</td></tr>
</table>
</td></tr>
</table>

			& 1.5 MLD STP	on of 1.5MLD STP			
2	10 (Wet well zone 12 A of Angaragundi and 12B of Kudumburu)	Uncovered areas in the ward at Angaragundi & Kudumburu 4 Kms & 2 Wet wells	DPR prepared	1852 Lakhs	NA	24 months

- Detailed Project Report for providing Sewerage System to Angaragundi and Kudumburu Residential Areas prepared for an amount of 1852 Lakhs.
- MCC has appointed a consultant through KUIDFC for the preparation of DPR and DPR for the construction of 2 wet wells is finalized and submitted to the Government for obtaining necessary approval. For construction of wet- wells the lands are identified.
- A Sewage Treatment Plant o capacity 1.5MLD (SBR Type) was awarded on 16.02.2023 and the construction work is under progress.

Proposed land details

Sl.No	Location	Purpose of Land required	Survey No./Village	Extent (in acres)	Status
1	Angaragundy	Wet well	Sy.No.-39	0.20	Govt. Land KIADB land identified (land to be reserved)

			2	Kudumburu	Wet well	Sy.No-25/1A1A1 and Sy.No.-90	0.09	Govt.Land (land to be reserved)

STP Construction site MSEZ RR Colony

Wet well Construction site

Detailed Action Plan submitted by the Mangaluru City Corporation is

<table>
<tr><td></td><td></td><td></td><td>attached as Annexure-4</td></tr>
<tr><td>4</td><td>Treatment and disposal of sewage generated in the area near airport and Bajpe</td><td>Town Panchayath, Bajpe</td><td>The Action Plan Includes;
For providing Fecal Sludge and Septage Management (FSSM) system
For Interception & Diversion (I&D) works
For Providing UGD system to Bajpe town with terminal STP of capacity 2 MLD, with Total estimated Cost of Rs. 1929.25 lakh. The details are submitte as below;
<table>
<tr><td>Total area of the town</td><td>19.92 Sqkm</td></tr>
<tr><td>Total wards</td><td>19</td></tr>
<tr><td>Total population of the town as pe 2011 census</td><td>18,507 (Bajpe – 9701, Malavooru – 3468, Kenjaru – 5338)</td></tr>
<tr><td>Estimated Sewage generation</td><td>1.64 MLD</td></tr>
<tr><td>Under Ground Drainage system</td><td>Bajpe town is not covered by Under Ground Drainage system</td></tr>
<tr><td>Gap</td><td>No treatment and disposal system</td></tr>
<tr><td>Present treatment system</td><td>At present, the town has partial individual Septic tank and Soak Pit for houses to dispose the sewage.</td></tr>
<tr><td>Gaps identified</td><td>At several places the generated sewage (either grey or black) is discharged directly into the drains by hotels, restaurants, apartments, marriage hall, lodges, households etc., and further it reaches nala and finally joins to</td></tr>
</table></td></tr>
</table>

			Gurupura river.

Overall Action Plan of Town Panchayath, Bajpe

Sl.No	Action Plan	Estimate Cost	Scheme under which the fund raised	Time line
1	For providing FSSM system	Rs. 456.25 lakh	DPR yet to be prepared	No time line is given
2	For I&D works	Rs. 1473.00 lakh		
3	For Providing UGD system to Bajpe town with terminal STP of capacity 20 MLD	11613.00		
	Total	**Rs. 1929.25 lakh**		

KUWS & D Board Division Mangaluru has prepared the proposal and submitted to the Town Panchayath Bajpe. **(Copy attached as Annexure-5).**
The detailed Project report is yet to prepare.

	Treatment and disposal of sewage generated in the area near Jokatte village		Village Name: 62 Tokuru Total Population as per 2011 census: 7433 Present population (17 % Decadal Growth): 8697 Total Household: 1900 Estimated Sewage Generation: 0.94 MLD

			Treatment and Disposal of sewage — • *Each house has Septic tank for disposal of Black water and is disposed through the cess pool tanker once it is filled.* • *No facility to manage the grey water. The same is being discharged into the storm water* **Proposed Action Plan includes;** **1. Construction of Septic tank and Soak Pit** As per Government direction, awareness has been created to provide two chambered system consisting of Septic tank and Soak Pit and the same is being circulated among the General public. Under the Swachh Bharath Mission (Rural)-Level 2, a detailed project report is prepared for the Community level Soak Pits at Different habitation in the village Panchayat limit and is being approved. *The proposed project costs is about 51.3014 Lakh and is under tender process.* Detailed Action plan Submitted is attached as **Annexure-6**
5	*There is no proper Solid waste collection mechanism in the Baikampady industrial Area. The Construction debris (C and D waste) and*	*KIADB and Mangaluru City Corporation (MCC)*	**Action taken by the Jokatte Village Panchayath** . Dry and wet waste is being collected separately and the wet waste is being processed at Waste Management Complex (*Swacch Sankeerna*) for the production of compost and dry waste is being stored for final disposal. Quantity of compost generated and details of its utilization. • Waste Management Complex is already constructed and is used for the

	solid waste including plastic waste are being dumped everywhere across the industrial area including the bank of the backwater of Gurupura River.		processing of wet waste and for storing of collected dry waste.   Swaccha Sankeerna (Dry waste Collection centre **Action taken by the MCC** The MCC has deployed 2 Door to Door Waste collection tippers of capacity 1.5 ton and 1 ton each respectively (with Vehicle Nos. KA 19 AB 5623 and KA 19 A 7690) for collection of domestic solid waste from Baikampady Industrial Area. These vehicles make 2 trips/day for collection of solid waste and cover the entire industrial area.

Collection of waste in the Industrial area

Three major solid waste/ C & D waste illegal dump sites were identified in the industrial area for disposal, which are as follows;

1. Industrial area at Jokatte Road
2. River bank at Kuluru Bridge
3. Along the Road within the industrial area in parallel to Kudumburu

Hole.(ODC Road)

The Following action plan is being submitted to prevent the illegal dumping of solid waste in the above area;

Sl. No	Action plan	Fund	Scheme	Time Limit	Remarks
1	Fencing all along the identified area	General Funds	MCC shall seek funding from CSR component of different industries.	10 months	1. Works at Jokatte Road cannot be taken up as it is outside the MCC limits. 2. Fencing of river bank at Kuluru Bridge shall be taken up, after obtaining necessary permission from the Port Authority. 3.. Development of Green Belt / Urban Forest is being considered for fencing. 3. Any development /

								construction activity within the Baikampady Industrial Area shall be taken up in coordination with the KIADB.
			2	Installing CCTV to monitor *at Strategic locations*	SBM	IEC	6 months	MCC has already installed 18 nos. of solar powered CCTV Cameras (which can be relocated) at different strategic locations across the city.
			3	Installing and commencing the operation of the C&D waste processing unit at already identified C&D waste site	SFC & General Funds	-	1 year	DPR is under completion stage. The project shall be implemented immediately after the tender is awarded.

<table>
<tr>
<td></td>
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<td>
<table>
<tr><td>4</td><td>Awareness to people through paper notification</td><td>SBM Funds & General Funds</td><td>-</td><td>NA</td><td>MCC has been publishing notifications regarding awareness on segregation of waste for general public</td></tr>
</table>
Installation of CCTV camera at ODC Road

Detailed Action plan and Action taken report submitted is attached as Annexure-7
</td>
</tr>
<tr>
<td></td>
<td>Action Plan to Check illegal discharging of sewage through tankers dumping/discharging indirectly in to rivers</td>
<td>Mangaluru City Corporation (MCC)</td>
<td>
<table>
<tr><td>Sl.No</td><td>Action plan</td><td>Time Limit give specific timelines</td></tr>
<tr><td>1</td><td>Installation of GPS tracking to all the cess pool vehicles</td><td>6 months</td></tr>
<tr><td>2</td><td>Geo co-ordinations of route</td><td>6 months</td></tr>
</table>
</td>
</tr>
</table>

			<table><tr><td>3</td><td>Implementing the manifest system to track the collection and transportation of sewage from generation of disposal point</td><td>1 year</td></tr><tr><td>4</td><td>And Bar code system will be developed to all those tankers involved in the sewage collection</td><td>1 year</td></tr></table> All the cess poll vehicles will be informed to implement the GPS tracking system as mentioned above within 6 months and along with bar code system within 1 year time line. **Detailed Action plan submitted is attached as Annexure-7a**
	Minor Irrigation Department who is the in charge of protecting the river boundaries shall initiate steps to conduct the a comprehensive survey on river encroachment along with the other line departments such as Revenue, CRZ, MCC and corresponding Town/Grama Panchayat and take appropriate action against the encroachers.	*Minor Irrigation*	The Executive Engineer, Minor irrigation and Ground water Development Section, Mangaluru has submitted the compliance report vide letter Dated:18.05.2023 and stated that, To conduct the comprehensive survey on river encroachment, the work is assigned to the survey team of National Institute of Technology, Karnataka (Suratkal) which involves following steps: • Historical Analysis of River Boundary using GIS • Geo-referencing • Data Digitization • Change detection • Analysis and Interpretation • Visualization The Work will be completed within 45 days and after obtaining the finding, the exact quantum of river encroachment will be assessed and the concerned competent authority will be initiated to take appropriate action on the encroachers.

			The letter with detailed report is attached as Annexure-8
6	*Submit compliance to conditions imposed during clearance of Maravooru vented dam with respect to the minimum flow to Down stream of the dam during summer season.*	*Zilla Panchayat, PRED, Mangalore*	The Executive engineer, Rural Drinking Water Supply and Sanitation Cell, Dakshina Kannada District has submitted the letter dated:17.04.2023 stating that, **No CRZ Clearance has been obtained from the Coastal Regulation Authority** for the construction of the Maravooru Vented dam. **The Copy of the letter is attached as Annexure-9**
7	*Ensuring Zero Liquid Discharge in all the industries and establishment of ETP in all small-scale industries irrespective of effluent quantity*	*KSPCB*	There are 11 major effluent generating industries are operating in the Baikampady Industrial area. Out of which 8 industries have provided Zero Liquid Discharge facility by installing the ETP followed by RO system and recycling /reusing the treated water completely within their premises. The Action has been initiated on remaining 3 non-complying industries, wherein Closure order has been issued to 02 industry, and Notice of Proposed Direction (NPD) has been issued to 01 industry. Further, for violation of the consent condition and discharge of effluent Closure direction was recommended for 01 industry. The Details of status of ZLD in major effluent generating industries are as **Annexure-10**
8	*Initiation of action against the non-complying industries which are habituated to discharge into storm water drains*	*KSPCB*	The Board has initiated the action against the violating industries mentioned in the NGT Order There are 8 violating industries identified in the Joint Committee report and the Board has initiated the action against these industries and report has been submitted to the Head office with the following recommendations;

			• Issue of Closure direction along with imposition of Environmental Compensation and seeking authorization for filing the Criminal Case for violation- **03 industries**. • Recommended for Closure direction along with imposition of Environmental Compensation and seeking authorization for filing the Criminal Case for violation- **02 industries**. • Issue of Notice of proposed direction along with imposition of Environmental Compensation-**01 industry** • Issue of Show Cause Notice- **01 industry**. • Recommended for levying the Environmental Compensation for **01 industry.** **Consolidated table specifying the industry name, violation and action taken is attached as Annexure-10** Further**,** The Environmental Compensation is calculated as per the NGT directions in the matter of OA No. 593/2017 for levying the Compensation on Mangaluru City Corporation and Karnataka Industrial Developmental Board for discharging untreated Sewage into the river and is as follows: • **EC for** Mangaluru City Corporation (MCC) -**2495.81 Lakhs** • **EC for** Karnataka Industrial Areas Development Board (KIADB)-**739.5 Lakhs** The letter forwarded to Board Office with a recommendation to levy the EC is

			attached as **Annexure-11 & 12**
9	*KSPCB to take up strengthening of its laboratory at Mangaluru, adequate man power to be deployed and upgrade the laboratory with advanced equipments."*	*KSPCB*	The KSPCB has taken up strengthening the Regional Laboratory located at Mangaluru with procurement of new additional equipment to upgrade the existing laboratory with total budget cost of Rs. 58,15,731/-. **The details of the equipment purchased with quantity and cost is attached as Annexure-13**

CONCLUSION AND RECOMMENDADTIONS

Conclusions and Recommendations of the Joint Committee:

After going through the details of the Action plan/Acton taken report of the concerned departments in compliance to the Hon'ble NGT order dated:21.11.2022, the committee has made the following observations,

- **Action plan for Establishment of Sewage Treatment Plant for Baikampady Industrial area.**

The NGT in its order dated 21.11.2022 has directed the Mangaluru City Corporation and KIADB to initiate the action to construct a proper UGD system with terminal sewage treatment plant for treating the sewage generated in the Baikampady Industrial Area.

In this regard, the Mangaluru City Corporation (MCC) has submitted the estimated quantity of sewage and cost of the proposal for the establishment of Common STP at Baikampady Industrial area. However, vide its letter dated 02.05.2023, the authorities MCC have informed that, KIADB has to prepare the DPR and action plan for establishment of Common STP at Baikampady Industrial area **(Copy of the letter is enclosed as Annexure-14).**

However, the KIADB in its letter vide No: KIADB/MNG/Tech/EE/MUDA/1394/2022-23, Date:08.12.2022 & 14.02.2023 has requested the Commissioner, Mangaluru City Corporation for submission of proposal for providing UGD network & STP for Baikampady Industrial area. **(Copy of the letter is enclosed as Annexure-15 & 16).**

Thus, both the responsible agencies till date, have not submitted any time bound action plan/proposal with respect to providing UGD with terminal STP in the Baikampady Industrial area and also, there is no clarity among the agencies regarding the responsibility of preparing action plan/construction of STP in Baikampady industrial area either by MCC or by KIADB.

Hence, the committee is of the opinion that, the Hon'ble NGT has to give clear directions to KIADB for providing UGD and for construction of STP in Baikampady Industrial Area, as the agency is responsible for the development and maintenance of the basic infrastructure of the Industrial area.

Further, in compliance to the Hon'ble Supreme Court order dated:22.02.2017 with respect to the Writ Petition 375/2012, KSPCB has issued the directions to the KIADB authorities for establishment of Common Effluent Treatment Plant (CETP) at all Industrial area/estate developed by KIADB on 27.08.2019 (**Copy of the Board letter are enclosed as Annexure-17).**

- **Timeline for the completion of the given Action Plan:**

The committee is of opinion that, the action plan to address the entry of sewage into the Gurupura River submitted by the Mangaluru City Corporation, Town Panchayat, Bajpe and Jokatte Grama Panchayat lacks the time bound commitment with respect to its

implementation. All projects are in planning stage and there is no time bound commitment for the approval of DPR from the concerned authority, details of fund earmarked and release, commencement of the project and completion of the same.

There are also issues like land acquisition (if required) for construction of Under Ground Drainage (UGD) System and terminal Sewage Treatment Plants (STPs) and the time line for the commencement and completion of the project.

As per the meeting proceedings held at Zilla panchayat, Dakshina Kannada District on 02.05.2023, it is opined by the concerned departments, that implementation of the submitted action plan needs to undergo an elaborate process such as identifying the land for Purchase /acquisition of land with detailed Survey to be undertaken, preparation of DPR, approval of DPR and fund release from the concerned Department/Government. Hence, at this junction, only time period required for the execution along with action plan for implementation may be given, however, the exact timeline can be specified only after the tendering process and release of fund to the specific projects by the Concerned Heads of Department /Government **(Copy of the proceedings are enclosed as Annnexure-18).**

Hence, committee is of opinion that a direction may be issued to the Government for the immediate release of fund for the implementation of the action plan submitted by the Concerned authorities.

- **Construction of C&D waste processing plant;**

The Joint committee in its report has majorly observed that there is no proper collection mechanism for the Construction and Demolition (C&D) waste in the jurisdiction of Mangaluru City Corporation (MCC) resulting the illegal dumping of such waste in the Baikampady industrial area /other parts of the city and encroachment of CRZ area and river beds. There is also pollution of water body due to illegal dumping of solid waste.

The authorities of MCC have failed to establish the C&D waste processing facility even after identification of site for the said purpose in the year 2020. The failure to start the collection and processing of C&D waste from the MCC has resulted in the illegal dumping of waste in the area and there are no concrete steps taken from the Authorities to address the problem.

- **Immediate action to be taken;**

Apart from the implementation of the action plan, the committee recommends the following short- term measures by the respective local bodies (MCC, TMC Bajpe and Jokatte Grama Panchayat), KIADB and KSPCB in order to protect the Gurupura river from pollution.

  - Drains in this industrial area are filled with different kinds of wastes, to name few; plastic packaging materials, the thermocol, plastic bottles, dead branches of tree, dead leaves, rags etc. Hence, Mangaluru City Corporation/KIADB shall install steel mesh/screens at intermediate places along the drains to check the

entry of solid waste (Especially Suspended Solids/Floating materials) into the river and deploy dedicated persons to clean it regularly.

- Further, there are illegal dumps of C & D waste and other types of solid waste on either side of its roads in Baikampady Industrial Area. Therefore, as a onetime measure, a clean-up drive shall be undertaken by KIADB in co-ordination with MCC to remove all the solid waste and Construction/demolition waste accumulated on road sides of the Baikampady Industrial area.
- The Jokatte Panchayat and TMC Bajpe too shall install steel mesh/screens/trash booms at intermediate places of nala to check the entry of solid waste into the river and deploy the dedicated persons to clean it regularly.
- The TMC, Bajpe shall come out with their solid waste management plan in their jurisdiction
- Jokatte Grama Panchayat shall install CCTV cameras in their jurisdiction where the solid waste and Construction & demolition wastes are being illegally dumped, especially at the junction of the Baikampady Industrial area.
- The KSPCB shall direct all industries to dispose the sewage (where ever there are no STP for the treatment of Sewage generated from industries) through Corporation authorized cess pool tankers only and MCC has to ensure that the tankers are disposing the same to Sewage Treatment Plant directly and not into the wet wells.
- The KSPCB shall monitor the industries and shall ensure that all water significant industries adopt the practice of zero liquid discharge to conserve the water resource and the treated water shall be recycled/reused within the industry.
- The KIADB shall ensure that no accommodation for the workers is facilitated in the designated industrial plots meant for industrial activities and initiate the action to vacate all such plots/industrial sheds which are being used to accommodate the labourers illegally. These accommodations have canteen facilities within them, at present, sewage and sullage from these quarters are being discharged directly in to drains without any treatment
- The Coastal Zone Management Authority (CZMA) shall take up the survey of CRZ area and initiate action on illegal encroachment of the Backwater Creek and Mangrove plantation in the Baikampady and surrounding area.
- The Panchayath Rural Water Supply and Sanitation department, Zilla Panchayat shall ensure minimum ecological flow in the downstream of the Marvooru vented dam during summer season. This will help the propagation of aquatic bio diversity in the river.
- There should be mechanism for regular cleaning of storm water drains within the industrial area. The same may be implemented by KIADB through Industrial Association.
- The entire Baikampady Industrial Area shall be provided with Fencing (barbed wire/any other material) with suitable watch & ward system, to check the indiscriminate disposal of Plastic Carry bags filled with Municipal solid Waste by workers of industrial area.
- Separate Parking area shall be developed either by KIADB or by New Mangalore Port Authority(NMPA) for parking heavy trucks at the entrance of the industrial area to prevent indiscriminate parking within the Baikampady industrial area and to avoid dust pollution from their movement.

- Individual industries shall take responsibility of maintaining good housekeeping within and outside their industries to improve the overall aesthetic of the industrial area.

Deputy Commissioner and District Magistrate
Dakshina Kannada District
Chairman of the Joint Committee

Dr Prabhu S., Scientist D
Nominated by Regional Office, MoEF&CC,
Bengaluru,
Member

Smt. Mahima.T., Scientist
Nominated by Regional Director CPCB
Bengaluru ,
Member

Sri. R.A. Sreepada
Senior Principal Scientist
CSIR-National Institute of Oceanography(NIO)
Dauna Paula, Goa
Member

Dr. Robin R.S.
Scientist,
NCSCM MoEF, Govt. Of India,
Anna University Campus, Chennai
Member

Dr. Harish Kumar, Deputy Director
Nominated by the Director
Department of Fisheries, Bengaluru
Member

Smt. Vijaya Hegde
Senior Environmental Officer
Zonal Office, KSPCB, *Member*
Member

Environmental Officer, KSPCB, Mangaluru
Member Convenor

Item No. 16 (Court No. 1)

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

(By Video Conferencing)

Original Application No. 307/2022

In re : News item published in The Hindu dated 26.04.2022 titled **"Flow of industrial effluents into Phalguni results in fish kill"**

Date of hearing: 29.04.2022

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE PROF. A. SENTHIL VEL, EXPERT MEMBER

ORDER

1. The matter has been put up in the light of captioned media report to the effect that hundreds of fishes were found dead and floating in Phalguni (Gurupura) river, downstream the Malavoor vented dam, following the flow of industrial and domestic effluent into the river. The administration has remained mute to the happening. The photographs in the media report suggest that color of the River has turned black due to the effluents released by the industries in Baikampady industrial area in Mangalore, Dakshina Kannada, Karnataka.

2. We have considered the matter. *Prima facie,* it appears that untreated effluents are being discharged in the river in question by the industries in the area, without any regulation by the concerned statutory authorities in violation of the Water (Prevention and Control of Pollution) Act, 1974.

3. Accordingly, it appears to be necessary to ascertain facts and ensure remedial action for enforcement of Rule of Law, protection of environment and bio-diversity. The stretch of Phalguni river may be treated as polluted river stretch for formulation and execution of restoration plan, defining timelines and budgetary backup. Field survey be conducted to identify sewage and industrial effluent entering into the said river. Target for restoration of water quality is required to be at level of Class B of Primary Water Quality Criteria.

4. We constitute a five-member joint Committee comprising of the Regional Officers of MoEF&CC and CPCB Bengaluru, State PCB, Director, Fisheries, Karnataka and District Magistrate, Dakshina Kannada District. The State PCB will be the nodal agency for coordination and compliance. The Committee may meet within two weeks and undertake visit to the site. It will be open to members of the Committee to participate online except for site visit. The Committee may interact with the stakeholders, ascertain the cause of the incident and suggest remedial measures. If polluters are identified, they may be put to notice so that they can file their response, if any, before this Tribunal. Based on the observations during the proceedings of the Committee, the statutory regulators may take remedial action, following due process of law. A factual and action taken report may be filed within two months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF with a copy to the identified polluters for their response.

List for further consideration on 01.08.2022.

A copy of this order be forwarded to the Regional Officers of MoEF&CC and CPCB Bengaluru, State PCB, Director, Fisheries,

Karnataka and District Magistrate, Dakshina Kannada District by email for compliance.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

Prof. A. Senthil Vel, EM

April 29, 2022
Original Application No. 307/2022
AB

ANNEXURE-2

Item Nos. 04&05 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

(By Video Conferencing)

Original Application No. 307/2022

(With report dated 11.10.2022)

In re: News item published in The Hindu dated 26.04.2022 titled **"Flow of industrial effluents into Phalguni results in fish kill"**

WITH

Original Application No. 572/2022

Anil Kumar Sastry Applicant

Versus

State of Karnataka Respondent

Date of hearing: 21.11.2022

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER
HON'BLE PROF. A. SENTHIL VEL, EXPERT MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

Respondent: Mr. Mukesh Kumar, Advocate for KSPCB

ORDER

1. The matter has been put up in the light of captioned media report to the effect that hundreds of fish were found dead and floating in Phalguni (Gurupura) river, downstream the Malavoor vented dam, following flow of industrial and domestic effluent into the river. The administration has remained mute to the happening. The photographs in the media report suggest that color of the river has turned black due to

the effluents released by the industries in Baikampady industrial area in Mangalore, Dakshina Kannada, Karnataka.

2. Vide order dated 29.04.2022, the Tribunal constituted a five-member joint Committee comprising of Regional Officers of MoEF&CC and CPCB, Bengaluru, State PCB, Director, Fisheries, Karnataka and District Magistrate, Dakshina Kannada District to undertake site visit, ascertain factual position and furnish a report to this Tribunal. It was further directed that identified polluters may be put to notice of these proceedings so that they can file their response, if any.

3. The operative part of the order is reproduced below:-

> *"2. We have considered the matter. Prima facie, it appears that untreated effluents are being discharged in the river in question by the industries in the area, without any regulation by the concerned statutory authorities in violation of the Water (Prevention and Control of Pollution) Act, 1974.*
>
> *3. Accordingly, it appears to be necessary to ascertain facts and ensure remedial action for enforcement of Rule of Law, protection of environment and bio-diversity. The stretch of Phalguniriver may be treated as polluted river stretch for formulation and execution of restoration plan, defining timelines and budgetary backup. Field survey be conducted to identify sewage and industrial effluent entering into the said river. Target for restoration of water quality is required to be at level of Class B of Primary Water Quality Criteria.*
>
> *4. We constitute a five-member joint Committee comprising of the Regional Officers of MoEF&CC and CPCB Bengaluru, State PCB, Director, Fisheries, Karnataka and District Magistrate, Dakshina Kannada District. The State PCB will be the nodal agency for coordination and compliance. The Committee may meet within two weeks and undertake visit to the site. It will be open to members of the Committee to participate online except for site visit. The Committee may interact with the stakeholders, ascertain the cause of the incident and suggest remedial measures.* ***If polluters are identified, they may be put to notice so that they can file their response, if any, before this Tribunal****. Based on the observations during the proceedings of the Committee,* ***the statutory regulators may take remedial action, following due process of law****. A factual and action taken report may be filed within two months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF with a copy to the identified polluters for their response."*

4. In pursuance of above, the joint Committee has filed its report on 11.10.2022 after undertaking visit to the site, collecting water samples and getting them analyzed finding that pollution is caused by the industries and the Municipal Corporation. However, the identified polluters do not appear to have been notified about these proceedings nor adequate remedial action taken.

5. Relevant extracts from the report are:-

"3.1: Observations of the Committee:

3.1.1: General Observations:

- *Residential/commercial developments on either side of the river and, no UGD in certain areas. Even in sewered areas, there is missing links/gaps.*
- *Major and minor storm water drains were observed to be joining the river and* ***plenty of Organic load was observed at Kudroli, SulthanBatteri, Dambel, Kulur Church and ELF Gas. Map showing storm water drains joining Gurupurariver at different locations*** *is enclosed as Annexure-11.*
- ***Solid waste was found floating in the storm water drains*** *which joined the river.*
- ***Dumping/disposal of sewage collected from Hotels and selected industries and from other residential areas through Cess Pool at selected places along the banks of river back water****, which needs a proper investigation.*
- *Upstream of the Gurupurariver about 6 K.M. from Baikampady industrial area is built a vented dam which is the drinking water source for MaravooruGramaPanchayath limit. The dam was built in the year 2016-17. Since the construction of the dam, the river doesn't get minimum flow and* ***during summer seasons fish kill incidents are happening in the river during summer seasons due to build-up of organic load as a result of inadequate flushing****. It's only during the rainy season that the dam overflow reaches the river.*

3.1.2: Observations near Baikampady Industrial Area

:Major water intensive industries in the Baikampady industrial area have provided inhouse ETP and some of them have Zero liquid discharge (ZLD).

- ***Few small industries generating less waste water are yet to install ETP and STP.***

- ***Sullage/sewage is being discharged to Storm water drain from many Godowns, commercial establishments, hotels and some small industries, Labourquarter's/shed. Etc.***

- ***No proper collection mechanism for Municipal and other Solid Waste in Baikampady industrial area. Solid waste heaps dumped along road sides were observed.*** *Photos enclosed as Annexure-12.*

- ***Construction debris and solid waste is being disposed at ODC Road to Jokatte at the bank of the back water of Gurupura River.***

- ***The Back water /Creek at the Baikampady Industrial area is blocked and the water is stagnated, there is no easy flushing.***

- ***During random inspection of industries in the Baikampady industrial area by KSPCB officials, it is observed that the following industries are discharging untreated effluents to the storm water drain, some of them in spite of having ETP facilities.***

Table 2: Details of Industries in Baikampady Industrial Area discharging untrected effluents along with action taken:

Sl No.	Name and address of the industries	Activity	Action initiated by the KSPCB
1	M/s Ocean Proteins, Plot No. 281/282, Baikampady Industrial Area, Mangaluru, D K District-575 011.	Fish processing(Surimi)	Personal hearing held and action being initiated to close down the industry and to file criminal case
2	M/s R.K. Industries, Plot No.191-A Baikampady Industrial Area, Mangalore, D K District-575 011.	Vehicular Servicestation	Notice of proposed directions to close down the industry is issued.
3.	M/s Shree Gurudev ServiceStation, Plot No. 102, Near Canara Steel Industry, Industrial Area,Baikampady, Mangaluru,Dakshina Kannada	Tanker washing /vehicular Servicestation	
4	M/s Stems and Leaves International, Plot No.162-C, Baikampady Industrial Area, Mangalore, D.K District-575011	Granite cutting and polishing	Notice of proposeddirections (NPD) to close down the industry is issued
5	M/s Viceroy Exports India Pvt. Ltd., Plot No.55, Baikampady Industrial Area, Mangalore, D.K District-575011.	Fish Processing (Freezing andExport)	
6	M/s Sunrise Mats, Plot No. 6-16, Baikampady Industrial Estate Area, Mangalore, D.K., District-575011	Plastic wastereprocessing and mat making	Restraining order and NPD issued

7	M/s Marine Food Packers, Industrial Area, Baikampady, Mangaluru, Karnataka 575011	Fish Processing (Freezing andExport)	Show cause notice is issued
8	M/s A. K. Veneers Pvt. Ltd., Plot No. 449, Industrial Area, Baikampady, Mangaluru, D. K. District	Plywood andVeneers manufacturing	Show cause notice is issued

Subsequent to the issue of show cause notices/ Notice of proposed directions/restraining orders, ***some industries have rectified the problems and initiated action for providing STP/ETP. Industries who have continued the violations even after issue of Notice of proposed directions, KSPCB is in the process of initiating further course of action as per Law.***

4.0 Based on Literature: *Literature review from various researchers reveals that the incidence of river blackening and fish kill at times is not a very uncommon phenomenon and this bio-geochemical phenomenon has been most of the times co-related to presence of high organic load and inadequate tidal flushing especially in summers. High organic load quickly depletes the dissolved oxygen leading to anaerobic conditions. The anaerobic microbes degrade the dissolved organics which may further react with minerals in water and sediment forming black precipitates. A copy of one of the research review paper published by ZhiweiLeiangetal., 2018 on subject matter is enclosed for kind reference as* ***Annexure-13.***

5.0 Conclusions and Recommendations:

1. *The Committee from the Monitoring results and from other available data is of the opinion that the present fish kill is an isolated, very small one possibly by the Organic/Sewage load dumped in this particular location leading to oxygen stress during summer season.*

2. *There was no fish kill in the main Gurupura river, fish kill has happened in the stagnant pockets of the storm water drain leading to the river. Measured Dissolved oxygen levels at locations of fish death (along the two stagnant pockets of storm water drain) were 0.8mg/l and 0.9 mg/l, whereas, at the point where storm water joined the river, DO level was 4 mg/l, which shows that the fish death must have occurred due to inadequate tidal flushing in the creek/storm water drain resulting in low D.O levels.*

3. *The Committee has also observed that there is no traces of any discharge of industrial effluent in that Storm Water Drain in which fish kill has occurred.*

4. *Committee has observed entry of domestic sewage all along the river through Storm Water Drains; this needs an urgent attention by Mangaluru City Corporation (MCC).*

5. *There is no Underground drainage (UGD) facility with terminal Sewage Treatment Plant (STP) in Baikampady industrial area to take care of sewage/sullage discharge from Godown,*

commercial establishments, hotels and some small industries, Labour quarter's/ sheds. etc. Responsible organisations like KIADB and Mangaluru City Corporation (MCC) are required to initiate action to construct a proper UGD system with terminal sewage treatment plant.

6. Mangaluru City Corporation also has to initiate action for treatment and disposal of sewage generated from the area around the Baggundi lake such as, MSEZ RR colony, Angaragundi, Kudumbur Villages so as to prevent joining of untreated sewage into Baggundilake thereby to Gurupura river.

7. Action plan for Sl No.4,5 and 6 along with cost estimate and timelines shall be prepared by MCC and KIADB and necessary funds have to be released by Urban Development Department, Government of Karnataka and CEO, KIADB respectively for undertaking the above work.

8. Town Panchayath, Bajpe and GramaPanchayath, Jokatte are unsewered area along the catchment of the river Gurupura. Chief Officer, Bajpe has to take action for treatment and disposal of sewage generated in the area near airport and Bajpe village to avoid entering of sewage into the storm water drain ultimately joining the Gurupurariver and PDO, Grama Panchayat, Jokatte has to take action for treatment and disposal of Sewage generated from Jokatte areas. Directions have to be issued to DMA and CEO, ZP to release necessary funds required for undertaking the STP work.

9. There is no proper Solid waste collection mechanism in the Baikampady industrial Area. Construction debris (C and D waste) and solid waste including plastic waste are being dumped everywhere across the industrial area including the bank of the back water of Gurupura River. KIADB and Mangaluru City Corporation (MCC) being responsible agencies are required to initiate action to bring in a proper collection mechanism of Municipal solid waste/C and D /plastic and other types of waste and create awareness too in co-ordination with Industrial Associations.

10. There were lot of complaints in Media and by Industries Association that cess pool operators are discharging sewage through tankers and dumping/discharging indirectly in to rivers. Committee suggests that KIADB, MCC, ZP, PRED, Industrial Association and Police shall have to install CCTV Camera at Strategic locations in their respective jurisdiction to prevent any unauthorized/illegal dumping of waste water/sewage/solid waste in to the river.

11. The Committee suggests that the Minor Irrigation department who is in charge of protecting the river boundaries shall initiate steps to conduct a comprehensive survey on river encroachment along with other line departments such as, Revenue, CRZ, MCC and corresponding Town/Grama Panchayats and take appropriate action on the encroachers.

12. *Upstream of the Gurupurariver a vented dam is built, which is the drinking water source for MaravooruGramaPanchayath and 14 other villages. Since the construction of the dam, the river doesn't get minimum flow and during summer seasons fish kill incidents are happening in the river during summer seasons due to build-up of organic load as a result of inadequate flushing. Zilla Panchayat, PRED, Mangalore Officials will have to submit compliance to conditions imposed during clearance of vented dam.*

13. *KSPCB to ensure Zero Liquid Discharge in all the industries and establishment of ETP in all small-scale industries irrespective of effluent quantity.*

14. *KSPCB has listed out few non-complying industries which are habituated to discharge into storm water drains in spite of some of them having the ETP units. Continuous monitoring of such non-complying industries followed by action as per law shall he initiated by KSPCB on priority.*

15. *KSPCB to take up strengthening of its laboratory at Mangaluru, adequate manpower to be deployed and upgrade the laboratory with advanced equipments."*

6. From the report, it is self-evident that sources of pollution include dumping of solid waste and discharge of untreated sewage and effluent by the local bodies, hotels and industries. There is no collection mechanism for municipal waste, construction debris and preventing discharge of untreated effluents. Inspite of such gross violations which amount to serious offences, the State Pollution Board who act as the custodian of environmental law does not appear to have performed its statutory functions of fixing accountability of the violators by initiating prosecution, stopping polluting activity and fixing liability on polluter pays principle for past violations. Even identified industries have not been suitably dealt with resulting in failure of rule of law. It further appears that at the joining point at backwater of Gurupura river, mangroves have been damaged. Cess pools are operated in the river catchment and discharge through tankers is also not ruled out. Absence of underground drainage and lack of connectivity to the existing STPs/not setting up required STPs appears to be patent. Existing STPs at

Mangaluru appear to be underutilized. We fail to understand reasons for such failure of the statutory regulators. Vide order dated 18.11.2022 in *OA No. 383/2022, In re : News item published in the Newspaper named, DHNS, Mangaluru dated: 15th May, 2022, titled "**Officials term disclouring of water in beaches as algal bloom**"*, the Tribunal observed:-

> *"5. We note that as per status report about waste management filed by the State of Karnataka on 12.10.2022 in O.A. No. 606/2018, In re: Compliance of Municipal Solid Waste Management Rules, 2016 and other environmental issues, there are four STPs at Mangalore - Pachanady (8.75 MLD), Kavoor (43.50 MLD), Surathkal (16.50 MLD) and Bajal (20 MLD) which are underutilized. The Tribunal has directed Karnataka State to bridge gaps in waste management for which compensation has been levied for restoration measures by ring-fencing an amount of Rs. 2900 crores. The relevant extract from the order is reproduced below:-*
>
> *"61.....xxx.....xxx.....xxx*
>
> *(iii) Admitted gap in generation and scientific handling of waste has resulted in damage to the environment and public health for which the State of Karnataka is liable to pay compensation of Rs. 2900 crores as per details already mentioned above (para 58). The amount of compensation is to be utilized for restoration measures preferably by evolving a suitable centralized single window mechanism by the Chief Secretary, Karnataka in the light of above observations in paras 31 to 34 & 38 to 51 above. The laid down timelines need to be strictly adhered to and monitored."*

7. Thus, there is immediate need for remedial action for protection of environment. The joint Committee already constituted, with addition of nominee of NCSCM and NIO, Goa, may prepare an action plan in light of its report and above observations within one month. It will be at liberty to co-opt any other Expert/Institution and interact with the stakeholders. The action plan may include immediate stopping of sources of pollution and fixing accountability of the industries, Mangalore Municipal Corporation and KIADB for past violations. The action plan may be executed within one month thereafter.

8. An action taken report may specify the gap in sewage generation in the catchment and its treatment, latest compliance status by the violators and remedial measures taken, if any, as on 31.01.2023. The report may be filed before this Tribunal by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF on or before 15.02.2023. A copy of the action taken report may be placed on the website of the State PCB with intimation to the violators by email that if they wish to respond to the report before this Tribunal, they may do so within two weeks thereafter by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF.

List for further consideration on 14.03.2023.

A copy of this order be forwarded to the Regional Officers of MoEF&CC and CPCB Bengaluru, State PCB, Director, Fisheries, Karnataka, District Magistrate, Dakshina Kannada District, NCSCM and NIO, Goa by email for compliance.

Adarsh Kumar Goel, CP

Arun Kumar Tyagi, JM

Prof. A. Senthil Vel, EM

Dr. Afroz Ahmad, EM

November 21, 2022
Original Application No. 307/2022&
Original Application No. 572/2022
SN

ಮಂಗಳೂರು

ಆಯುಕ್ತರು
ಮಹಾನಗರಪಾಲಿಕೆ
ಮಂಗಳೂರು

ಮಹಾನಗರಪಾಲಿಕೆ

ಅಂಚೆ ಪೆಟ್ಟಿಗೆ ನಂಬ್ರ:756,
ಲಾಲ್ ಭಾಗ್, ಮಂಗಳೂರು- 575003
ದೂರವಾಣಿ:2220313-318
ಫ್ಯಾಕ್ಸ್:0824-2220310

ಮ.ನ.ಪಾ/ಎನ್.ಜಿ.ಟಿ.1/2022-23/ಎಫ್6 ದಿನಾಂಕ: .03.2023

ರಿಗೆ,

ಪರಿಸರ ಅಧಿಕಾರಿ
ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
ಪರಿಸರ ಭವನ ,10ಬಿ
ಬೈಕಂಪಾಡಿ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ
ಮಂಗಳೂರು.

ಕ.ರಾ.ಮಾ.ನಿ.ಮಂಡಳಿ. ಪ್ರಾದೇಶಿಕ ಕಛೇರಿ ಮಂಗಳೂರು-575011 ಸ್ವೀಕೃತಿ ಸಂಖ್ಯೆ 4709 ದಿನಾಂಕ 8.3.2023

ವಿಷಯ: ಮಾನ್ಯ ರಾಷ್ಟ್ರೀಯ ಹಸಿರು ನ್ಯಾಯ ಮಂಡಳಿಯ ಪ್ರಕರಣ ಸಂಖ್ಯೆ:O.A ಸಂಖ್ಯೆ:307/2022 ರಲ್ಲಿನ ನಿರ್ದೇಶನದಂತೆ ಕ್ರಮ ಕೈಗೊಳ್ಳುವ ಬಗ್ಗೆ.

ಉಲ್ಲೇಖ:1. ಪರಿಸರ ಅಧಿಕಾರಿ ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ ಪರಿಸರ ಭವನ ,10ಬಿ ಬೈಕಂಪಾಡಿ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ ಮಂಗಳೂರು ರವರ ಪತ್ರ ಸಂಖ್ಯೆ: No:KSPCB/EO(MNG)/NGT-OA No.307 of 2022/2022-2023/1953 d:24.02.2023

2 ಕಿರಿಯ ಅಭಿಯಂತರರ ವರದಿ.ದಿ:06.03.2023

ಮೇಲಿನ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಮಾನ್ಯ ರಾಷ್ಟ್ರೀಯ ಹಸಿರು ನ್ಯಾಯ ಮಂಡಳಿಯ ಪ್ರಕರಣ ಸಂಖ್ಯೆ:O.A.ಸಂಖ್ಯೆ: 307/2022 ರಂತೆ ಮಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ ವ್ಯಾಪ್ತಿಯ ಫಲ್ಗುಣಿ (ಗುರುಪುರ) ನದಿಯ ಮಾಲಿನ್ಯವನ್ನು ತಗ್ಗಿಸುವ ನಿಟ್ಟಿನಲ್ಲಿ ಸೂಕ್ತ ಕ್ರಮ ಕೈಗೊಳ್ಳಲು ನಿರ್ದೇಶಿಸಲಾಗಿರುತ್ತದೆ. ಸದರಿ ಪ್ರಕರಣದಲ್ಲಿ ಫಲ್ಗುಣಿ ನದಿಗೆ ಮಹಾನಗರಪಾಲಿಕೆಯಿಂದ ಘನತ್ಯಾಜ್ಯ ಹಾಗೂ ದ್ರವ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಯನ್ನು ಅಸಮರ್ಪಕವಾಗಿ ಹಾಗೂ ಅವೈಜ್ಞಾನಿಕವಾಗಿ ನಿರ್ವಹಿಸುತ್ತಿರುವುದರಿಂದ ಹಾಗೂ ನದಿಯು ಕಲುಷಿತಗೊಂಡಿರುವುದಾಗಿ , ನಗರಗಳ ಕೆಲವು ಪ್ರದೇಶಗಳಲ್ಲಿ ಸಂಸ್ಕರಿಸದೆ ಇರುವ ಮಲತ್ಯಾಜ್ಯವನ್ನು ಮಳೆನೀರು ಚರಂಡಿಯಲ್ಲಿ ಹರಿದುಬಿಡುತ್ತಿರುವುದಾಗಿ ನಿರ್ದೇಶದನ್ವಯ ಪ್ರಕರಣದ ಅದೇಶದಲ್ಲಿ ತಿಳಿಸಲಾಗಿರುತ್ತದೆ. ಘನತ್ಯಾಜ್ಯ ಹಾಗೂ ದ್ರವ ತ್ಯಾಜ್ಯವನ್ನು ವೈಜ್ಞಾನಿಕವಾಗಿ ನಿರ್ವಹಣೆ ಮಾಡುವ ನಿಟ್ಟಿನಲ್ಲಿ ಅಂಶಗಳನ್ನು ನಿಯಮಾನುಸಾರ ಪರಿಶೀಲಿಸಿ , ರಾಷ್ಟ್ರೀಯ ಹಸಿರು ನ್ಯಾಯ ಮಂಡಳಿಯ ನಿರ್ದೇಶದನ್ವಯ ಕ್ರಿಯಾಯೋಜನೆಯನ್ನು ತಯಾರಿಸಿ ಈ ಪತ್ರದೊಂದಿಗೆ ಲಗತ್ತಿಸಿಕರಿಸಿ ಮುಂದಿನ ಸೂಕ್ತ ಕ್ರಮಕ್ಕೆ ಸಲ್ಲಿಸಿದೆ.

ತಮ್ಮ ವಿಶ್ವಾಸಿ

ಆಯುಕ್ತರು
ಮಹಾನಗರ ಪಾಲಿಕೆ, ಮಂಗಳೂರು

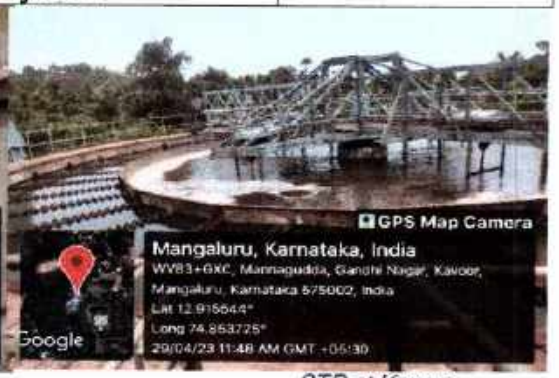
BRIEF ACTION PLAN SUBMITTED BY MANGALURU CITY CORPORATION, WRT NGT MATTER OA No 307/2022

<table>
<tr><th>Sl.No</th><th>Direction/Observations of Hon'ble NGT</th><th>Responsible Department /Authority</th><th>Remarks</th></tr>
<tr><td>1</td><td>Entry of domestic sewage all along the river through Storm Water Drain from the South bank of the river through missing links of UGD</td><td>Mangaluru City Corporation (MCC)</td><td>The details of Number of Wards Covered, total Pollution, total Sewage generation, Wet Well Capacity etc. related to Phalguni River catchment area are submitted as below;
<table>
<tr><th>Sl.No</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1</td><td>Total Area</td><td>----</td></tr>
<tr><td>2</td><td>Wards covered</td><td>12 to 36, 40 to 47 and 56</td></tr>
<tr><td>3</td><td>Estimated Population (2026)</td><td>3,70,816</td></tr>
<tr><td>4</td><td>Total area covered under UGD</td><td>50%</td></tr>
<tr><td>5</td><td>Estimated sewage generation</td><td>40.04 MLD</td></tr>
<tr><td>6</td><td>Wet well capacity</td><td>52.25 MLD</td></tr>
<tr><td>7</td><td>Pump Capacity</td><td>35 MLD</td></tr>
<tr><td>8</td><td>Sewage taken into the STP for treatment</td><td>25 MLD</td></tr>
<tr><td>9</td><td>Treatment Gap</td><td>15.04 MLD</td></tr>
</table>
<u>The details of the existing STP :-</u>
Under KUDCEM project sewage treatment system was designed for ultimate population during the year 2026 with over all treatment capacity of 88.75 MLD.

Under KUDCEMP, 4 STPs are constructed. Out of these two STPs are related with the sewage generated in the Phalguni River Catchment area and details are submitted as follows;</td></tr>
</table>

Sl.No.	STP Location	Capacity in MLD	Technology	Location
1	STP at Kavoor	43.5	Extended aeration followed by tertiary treatment system	Lat:12.915591° Long:74.853707°
4	STP at Pachanady	8.75	Extended aeration followed by the tertiary treatment System	Lat:12.925126° Long:74.884412°

Outlet point of Pacchanady STP



STP at Kavoor

Utilization Gap of STPs

Sl.No	Location of STP	Design Capacity in MLD	Operational Capacity in MLD	Gap in utilization
1	STP at Kavoor	43.5	21	22.5
4	STP at Pacchanady	8.75	4.0	4.75
Total		52.25	25	27.25

<table>
<tr><td></td><td></td><td></td><td>Long term measures:
Proposed to construct new UGD network in un-sewered area
Replacement of old lines, installation of additional pump and increasing the capacity of existing Wet well, so as to transport the sewage from wet well to STP.
Augmenting the capacity of STP, so as to treat total sewage of 52.25 MLD with the time line for implementation from One Month to Twenty-Four Months.</td></tr>
<tr><td>3</td><td>Initiate action for treatment and disposal of sewage generated from the area around the Baggundi lake such as, MSEZ RR colony, Angaragundi, Kudumbur Villages</td><td>Mangaluru City Corporation (MCC)</td><td>
<table>
<tr><th>Sl.No.</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1</td><td>Total Area</td><td>8.49 Sq Km</td></tr>
<tr><td>2</td><td>Total wards covered</td><td>8,9 & 10</td></tr>
<tr><td>3</td><td>Total Population</td><td>MSEZ RR Colony -3000 (Taking 750 Houses)
Angaragundi, Kudumbur Villages – 7126</td></tr>
<tr><td>4</td><td>Total area covered under UGD</td><td>0%</td></tr>
<tr><td>5</td><td>Estimated sewage generation</td><td>MSEZ RR Colony i.e. 0.32 MLD
Angaragundi & Kudumburu Village(0.85MLD)
Total-1.17 MLD</td></tr>
<tr><td>8</td><td>Wet well capacity</td><td>0 MLD</td></tr>
<tr><td>9</td><td>Sewage taken into the STP</td><td>0 MLD</td></tr>
<tr><td>10</td><td>Treatment Gap</td><td>1.17MLD</td></tr>
<tr><td>11</td><td>Proposed STP capacity</td><td>1.5 MLD</td></tr>
</table>
</td></tr>
</table>

Action Plan

Sl. No	Ward Number	Identified Gap	Action plan	Fund	Scheme	Time Limit
1	8 & 9	MSEZ R & R Colony – Construction of 2 Wet-well & 1.5 MLD STP	Work awarded for the constructi on of 1.5MLD STP	GOK	KIUWMIP	24 months
2	10(Wet well zone 12 A of Angarag undi and 12B of Kudumb uru)	Uncovered areas in the ward at Angaragundi & Kudumburu 4 Kms & 2 Wet wells	DPR prepared	1852 Lakhs	NA	24 months

- Detailed Project Report for providing Sewerage System to Angaragundi and Kudumburu Residential Areas prepared for an amount of 1852 Lakhs.
- MCC has appointed a consultant through KUIDFC for the preparation of DPR and DPR for the construction of 2 wet wells is finalized and submitted to the Government for obtaining necessary approval. For construction of wet- wells the lands are identified.
- A Sewage Treatment Plant o capacity 1.5MLD (SBR Type) was awarded on 16.02.2023 and the construction work is under progress.

Proposed land details

Sl.No	Location	Purpose of Land required	Survey No./Village	Extent (in acres)	Status
1	Angaragundy	Wet well	Sy.No.-39	0.20	Govt. Land KIADB land identified (land to be reserved)
2	Kudumburu	Wet well	Sy.No-25/1A1A1 and Sy.No.-90	0.09	Govt.Land (land to be reserved)

STP Construction site MSEZ RR Colony

			 Wet well Construction site

ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಮಂಗಳೂರು ಮಹಾನಗರಪಾಲಿಕೆ

Executive Engineer
Mangaluru City Corporation
Mangaluru

ಉಪ ಆಯುಕ್ತರು (ಅಭಿವೃದ್ಧಿ)
ಮಹಾನಗರ ಪಾಲಿಕೆ, ಮಂಗಳೂರು

COMMISSIONER
Mangaluru City Corporation

GAP ANALYSISI AND ACTION PLAN SUBMITTED BY THE MANGALURU CITY CORPORATION IN COMPLIANCE TO THE HON'BLE NATIONAL GREEN TRIBUNAL ORIGINAL APPLICATION No. 307/2022

Hon'ble NGT, Principal Bench, New Delhi has passed an order OA No:307 of 2022 dated: 29.04.2022 based on the **"News item published in The Hindu dated 26.04.2022 titled "Flow of industrial effluents into Phalguni results in fish kill"**

In the Order following observation's were made with respect to Sewage enter into the Phalguni river from the Mangaluru City Corporation area,

There are seven major drains flowing across the entire expanse of Mangaluru City and falling into river Phalguni carrying treated and untreated sewage/ industrial effluents into the river Phalguni.The drain details are listed below:

1. ***Storm Water drain (Major Drain Entering from Mangalore City) joining point at Backwater of Gurupura river near Kudroli (12.870525,74.829327)***
2. Storm Water drain (Drain Entering from Bolor, Thannirbhavi) joining point at Backwater of Gurupura river near Amruth Vidyalay, Bolor (12.888015,74.8206)
3. Storm water drain -Skate City Garden Point, Ashoknagar (12.894928,74.823993)
4. Storm Water drain (Major Drain Entering from Dambel) joining point at Backwater of Gurupura river near Dambel (12.903643,74.821358)
5. Storm Water drain (Drain Entering from Padukodi, Church) joining point at Backwater of Gurupura river near Padukodi Church,Kulur (12.927644,74.829748)
6. Kudumbur hole Backwater of Gurupura river at ELF Gas (Drain Entering from Baikampady Industrial Area, Jokatte, Baggundi lake outflow, Angaragundi, Kudumburu village) (12.945400,74.835393)
7. Kudumbur Bridge Backwater of Gurupura river (Drain Entering from Jokatte village, MSEZ RR Colony, MRPL Marshy land, Baggundi lake outflow, Angaragundi, Kudumburu village) joining point at Backwater of Gurupura river at Total Gas (12.948843,74.832835)

Aprt from these the Hon'ble Tribunal observed that,

1. *There is no Underground drainage (UGD) facility with terminal Sewage Treatment Plant (STP) in Baikampady industrial area to take care of sewage/sullage discharge from Godown* commercial establishments, hotels and some small industries, Labour quarter's/sheds. etc. Responsible organizations like KIADB and Mangaluru City Corporation (MCC) are required to initiate action to construct a proper UGD system with terminalsewage treatment plant

2. *Mangaluru City Corporation also has to initiate action for treatment and disposal of sewage generated from the areaaround the Baggundi lake such as, MSEZ RR colony, Angaragundi, Kudumbur Villages so as to prevent joining of untreated sewage into Baggundilake thereby to Gurupura river*

3. *There is no proper Solid waste collection mechanism in the Baikampady industrial Area. Construction debris (C and D waste) and solid waste including plastic waste are being dumped everywhere across the industrial area including the bank of the back water of Gurupura River. KIADB and Mangaluru City Corporation (MCC) being responsible agencies are required to initiate action to bring in a proper collection mechanism of Municipal solid waste/C and D /plastic and other types of waste and create awareness too in co- ordination with Industrial Associations.*

4. *There were lot of complaints in Media and by Industries Association that cess pool operators are discharging sewage through tankers and dumping/discharging indirectly in to rivers. Committee suggests that KIADB, MCC, ZP, PRED, Industrial Association and Police shall have to install CCTVCamera at Strategic locations in their respective jurisdiction to prevent any unauthorized/illegal dumping of waste water/sewage/solid waste in to the river*

In view of the Hon'ble NGT Order the Action Plan for the above observations in compliance to the Order is herewith prepared and is as follows;

1. BACKGROUND OF MANAGLURU CITY SEWAGE MANAGEMENT

The existing sewerage system was established in the year 1961 , The city had a population of 1.41 lakhs in 1961 and designed for projected population of 2.00 lakhs at 113 Lpcd for the year 1991

The city was divided into 7 drainage zones. and the other

Sl.No	Sewerage zones	River catchment area	Drain	
1	Zone 1 to 5	Five being drained towards Gurupura River basin (Palguni)	Kudroli Drain Boloor Ashokangara-Dumbel Drain KandathPalli drain Pandeshwara	Treated in Kavooru STP
2	6 & 7	Three towards Nethravathi river basin.		Treated in Jeppinamogaru STP

1.1 Sewage Network

Whole Mangalore city was divided into four sewage districts namely North district, East district, West district and South district. Each district has one sewage treatment plant.

Sl.No	Division	River catchment area
1	North district	Nandini River and Sea
2	East district	Palguni River and Sea
3	West district	Palguni River and Sea
4	South district	Nethravathi River and Sea

1.3 Sewage Treatment Plant Details

Under KUDCEM project sewage system was designed for ultimate population at the year 2026 with over all treatment capacity of 88.75 MLD.

Under KUDCEMP, 4 STPs are constructed. These STPs are designed for ultimate population of 2026.

Sl.no.	**STP Location**	**Capacity(MLD)**
1	STP at Kavoor	43.5
2	STP at Jeppinamogaru	20
3	STP at Madhyapadavu	16.5
4	STP at Pachanady	8.75
5	TTP at Pilikula	6.50

2. PHALGUNI RIVER CATCHMENT AREA AND EVALUATION OF EXISTING SEWARGAE SYSTEM

2.1. Area Details

Phalguni river catchment area comes under Zone-1 to 5 & zone 9 in terms of Drainage area and East & west District in terms of sewage district.

Following are the area details of Phalguni Catchment area.

Sl.No	Particulars	Details
1	Total Area	----
2	Wards covered	12 to 36, 40 to 47 and 56
3	Estimated Population (2026)	3,70,816
4	Total area covered under UGD	50%
5	Estimated sewage generation	40.04 MLD
6	Wet well capacity	52.25 MLD
7	Pump Capacity	35 MLD
8	Sewage taken into the STP for treatment	25 MLD
9	Treatment Gap	15.04 MLD

At present there are total 9 wet-wells are constructed through which the sewage in the area (Zone 1 to 5 & 10) is collected lifted to the STP located at Kavooru and zone 9 to STP located at Pachanady.

2.3. Action Plan for the gaps identified

Sl.No	Ward Number	Identified Gap	Action plan	Fund	Scheme	Time Limit
1	25 & 26	Chilimbi – Malaraya temple road – Daivajna hall – Hoigebail – wetwell.	Work awarded	GOI & GOK	AMRUT	6 Months
2	27	Jarandaya Temple Boloor – Sulthan battery Road – wetwell.	Work awarded	GOI & GOK	AMRUT	6 Months
3	27	Uncovered areas in Boloor 5 Kms & 2 Wet well	Line estimate prepared	10 Cr.	NA	18 months
4	25 & 26 & 27	Replacement of old lateral lines 5 Kms	Line estimate prepared	10 Cr	NA	6 months
5	25	The part of uncovered area in the ward –Dwaraka nagara, tantri lane, near Kottara school 2 Kms	Work awarded	GOI & GOK	AMRUT	6 Months
6	25	Uncovered areas in the ward about 5 Kms	Line estimate prepared	6 Cr	NA	6 months
8	27	Replacement of Pumps & Accessories in Wet well No-1@ Sultan Battery	Line estimate prepared	4 Cr	NA	6 months
9	16 & 17	There are some uncovered areas – 5 Kms	Line estimate prepared	8 Cr	NA	6 months

Sl.No	Ward Number	Identified Gap	Action plan	Fund	Scheme	Time Limit
10	16	Replacement of Pumps & Accessories in Wet well No-2A1 @ Kodical & WW-2A3@ Dumbel	Line estimate prepared	6 Cr	NA	6 months
11	16	Replacement of Pumps & Accessories in Wet well No-10 @ Bangrakuloor	Line estimate prepared	5 Cr	NA	6 months
12	12,13, 14 & 15	Uncovered areas in the ward about 25 Kms, 5 Wet wells & 5 MLD STP	Line estimate prepared	100 Cr	NA	18 months
13	18	Uncovered areas in the ward about 5 Kms & Replacement of old line 2 KMs	Line estimate prepared	8 Cr	NA	10 momths
14	19	Uncovered areas in the ward about 5 Kms & Replacement of old line 3 KMs	Line estimate prepared	8 Cr	NA	10 momths
15	19	Replacement of Pumps & Accessories in Wet well No-9 @ Pachanady	Line estimate prepared	4 Cr	NA	6 months
16	20	Uncovered areas in the ward about 10 Kms & 2 Wet wells	Line estimate prepared	20 Cr	NA	18 months
17	21	Uncovered areas in the ward about 5 Kms	Line estimate prepared	6 Cr	NA	6 months
18	22	Uncovered areas in the ward about 5 Kms	Line estimate prepared	6 Cr	NA	6 months
19	23	Replacement of old line for 5 Kms	Line estimate prepared	6 Cr	NA	6 months
20	23	Replacement of Pumps & Accessories in Wet well No-2B@ Kottara	Line estimate prepared	5 Cr	NA	6 months
21	24	Uncovered areas in the ward about 5 Kms & Replacement of old line 3 KMs	Line estimate prepared	10 Cr	NA	10 months

Sl.No	Ward Number	Identified Gap	Action plan	Fund	Scheme	Time Limit
22	28	Replacement of old line for 3 Kms	Line estimate prepared	5 Cr	NA	6 months
23	29	Replacement of old line for 5 Kms	Line estimate prepared	7 Cr	NA	6 months
24	30	Replacement of old line for 2 Kms	Work in Progress	GOK	KIUWMIP	2 months
25	30	Replacement of old line for 1 Kms	Work awarded	GOK	KIUWMIP	1 months
26	30	Replacement of Pumps & Accessories in Wet well No-3B@ Kodialguttu	Work tendered	SMART City	SMART City	9Months
28	31	Replacement of old line near Bejai Anegundi 2 Kms	Line estimate prepared	5 Cr	NA	8 months
29	32	Uncovered areas in the ward about 3 Kms	Line estimate prepared	5 Cr	NA	5 months
30	33	Uncovered areas in the ward about 2 Kms & Replacement of old line 2 KMs	Line estimate prepared	5Cr	NA	8 months
31	34	Uncovered areas in the ward about 2 Kms	Work awarded	GOK	KIUWMIP	2 months
32	35	Uncovered areas in the ward about 3 Kms	Line estimate prepared	4 Cr	NA	5 months
33	36	Uncovered areas in the ward about 3 Kms	Work in progress	GOK	KIUWMIP	6 months
34	36	Uncovered areas in the ward about 10 Kms & 2 Wet wells	Line estimate prepared	20 Cr	NA	18 months
35	36	Replacement of Pumps & Accessories in Wet well No-9B@ Kongurumatta	Line estimate prepared	4 Cr	NA	6 months

Sl.No	Ward Number	Identified Gap	Action plan	Fund	Scheme	Time Limit
36	40	Replacement of old line 5 Kms	Line estimate prepared	8 Cr	NA	8 months
37	41	Replacement of old line	Work in progress	SMART CITY	SMART CITY	18 months
38	42	Replacement of old line 2 Kms	Work in progress	GOK	KIUWMIP	6 months
39	42	Replacement of old line 2 Kms	Line estimate prepared	3 Cr	NA	5 months
40	43	Replacement of old line 3 Kms	Line estimate prepared	5 Cr	NA	6 months
41	44	Replacement of old line	Work in progress	SMART CITY	SMART CITY	18 months
42	44	Replacement of Pumps & Accessories in Wet well No-4@ Kandathpalli	Work tendered	SMART City	SMART City	9Months
43	45	Replacement of old line	Work in progress	SMART CITY	SMART CITY	18 months
44	46	Replacement of old line 5 Kms	Line estimate prepared	8 Cr	NA	8 months
45	47	Replacement of old line 5 Kms	Line estimate prepared	8 Cr	NA	8 months
46	55	Replacement of old line 2 Kms	Work in progress	GOK	KIUWMIP	6 months
47	55	Replacement of old line 2 Kms	Line estimate prepared	3 Cr	NA	4 months
48	56	Uncovered areas in the ward about 10 Kms & 2 Wet wells	Line estimate prepared	20 Cr	NA	18 months

Sl.No	Ward Number	Identified Gap	Action plan	Fund	Scheme	Time Limit
49		Utilization of Treated water from 20 MLD STP at Bajal by MSEZ linking to Kavoor STP	Line estimate prepared	50 Cr	NA	24 months
50		Utilization of Treated water from 16.5MLD STP at Surathkal by MSEZ CETP	Line estimate prepared	30 Cr	NA	24 months
			Total Cost	**412 Crs**		

3. Gap Analyssis of City Corporation Mangaluru – *North bank of the Phalguni River Area around the Baggundi lake such as, MSEZ RR colony (Ward No 8 & 9), Angaragundi, Kudumbur Villages (Ward No 10)*

3.1. Area Details

Sl.No.	Particulars	Details
1	Total Area	8.49 Sq Km
2	Total wards covered	8,9 & 10
3	Total Population	MSEZ RR Colony -3000 (Taking 750 Houses) *Angaragundi, Kudumbur Villages – 7126*
4	Total area covered under UGD	0%
5	Estimated sewage generation	MSEZ RR Colony i.e. 0.32 MLD Angaragundi & Kudumburu Village(0.85MLD) Total-1.17 MLD
8	Wet well capacity	0 MLD
9	Sewage taken into the STP	0 MLD
10	Treatment Gap	1.17MLD
11	Proposed STP capacity	1.5 MLD

Sl.No	Ward Number	Identified Gap	Action plan	Fund	Scheme	Time Limit
	8 & 9	MSEZ R & R Colony 2 Wetwell & 1.5 MLD STP	Work awarded	GOK	KIUWMIP	24 months

Sl.No	Ward Number	Identified Gap	Action plan	Fund	Scheme	Time Limit
	10	Uncovered areas in the ward at Angaragundi & Kudumboor 4 Kms & 2 Wet wells	DPR is finalized and submitted to the Government for obtaining necessary approval	20 Cr	NA	24 months

4. Gap analysis of Baikampady Industrial Area

4.1. Area Details

Baikampady industrial area is a major industrial are allocated at Dakshina Kannada district on the bank of Phalguni River surrounded by the Back water of the river influenced by the Sea.

Sl.No	Particulars	Details
1	Total Area	9.46 SQKM
2	Total area covered under UGD	NIL
3	Total Houses Industrial Plots	506
4	Total Industrial Plots allotted	506
5	Total Commercial Establishments	12
6	Total Housing Units	80
7	*Total floating population*	10,000.00 (AVG)
8	*Estimated Sewage generation*	6 MLD
9	Sewage taken into the STP	-Nil-
10	Treatment Gap	100 %

At present there is no Underground Drainage System in the area part from major industries which have the septic tank and soak pit for the disposal of sewage majority of the industrial shed, godown, labor shed, and commercial establishments are letting the sewage into the storm water drain which is ultimately joining the Phalguni river.

Sl.No	Ward Number	Identified Gap	Action plan	Fund	Scheme	Time Limit
	10	Baikampady Industrial Area 15 Kms network, 1WW & 3MLD STP	Line estimate prepared	40 Cr	NA	18 months

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ಆಯುಕ್ತರು
ಮಹಾನಗರಪಾಲಿಕೆ, ಮಂಗಳೂರು.

ಮಹಾನಗರಪಾಲಿಕೆ
ಅಂಚೆ ಪೆಟ್ಟಿಗೆ ನಂಬ್ರ :756,
ಲಾಲ್ ಬಾಗ್, ಮಂಗಳೂರು –575003
ದೂರವಾಣಿ :ಕಛೇರಿ :2220313–318
ಫ್ಯಾಕ್ಸ್ ನಂಬ್ರ: 0824–2220309

ಮ.ನ.ಪಾ/ಸ ಇಂ.ವಿ–2 ಸಿ.ಆರ್– /2022–23 ದಿನಾಂಕ:– 16–05–2023

To,

The Karnataka State Pollution Control Board,
Parisara Bhavana, 10B,
Baikampady Industrial Area,Mangalore-575011

Dear Sir,

Regarding Submission of Detailed Project Report (DPR) for "Providing Sewerage System to Angaragundi & Kudumboor Residential Areas" as per the directions of NGT.

Ref: 1.The directions issued by Hon'ble NGT dated 29.04.2022 and 21.11.2022

2. Letter No.PCB/CEO-2/307-2022/2022-23/325, dated 02.12.2022

With reference to the above subject and vide reference (1), the Hon'ble National Green Tribunal, Principal Bench, New Delhi has registered Suo-Moto case vide OA No: 307 of 2022 dated 29.04.2022 on the "News item published in The Hindu dated 26.04.2022" titled "Flow of industrial effluents into Phalguni results in the Fish kill" and was directed to obtain the action plan.

The following observations were made with respect to Sewage entering into the Phalguni river from the Mangaluru City Corporation area.

1. Storm Water drain (Major Drain Entering from Mangalore City) joining point at Backwater o Gurupura river near Kudroli (12.870525,74.829327)
2. Storm Water drain (Drain Entering from Bolor, Thannirbhavi) joining point at Backwater o Gurupura river near AmruthVidyalay, Bolor (12.888015,74.8206)
3. Storm water drain -Skate City Garden Point, Ashoknagar (12.894928,74.823993)
4. Storm Water drain (Major Drain Entering from Dambel) joining point at Backwater of Gurupura riv near Dambel (12.903643,74.821358)
5. Storm Water drain (Drain Entering from Padukodi, Church) joining point at Backwater of Gurupu river near Padukodi Church, Kulur (12.927644,74.829748)
6. Kudumboor hole Backwater of Gurupura river at ELF Gas (Drain Entering from Baikampa Industrial Area, Jokatte, Baggundi lake outflow, Angaragundi, Kudumboor villag (12.945400,74.835393)
7. Kudumboor Bridge Backwater of Gurupura river (Drain Entering from Jokatte village, MSEZ F Colony, MRPL Marshy land, Baggundi lake outflow, Angaragundi, Kudumboor village) joining po at Backwater of Gurupura river at Total Gas (12.948843,74.832835)

Apart from these the Hon'ble Tribunal observed that,

1. There is no Underground drainage (UGD) facility with terminal Sewage Treatment Plant (STP) in Baikampady industrial area to take care of sewage/ sullage discharge from Godown commercial establishments, hotels and some small industries, Labour quarter's/sheds etc. Responsible organizations like KIADB and Mangaluru City Corporation (MCC) are required to initiate action to construct a proper UGD system with terminal sewage treatment plant.
2. Mangaluru City Corporation also has to initiate action for treatment and disposal of sewage generated from the area around the Baggundi lake such as, MSEZ RR colony, Angaragundi, Kudumboor Villages so as to prevent joining of untreated sewage into Baggundilake thereby to Gurupura river (Phalguni River).

In view of the Hon'ble NGT Order the DPR for providing sewerage system to Angaragundi & Kudumboor residential areas is prepared as 'Part-1'.

Hence, please find enclosed herewith Detailed Project Report for "Providing Sewerage System to Angaragundi & Kudumboor Residential Areas" for an amount of Rs.1852 lakhs for your further perusal.

Encl: DPR for "Providing Sewerage System to Angaragundi & Kudumboor Residential Areas"- (Report, Estimate & Drawings)

Thanking you,

Yours faithfully

Commissioner
Mangaluru City Corporation.

ABSTRACT - ZONE 12A, 12B UGD WORKS			
Sl.No.	**Description**	**Amount (Rs)**	**Remarks**
1	**Civil Works**		
1.1	Wet Well Zone 12A Angaragundi	93,91,891.00	
1.2	Wet Well Zone 12B Kudumboor	71,53,776.00	
1.3	Sewerage Pumping Main	2,04,13,981.00	
1.4	Sewerage System for Zone 12A Angaragundi	6,12,23,510.00	
1.5	Sewerage System for Zone 12B Kudumboor	2,67,76,085.00	
1.6	Construction of Compound wall	50,34,974.00	
1.7	RCC Box culvert,Toewall, Pitching and New road with embankment	3,88,77,575.00	
	Sub Total - Civil Works	**16,88,71,792.00**	
2	**Mechanical Works**		
2.1	Wet Well Zone-12A at Angaragundi	40,45,821.00	
2.2	Wet Well Zone-12B at Kudumboor	43,51,524.00	
	Sub Total - Mechanical Works	**83,97,345.00**	
3	**Electrical Works**		
3.1	Wet Well Zone-12A at Angaragundi	26,17,646.00	
3.2	Wet Well Zone-12B at Kudumboor	21,73,064.00	
3.3	Electric Pole, TC shifting works	12,88,961.00	
	Sub Total - Electrical Works	**60,79,671.00**	
	TOTAL (1+2+3)	**18,33,48,808.00**	
4	**Miscellaneous works**		
4.1	Deposits for Electrical works	13,00,000.00	
4.2	Third Party Inspection Charges	5,00,000.00	
	Sub Total	**18,00,000.00**	
	GRAND TOTAL	**18,51,48,808.00**	
	Say	**18,52,00,000.00**	

Team Leader,
M/s.Tractebel GKW GmbH
PMDCSC, Mangaluru

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Design of Wetwell @ PS Zone 12A			
		Annex-5	
Sl No	Description	Unit	Value
	General		
1	Population in 2056 of Zone 12A	**Nos**	**5224**
2	Ultimate year average sewage generation in MLD in Zone-12A	**MLD**	**0.62**
3	Ultimate year Peak sewage generation in MLD in Zone-12A	**MLD**	**1.75**
4	Population in 2056 of Zone 12B	**Nos**	**1902**
5	Ultimate year average sewage generation in MLD in Zone-12B	**MLD**	**0.23**
6	Ultimate year Peak sewage generation in MLD in Zone-12B	**MLD**	**0.64**
13	Total average flow from Zone 12A,12B	**MLD**	**0.85**
14	Total Peak flow from Zone 12A,12B	**MLD**	**2.39**
15	Average flow	m^3/sec	0.0098
16	Design peak flow	m^3/sec	0.028
17	Number of pumps working		2.000
18	Capacity of Pump	m^3/sec	0.014
19	Diameter of Wet Well	m	[illegible]
20	**Effective area of sump**	m2	**9.621**
21	Ground level at wetwell site	m	3.110
22	Invert level of incoming Pipe	m	0.600
23	Free Fall		0.500
24	Submersible depth of pump	m	1.00
25	Minimum pumping cycle time	min	**7.0**
26	**Sump Details**		
27	Sump capacity required per 2 pumps working	m^3	**11.598**
28	Effective depth (required for 2 working pump)	m	1.21
29	Effective depth (adopted)	m	1.30
30	Sump Capacity required per one pump working	m^3	5.80
31	Effective depth (required for one working pump)	m	0.60
32	Effective depth (adopted)	m	0.61
33	Total Effective depth required	m	1.30
34	Sump Area (adopted)	m	9.62
35	Ground level at wetwell site	m	3.110
36	Invert level of incoming Pipe	m	0.600
37	Free fall	m	0.50
38	Maximum Water Level (MWL)	m	0.100
39	Low Water Level (LWL)	m	-1.200
40	Submersible depth of pump	m	0.80
41	Bed level	m	-2.000
42	**Operating cycle**		
43	First Pump will be started when the liquid level is at	m	-0.590
44	First Pump will Auto Stop when the liquid level is at	m	-1.200
45	Second Pump will be started when the liquid level is at	m	0.100
46	Second Set of Pump will Auto Stop when the liquid level is at	m	-1.200
47	**Checks**		
48	Minimum Pump operating cycle time @ design rate of pumping for pump 1	min	7.1
49	Minimum Pump operating cycle time @ design rate of pumping for pump 2	min	7.5
50	Retention volume in sump under low flow condition (from bed level to low rate pump start level)	m^3	13.566
51	Retention time	min	23
52	Since Retention time for average flow is less than 30min		OK
	Wet well Dimension	**Area**	**Depth BGL**
		9.6	[illegible]

Design of Wetwell @ PS Zone 12B			
		Annex-6	
Sl No	Description	Unit	Value
	General		
1	Population in 2056 of Zone 12B	Nos	1902
2	Flow of Zone 12B	MLD	0.21
3	Infiltration	MLD	0.02
4	Total Average flow of Zone 12B	MLD	0.23
5	Total Peak Flow of Zone 12B	MLD	0.64
6	Average flow	m^3/sec	0.0026
7	Design peak flow	m^3/sec	0.007
8	Number of pumps working		2.000
9	Capacity of Pump	m^3/sec	0.004
10	Diameter of Wet Well	m	3.000
11			
12	**Effective area of sump**	m2	7.069
13	Ground level at wetwell site	m	5.050
14	Invert level of incoming Pipe	m	1.730
15	Free Fall		0.500
16	Submersible depth of pump	m	0.40
17	Minimum pumping cycle time	min	7.0
18	**Sump Details**		
19	Sump capacity required per 2 pumps working	m^3	3.096
20	Effective depth (required for 2 working pump)	m	0.44
21	Effective depth (adopted)	m	0.50
22	Sump Capacity required per one pump working	m^3	1.55
23	Effective depth (required for one working pump)	m	0.22
24	Effective depth (adopted)	m	0.22
25	Total Effective depth required	m	0.50
26	Sump Area (adopted)	m	7.07
27	Ground level at wetwell site	m	5.050
28	Invert level of incoming Pipe	m	1.730
29	Free fall	m	0.50
30	Maximum Water Level (MWL)	m	1.230
31	Low Water Level (LWL)	m	0.730
32	Submersible depth of pump	m	0.40
33	Bed level	m	0.330
34	**Operating cycle**		
35	First Pump will be started when the liquid level is at	m	0.950
36	First Pump will Auto Stop when the liquid level is at	m	0.730
37	Second Pump will be started when the liquid level is at	m	1.230
38	Second Set of Pump will Auto Stop when the liquid level is at	m	0.730
39	**Checks**		
40	Minimum Pump operating cycle time @ design rate of pumping for pump 1	min	7.0
41	Minimum Pump operating cycle time @ design rate of pumping for pump 2	min	8.0
42	Retention volume in sump under low flow condition (from bed level to low rate pump start level)	m^3	4.383
43	Retention time	min	28
44	Since Retention time for average flow is less than 30min		OK
	Wet well Dimension	**Area**	**Depth BGL**
		7.1	**4.72**

Annexure- 7

DESIGN FOR ECONOMIC SIZE OF PUMPING MAIN FOR SEWAGE PUMPING MAIN FOR MANGALURU wet well 12 A

From:

Sl. No	Description					
	Pipe inner dia (ID in mm)	100	150	200	250	300
1	Discharge in cum/hr	159.90	159.90	159.90	159.9	159.9
2	Pumping Hours	24.0	24.0	24.0	24.0	24.0
3	Value of HWC for pipe	140.0	140.0	140.0	140.0	140.0
4	Length of the raising main (m)	550.0	550.0	550.0	550.0	550.0
5	Loss per 1000 m length ,(m)	263.0	36.6	9.0	3.0	1.3
6	Actual friction loss ,(m)	144.6	20.1	5.0	1.7	0.7
7	Friction losses in specials, bends	14.5	2.0	0.5	0.2	0.069
8	Static head (m)	11.2	11.2	11.2	11.2	11.2
9	Residual head (m)	2.0	2.0	2.0	2.0	2.0
10	Total Head (m)	172.3	35.3	18.7	15.0	14.0
11	BHP (50% efficiency)	201.2	41.2	21.8	17.6	16.3
12	KW required	150.1	30.8	16.2	13.1	12.2
13	Cost of Pumping machinery at 4000 rs per BHP	804602.0	164962.0	87125.8	70245.3	65183.9
14	Total Energy charges per year (0.746 x pumping hours x 365 x HP x energy charges	6572552.3	1347525.3	711704.2	573812.9	532467.5
15	M&R Depreciation Charges (at 7.5% of item 13)	603451.5	123721.5	65344.3	52684.0	48887.9
16	Total O& M Charges	7176003.7	1471246.9	777048.6	626496.9	581355.4
17	Capitalised value of O&M charges	63343444.35	12986872.27	6859100.812	5530163.276	5131693.654
18	Cost of pipe Rs/Per M	1039.00	1506.00	2152.00	2858.00	3639.00
19	Total cost of pieps	571450	828300	1183600	1571900	2001450
20	Grand total of capitalized cost for 15 years	6,39,14,894.35	1,38,15,172.27	80,42,700.81	71,02,063.28	71,33,143.65

Computation of Water hammer, as per Clause 6.17.2 of CPHEEO Manual & IS 8329:2000 for DI pipe

Water hammer, "H_{max}" = $C \times V_o / [g]$

Where,

g = acceleration due to gravity, in m/s2

V_o = Nominal Velocity in pipeline before sudden closure in m/s

C = Velocity of pressure wave travel in m/s

expressed as

C = $1425 / [1 + k \times d / E \times C_t]$

Where,

d = Diameter of Pipe in m

k = Bulk modulus of Water in Kg/m3

E = Modulus of Elastcity of Pipe Material in Kg/m2

C_t = Wall Thickness of Pipe in m

Pipe Diameter (ID), "D"	100 mm	150 mm	200 mm	250 mm	300 mm
Pipe Diameter (ID), "d"	0.100 m	0.150 m	0.200 m	0.250 m	0.300 m
Bulk modulus, k	2.1E+08 Kg/m2	2.1E+08 Kg/m2	2.1E+08 Kg/m2	2.1E+08 Kg/m2	2.1E+08 Kg/m2
Modulus of Elastcity, "E"	1.7E+10 Kg/m2	1.7E+10 Kg/m2	1.7E+10 Kg/m2	1.7E+10 Kg/m2	1.7E+10 Kg/m2
Wall Thickness, "C_t"	0.006 m	0.006 m	0.006 m	0.007 m	0.007 m
Pressure wave velocity, "C"	1305 m/s	1255 m/s	1210 m/s	1184 m/s	1161 m/s
And,					
Nominal Velocity, V_o	5.7 m/s	2.5 m/s	1.4 m/s	0.9 m/s	0.6 m/s
Water hammer, "H_{max}"	752 m	321 m	174 m	109 m	74 m
Surge Pressure, P_s	7.5 N/mm2	3.2 N/mm2	1.7 N/mm2	1.1 N/mm2	0.7 N/mm2
Operating Pressure, P_o	1.7 N/mm2	0.4 N/mm2	0.2 N/mm2	0.2 N/mm2	0.1 N/mm2
Total operating Pressure including Surge, P=Ps+Po	9.2 N/mm2	3.6 N/mm2	1.9 N/mm2	1.2 N/mm2	0.9 N/mm2
Allowable maximum opearting Pressure including Surge as per IS 8329:2000	7.4 N/mm2	7.4 N/mm2	7.4 N/mm2	6.5 N/mm2	5.9 N/mm2

Annexure- B

DESIGN FOR ECONOMIC SIZE OF PUMPING MAIN FOR SEWAGE PUMPING MAIN FOR MANGALURU						
From:						
Sl. No	Description					
	Pipe inner dia (ID in mm)	100	150	200	250	300
1	Discharge in cum/hr	26.53	26.53	26.53	26.5	26.5
2	Pumping Hours	24.0	24.0	24.0	24.0	24.0
3	Value of HWC for pipe	140.0	140.0	140.0	140.0	140.0
4	Length of the raising main (m)	820.0	820.0	820.0	820.0	820.0
5	Loss per 1000 m length ,(m)	9.5	1.3	0.3	0.1	0.0
6	Actual friction loss ,(m)	7.8	1.1	0.3	0.1	0.0
7	Friction losses in specials, bends	0.8	0.1	0.0	0.0	0.004
8	Static head (m)	19.8	19.8	19.8	19.8	19.8
9	Residual head (m)	2.0	2.0	2.0	2.0	2.0
10	Total Head (m)	30.3	23.0	22.1	21.9	21.8
11	BHP (50% efficiency)	5.9	4.4	4.3	4.2	4.2
12	KW required	4.4	3.3	3.2	3.2	3.2
13	Cost of Pumping machinery at 4000 rs per BHP	23495.4	17790.6	17096.4	16945.8	16900.7
14	Total Energy charges per year (0.746 x pumping hours x 365 x HP x energy charges	191926.5	145326.0	139655.3	138425.5	138056.7
15	M&R Depreciation Charges (at 7.5% of item 13)	17621.5	13342.9	12822.3	12709.4	12675.5
16	Total O& M Charges	209548.0	158669.0	152477.6	151134.9	150732.3
17	Capitalised value of O&M charges	1849705.623	1400589.898	1345938.074	1334085.664	1330531.829
18	Cost of pipe Rs/Per M	1039.00	1506.00	2152.00	2858.00	3639.00
19	Total cost of pieps	851980	1234920	1764640	2343560	2983980
20	Grand total of capitalized cost for 15 years	27,01,685.62	26,35,509.90	31,10,578.07	36,77,645.66	43,14,511.83

Computation of Water hammer, as per **Clause 6.17.2 of CPHEEO Manual & IS 8329:2000 for DI pipe**

Water hammer, "H_{max}" = $C \times V_o / [g]$

Where,

g = acceleration due to gravity, in m/s2

V_o = Nominal Velocity in pipeline before sudden closure in m/s

C = Velocity of pressure wave travel in m/s

expressed as

$C = 1425 / [1 + k \times d / E \times C_t]$

Where,

d = Diameter of Pipe in m

k = Bulk modulus of Water in Kg/m3

E = Modulus of Elastcity of Pipe Material in Kg/m2

C_t = Wall Thickness of Pipe in m

Pipe Diameter (ID), "D"	100 mm	150 mm	200 mm	250 mm	300 mm
Pipe Diameter (ID), "d"	0.100 m	0.150 m	0.200 m	0.250 m	0.300 m
Bulk modulus, k	2.1E+08 Kg/m2	2.1E+08 Kg/m2	2.1E+08 Kg/m2	2.1E+08 Kg/m2	2.1E+08 Kg/m2
Modulus of Elastcity, "E"	1.7E+10 Kg/m2	1.7E+10 Kg/m2	1.7E+10 Kg/m2	1.7E+10 Kg/m2	1.7E+10 Kg/m2
Wall Thickness, "C_t"	0.006 m	0.006 m	0.006 m	0.007 m	0.007 m
Pressure wave velocity, "C"	1305 m/s	1255 m/s	1210 m/s	1184 m/s	1161 m/s
And,					
Nominal Velocity, V_o	0.9 m/s	0.4 m/s	0.2 m/s	0.2 m/s	0.1 m/s
Water hammer, "H_{max}"	125 m	53 m	29 m	18 m	12 m
Surge Pressure, P_s	1.2 N/mm2	0.5 N/mm2	0.3 N/mm2	0.2 N/mm2	0.1 N/mm2
Operating Pressure, P_o	0.3 N/mm2	0.2 N/mm2	0.2 N/mm2	0.2 N/mm2	0.2 N/mm2
Total operating Pressure including Surge, P=Ps+Po	1.6 N/mm2	0.8 N/mm2	0.5 N/mm2	0.4 N/mm2	0.3 N/mm2
Allowable maximum opearting Pressure including Surge as per IS 8329:2000	7.4 N/mm2	7.4 N/mm2	7.4 N/mm2	6.5 N/mm2	5.9 N/mm2

Annexure-9

Design of Pumps for the year 2026 -2041 for wet well No-12A

1	Population at Intermediate stage (2041) from Zone-12A,12B	**9271**	
2	Total sewerage collection in wet well (2041) peak	**3.12**	**MLD**
3	Pump Capacity (2041)	**129.96**	cum/hr
4		0.036	Cum/sec
5	Low Liquid Level in the wet well	-1.200	m
6	Pumping Main Ridge Point	10.00	m
7	Static Head	11.20	m
8	Residual Head	2.00	m
9	station losses	2.00	m
10	Length of the rising main	550.00	m
11	Diameter of Pumping main	250.00	
12	Diameter of Pumping main (ID)	238.00	mm
13	Velocity in Pipe	0.811	m/s
14	C value	140	
15	Head Loss due to friction (Frictional loss from eqn. Q=1.292 x 10^-5 C D^2.63 S^0.54 (Pg.48 of CPHEEO manual)	1.442	m
16	Other Losses (Losses in specials & valves) in m (10% of the frictional losses)	0.1442	m
17	Total Pumping Head	16.79	m
18	Say	18.00	m
19	Efficiency of pumpset (assumed)	0.45	
20	Number Of working Pumps	2	
21	Discharge of Each pump	65	Cum/hr
22	say	65	Cum/hr
23		0.018	Cum/sec
24	Power Required in KW (Including 15% factor of safety)	8.05	KW
25	Motor Rating (as per Standard rating)	9.3	KW
26	Motor Rating	12.5	HP

Annexure-10

Design of Pumps for the year 2026 -2041 for wet well No-12B

1	Population at Intermediate stage (2041)	**1393**	
2	Total sewerage collection in wet well (2041) peak	**0.47**	**MLD**
3	Pump Capacity (2041)	**19.43**	cum/hr
4		0.005	Cum/sec
5	Low Liquid Level in the wet well	0.730	m
6	Pumping Main Ridge Point	20.50	m
7	Static Head	19.77	m
8	Residual Head	2.00	m
9	station losses	2.00	m
10	Length of the rising main	820.00	m
11	Diameter of Pumping main	150.00	
12	Diameter of Pumping main (ID)	138.00	mm
13	Velocity in Pipe	0.361	m/s
14	C value	140	
15	Head Loss due to friction (Frictional loss from eqn. Q=1.292 x 10^-5 C D^2.63 S^0.54 (Pg.48 of CPHEEO manual)	0.905	m
16	Other Losses (Losses in specials & valves) in m (10% of the frictional losses)	0.0905	m
17	Total Pumping Head	24.77	m
18	Say	27.00	m
19	Efficiency of pumpset (assumed)	0.45	
20	Number Of working Pumps	2	
21	Discharge of Each pump	10	Cum/hr
22	say	13	Cum/hr
23		0.004	Cum/sec
24	Power Required in KW (Including 15% factor of safety)	2.30	KW
25	Motor Rating (as per Standard rating)	3.5	KW
26	Motor Rating	4.7	HP

ANNEXURE-5

ಬಜಪೆ ಪಟ್ಟಣ ಪಂಚಾಯತ್

ಬಜ್ಪೆ ಅಂಚೆ -574142 ಮಂದಕೂರು ತಾಲೂಕು,ದ.ಕ.ಜಿಲ್ಲೆ.

Phone No: 0824-2252418 Email: cobajpetp@gmail.com

ನಂಬ್ರ: ಬ.ಪ.ಪಂ.ಸಿ.ಆರ್/427 /2022-23 ದಿನಾಂಕ: 03-11-2022

ರಿಗೆ,

ಪ್ರಾದೇಶಿಕ ಅಧಿಕಾರಿ
ಪ್ರಾದೇಶಿಕ ಕಛೇರಿ
ಪರಿಸರ ಭವನ 10 ಬಿ
ಬೈಕಂಪಾಡಿ ಕೈಗಾರಿಕ ಪ್ರದೇಶ
ಮಂಗಳೂರು -575011

ಮಾನ್ಯರೇ,

ವಿಷಯ: Setting up of Sewage Treatment Plant in compliance to the Water (Prevention & Control of Pollution) Act 1974-reg

ಉಲ್ಲೇಖ: ತಮ್ಮ ಕ.ಪ.ಸಂ pcb/RO/MNG/SCN/2022-23/1138 DATE 19-10-2022

ಮೇಲಿನ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ಬಜಪೆ ಪಟ್ಟಣ ಪಂಚಾಯತದಲ್ಲಿ ಒಟ್ಟು ಜನಸಂಖ್ಯೆ 18507 ಹೊಂದಿದ್ದು, ಸದ್ರಿ ಪಟ್ಟಣ ಪಂಚಾಯತ ಗ್ರಾಮ ಪಂಚಾಯತದಿಂದ ದಿನಾಂಕ 01-04-2021 ಪಟ್ಟಣ ಪಂಚಾಯತ್ ಆಗಿ ಪರಿವರ್ತನೆಯಾದ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ಸದರಿ ಮೂಲಭೂತ ಸೌಲಭ್ಯ ಕಲ್ಪಿಸಲು ಸರ್ಕಾರದಿಂದ ಎಸ್ ಎಫ್ ಸಿ , 15 ನೇ ಹಣಕಾಸು ಹಾಗೂ ಅಮೃತ ನಗರೋತ್ಥಾನ ಯೋಜನೆಯಡಿ ಅನುದಾನ ಬಿಡುಗಡೆಯಾಗಿರುತ್ತದೆ. ಸದರಿ ರಸ್ತೆ ಅಭಿವೃದ್ಧಿ ಚರಂಡಿ, ಮಳೆ ನೀರು ಚರಂಡಿ, ಹಾಗೂ ಒಳ ಚರಂಡಿ, ಘನ ತ್ಯಾಜ್ಯ ವಸ್ತು ನಿರ್ವಹಣೆ, ಮಳೆ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆ ಹಾಗೂ ತ್ಯಾಜ್ಯ ನೀರು ಸಂಸ್ಕರಣಾ ಹಾಗೂ ಇನ್ನಿತರ ಅಭಿವೃದ್ಧಿ ಕಾಮಗಾರಿಗಳಿಗೆಈ ಗಾಗಲೇ ಅಂದಾಜು ಪಟ್ಟಿ ತಯಾರಿಸಿ ಟೆಂಡರ್ ಪ್ರಕ್ರಿಯೆ ಚಾಲ್ತಿಯಲ್ಲಿರುತ್ತದೆ. ತ್ಯಾಜ್ಯ ನೀರು ಸಂಸ್ಕರಣಾ/ ಘನ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆ ಸಂಬಂಧ ಈಗಾಗಲೇ ವೈಜ್ಞಾನಿಕವಾಗಿ ಡಿ.ಪಿ.ಆರ್ ತಯಾರಿಸಿ ಅನುಮೋದನೆಗೆ ಸಕ್ಷಮ ಪ್ರಾಧಿಕಾರಿಕ್ಕೆ ಸಲ್ಲಿಸಲಾಗಿದ್ದು, ಅನುಮೋದನೆಯ ನಂತರ ಸದರಿ ಶುಚಿತ್ವ ಸಂಬಂಧ ಸರ್ಕಾರದ ನಿಯಮದಂತೆ KARNATAKA POLLUTION CONTROL BOARD ರವರ ನಿಯಮದಂತೆ ಹಂತ ಹಂತವಾಗಿ ಕ್ರಮ ಕೈಗೊಂಡು ಕಾಮಗಾರಿಗಳನ್ನು ಪೂರ್ಣಗೊಳಿಸಲಾಗುವುದು.

STP /Fecal sludge treatment plant ಅಳವಡಿಕೆ ಸಂಬಂಧ ತರಬೇತಿ ಹಾಗೂ ಅರಿವು ಮೂಡಿಸುವ ಕಾರ್ಯಕ್ರಮಗಳನ್ನು ಸರ್ಕಾರವು ಹಮ್ಮಿಕೊಂಡಿದ್ದು, ಸದ್ರಿಯಡಿ Centralized, De Centralized Plant ಗಳ ಅಳವಡಿಸುವ ಸಂಬಂಧ ದೊಡ್ಡ ದೊಡ್ಡ ಸಂಕೀರ್ಣ ಆಸ್ತಿಗಳುಳ್ಳ /ಶಾಲೆಗಳ ವಾರಿಸ್ತುದಾರರಿಗೆ ಅರಿವು ಮೂಡಿಸುವ ಕಾರ್ಯಕ್ರಮವನ್ನು ಕೈಗೊಂಡು ಶೂನ್ಯ ತ್ಯಾಜ್ಯ ವಸ್ತು ನಿರ್ವಹಣೆಯನ್ನು ಅಳವಡಿಸಿ ನಿಯಾನುಸಾರ ಕ್ರಮವಹಿಸಲಾಗುವುದೆಂದು ಈ ಮೂಲಕ ತಿಳಿಸುತ್ತೇವೆ

ತಮ್ಮ ವಿಶ್ವಾಸಿ

ಮುಖ್ಯಾಧಿಕಾರಿ
ಬಜಪೆ ಪಟ್ಟಣ ಪಂಚಾಯತ್
ಮಂಗಳೂರು ತಾಲೂಕು, ದ.ಕ

03/11/2022

ಬಜಪೆ ಪಟ್ಟಣ ಪಂಚಾಯತ್

ಅಂಚೆ: ಬಜಪೆ, ಮಂಗಳೂರು ತಾಲೂಕು, ದ.ಕ. ಜಿಲ್ಲೆ 574142
(Email: cobajpetp@gmail.com)
ದೂರವಾಣಿ ಸಂಖ್ಯೆ: 0824-2252418

ನಂಬ್ರ: ಬ.ಪ.ಪಂ.ಪತ್ರ ನಂ.: 233/2022-23

ದಿನಾಂಕ: 27/12/2022

ಇವರಿಗೆ,

ಪರಿಸರ ಅಧಿಕಾರಿಗಳು,
ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ,
ಪ್ರಾದೇಶಿಕ ಕಛೇರಿ,
ಮಂಗಳೂರು.

ಮಾನ್ಯರೇ,

ವಿಷಯ :- ಮಾನ್ಯ ರಾಷ್ಟ್ರೀಯ ಹಸಿರು ನ್ಯಾಯಾಧಿಕರಣದಲ್ಲಿ ಮೂಲ ಅರ್ಜಿ OA307/2022ಗೆ, ಸಂಬಂಧಿಸಿದಂತೆ ಫಲ್ಗುಣಿ ನದಿಯ ಮಾಲಿನ್ಯವನ್ನು ತಡೆಗಟ್ಟಲು ಕ್ರಿಯಾಯೋಜನೆ ತಯಾರಿಸಿದ ಬಗ್ಗೆ.

ಉಲ್ಲೇಖ:- ತಮ್ಮ ಕಚೇರಿ ಪತ್ರ ಸಂಖ್ಯೆ ಕಜಮ/ಕಾಅ-ಮಂವಿ/ತಾಂಸ/ತಾಂಶಾ/ಸಅ-3/ಎನ್.ಜಿ.ಟಿ./ಬಜ್ಪೆ/910/2022-23 ದಿನಾಂಕ 15/12/2022

***

ಮೇಲಿನ ಉಲ್ಲೇಖಿದ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಮಾನ್ಯ ರಾಷ್ಟ್ರೀಯ ಹಸಿರು ನ್ಯಾಯಾಧಿಕರಣದಲ್ಲಿ ಮೂಲ ಅರ್ಜಿ OA307/2022ಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಫಲ್ಗುಣಿ ನದಿಯ ಮಾಲಿನ್ಯವನ್ನು ತಡೆಗಟ್ಟಲು ಕ್ರಿಯಾಯೋಜನೆ ತಯಾರಿಸಿದ್ದು, ಈ ಪತ್ರದೊಂದಿಗೆ ಲಗತ್ತಿಸಿ ತಮಗೆ ಸಲ್ಲಿಸಲಾಗಿದೆ.

ವಂದನೆಗಳೊಂದಿಗೆ,

ತಮ್ಮ ವಿಶ್ವಾಸಿ,

ಮುಖ್ಯಾಧಿಕಾರಿ 27/12/2022
ಬಜಪೆ ಪಟ್ಟಣ ಪಂಚಾಯತ್
ಮಂಗಳೂರು ತಾಲೂಕು, ದ.ಕ.

ಅಡಕ : ಕ್ರಿಯಾ ಯೋಜನೆ ಪ್ರತಿ.

ಬಜಪೆ ಪಟ್ಟಣ ಪಂಚಾಯತ್

2022-23ನೇ ಸಾಲಿನ STP ಕ್ರಿಯಾಯೋಜನೆ

ಕ್ರ.ಸಂ	ಕಾಮಗಾರಿಗಳ ವಿವರ	ಮೊತ್ತ (ಲಕ್ಷಗಳಲ್ಲಿ)
1	Providing, constructions and commissioning of STP plant 2KLD suitable place in town panchayath limit Bajape Mangaluru Taluk Dakshina Kannada District	50.00
2	Providing, constructions and commissioning of FSSM plant 3Cubic Meter capacity suitable place in town panchayath limit Bajape Mangaluru Taluk Dakshina Kannada District	25.00
	ಒಟ್ಟು :	**75.00**

ಮುಖ್ಯಾಧಿಕಾರಿ 27/12/2022
ಮುಖ್ಯಾಧಿಕಾರಿ
ಬಜಪೆ ಪಟ್ಟಣ ಪಂಚಾಯತ್
ಮಂಗಳೂರು ತಾಲೂಕು, ದ.ಕ.

ಕರ್ನಾಟಕ ನಗರ ನೀರು ಸರಬರಾಜು ಮತ್ತು ಒಳಚರಂಡಿ ಮಂಡಳಿ
KARNATAKA URBAN WATER SUPPLY AND DRAINAGE BOARD
ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರ ಕಛೇರಿ, ಕ.ನ.ನೀ.ಸ ಮತ್ತು ಒ.ಚ.ಮಂಡಳಿ
ಮಂಗಳೂರು ವಿಭಾಗ, ಮಲ್ಲಿಕಟ್ಟೆ ಮಂಗಳೂರು-575002.
ದೂರವಾಣಿ: 0824 2952982 ಇ-ಮೇಲ್: eemngkuws@gmail.com

No.KWB/EE-MNG/TEC/TA/AE-1/NGT/ 1005 /2022-23 Dated 04/01/2023

To,
The Project Director,
DUDC,
Dakshina Kannada District,
Mangaluru.

6/1/23
DEO-1 & 2
Handed over to DEO-3

Sir,

Sub: Status of NGT issues in Dakshina Kannada District pertaining to KUWS & DBoard.

As per kind directions, I am herewith submitting the Status of NGT issues in Dakshina Kannada District pertaining to KUWS & D Board i.e., in respect of OA No.673/2018 (Bantwal Town, Belthangady Town and Subrahmanya), OA No. 307/2022 (Bajpe) and the issue of non operational UGD system at Sullia town for kind information and needful.

3715
6.1.2023
DEO-2 & 1

Encl: Action Taken Report

Yours faithfully,

Sd/-
Executive Engineer,
KUWS & D Board Division,
Mangaluru.

1. Copy submitted to the Deputy Commissioner, DK District, Mangaluru along with Action Taken Report for kind information.
2. Copy submitted to the Chief Engineer, KUWS & D.Board, Mysuru for kind information.
3. Copy submitted to the Regional Officer, KSPCB, Regional Office, Mangaluru along with Action Taken Report for kind information.
4. Copy to the Assistant Executive Engineer, KUWS & DBoard sub division, Mangaluru for information and necessary action.
5. Copy to file.

Executive Engineer,
KUWS & D Board Division,
Mangaluru.

ACTION TAKEN REPORT BY KUWS & DB ON NGT ISSUES IN DAKSHINA KANNADA DISTRICT

Sl. No	River (stretch)	Name of town	Remarks
	NGT OA No.673/2018		
1	Nethravathi (Uppinangady to Mangaluru)	Bantwal	Bantwal town is included in the 17 polluted river stretches of Karnataka. Providing UGD system to Bantwal town under Phase-1 was Administratively approved by the Govt. vide G.O.No. HUD-2 /UDS-2003/dated 25-02-2004 for Rs.1227.00 lakh (Revised cost is Rs.1635.00 lakh). Under this scheme 1327 nos. machine holes and 30.56 km. of sewerline were completed. The 2nd Phase UGD scheme was Administratively approved for Rs.5654.18 lakh vide G.O.No.UDD 18/UDS-2015/dated 30-11-2017. Under this scheme, 7 nos. of wetwells and 2 nos. of STPs, Pumping machineries with allied works are to be taken up. Work could not be taken up due to non availability of required land for construction of STP and wetwells. Land required for the construction of Wetwell No.1, Wetwell No.2, STP-1 (Partly), Wetwell No.4(1) is handed over by Bantwala TMC to Board on 04-04-2022. Land required for the construction of Wetwell No.6 (Govt land) and Wetwell No.7 (Govt. land) already handed over by Bantwala TMC to Board. Now, PQ Tender is invited for construction of 5 nos. of wetwells and 1 no. of STP on 10-08-2022. Writ Petition (WP No.14568 of 2022) filed regarding land acquisition process for Wetwell No.2 and the Hon'ble High Court has allowed the Writ Petition and impugned final notification dated 30-08-2011 and the impugned award dated 15-03-2022 and quashed all acquisition proceedings as the petition schedule property is concerned. Hence land acquisition process is to be re-initiated by the ULB.
2	Nethravathi (Uppinangady to Mangaluru)	Belthangady	Belthangady town is included in the 17 polluted river stretches of Karnataka. DPR for Providing FSSM system to Belthangady town was Administratively approved vide GO No. UDD-01/UWL 2019/ BHA-3, Bengaluru dated 25-03-2021 as per Hon'ble NGT directions. Under this scheme, construction of 6 cum capacity FSTP is completed and commissioned on 28-12-2022. Trial run is in progress.

3	Kumaradhara (Along Uppinangady)	Subrahmanya	Kukke Subrahmanya is included in the polluted river stretches of Karnataka. The DPR for upgradation of 2.60MLD capacity Aerated Lagoon type sewage treatment plant at Subramanya is Administratively approved vide GO No. UDD-01/UWL 2019/ BHA-3, Bengaluru dated 25-03-2021 as per Hon'ble NGT directions. 8 call tenders were rejected for various reasons. The revised estimate of the work amounting to Rs. 790.00 is Administratively approved by the Govt. vide GO No.UDD 33 UDS 2022 Bengaluru dated 13-12-2022. Tender will be invited for the same.
	NGT OA No.307/2022		
4	Phaluguni	Bajpe	It is instructed to prepare the Action Plan for abatement of pollution of Phalguni river as per the directions issued in order dated 21-11-2022 in respect of OA 307/2022 of the Hon'ble NGT based on the Joint Committee report regarding the incident of fish kill in Phalguni river. In this regard, the matter is discussed with the Environmental Officer, KSPCB, Regional Office, Mangaluru, the Executive Engineer, MCC, Mangaluru, the Chief Officer, TP, Bajpe and site inspection was carried out on 08-12-2022. A meeting of the Joint Committee was convened on 16-12-2022 at the office of the Deputy Commissioner, Dakshina Kannada District, Mangaluru regarding preparation of Action Plan on the matter. where this matter/Action Plan will be discussed in detail. The report on the subject along with short term and long term measures is prepared and is enclosed in **Annexure-I.**
	Non- functional UGD system of Sullia Town		
5	Payaswini	Sullia	The DPR for providing UGD scheme to Sullia town amounting to Rs.287.07 lakh was Administratively approved by the Govt. vide GO No.UDD 10 UDS 99 dated 20-07-2001. Under the scheme 199 nos. of machine holes, 5.93 km. of sewer network, 2 nos of wetwells with pumping machineries, 2.4 km. rising main and 2 MLD capacity Oxidation Pond STP were constructed. The work was completed during 2010 and handed over to the ULB during 2011 for further maintenance.

			At present, the STP is non functional. As per the directions of Project Director, DUDC, DK District, site inspection to know the present condition of the system was carried out on 19-12-2022. The Inspection Report and Tentative Action Plan for re-commissioning of UGD scheme to Sullia town is prepared and is enclosed in **Annexure-II.** This Action Plan is only for making the non-operational existing UGD system functional and does not include upgradation of the system. If upgradation of the system to present condition is required, a separate detailed DPR is to be prepared considering all the required components.

Executive Engineer,
KUWS & D.Board Division,
Mangaluru.

Annexure – I

Preparation of Action Plan for the abatement of pollution of Phalguni River, Mangaluru in the matter of NGT OA 307/2022

Preamble :

The Hon'ble National Green Tribunal has passed an order in the matter of OA 307/2022 dated 29-04-2022 to identify the cause of the incident of fish kill in Phalguni river based on the "News item published in the Hindu dated 26-04-2022 titled "Flow of industrial effluents into Phalguni results in fish kill" which reported as "Hundreds of fishes were found dead and floating in Phalguni (Gurupura) river, downstream the Maravooru vented dam, following the flow of industrial and domestic effluent into the River. The administration has remained mute to the happening. The Photographs in the media report suggest that, color of the river turn black due to the effluents released by the industries in Baikampady industrial area in Mangaluru, Dakshina Kannada District, Karnataka".

Hon'ble NGT, Principal Bench, New Delhi has constituted a Joint Committee comprising of the Regional Officers of MoEF & CC and CPCB Bengaluru, State PCB, Director, Fisheries, Karnataka and District Magistrate, Dakshina Kannada District with the State PCB as the Nodal agency for co-ordination and compliance. In compliance to the order of Hon'ble NGT, KSPCB has constituted a committee vide office memorandum No. KSPCB/NEIA-OB/06/NGT-285/22-2023/813 dated 07-05-2022.

The Joint Committee has filed its report on 11.10.2022 after undertaking visit to the site, collecting water samples and getting them analyzed finding that pollution is caused by the industries and the Municipal Corporation.

Observations of the Committee:

General Observations:

- *Residential/commercial developments on either side of the river and, no UGD in certain areas. Even in sewered areas, there is missing links/gaps.*

- *Major and minor storm water drains were observed to be joining the river and* ***plenty of Organic load was observed at Kudroli, Sulthan Batteri, Dambel, Kulur Church and ELF Gas. Map showing storm water drains joining Gurupura river at different locations*** *is enclosed as Annexure-11.*

- ***Solid waste was found floating in the storm water drains*** *which joined the river.*

- ***Dumping/disposal of sewage collected from hotels andselected industries and from other residential areasthrough Cess Pool at selected places along the banks of river back water,*** *which needs a proper investigation.*

- *Upstream of the Gurupura river about 6 K.M. from Baikampady industrial area is built a vented dam which is the drinking water source for Maravooru Grama Panchayath limit. The dam was built in the year 2016-17. Since the construction of the dam, the river doesn't get minimum flow and* ***during summer seasons fish kill incidents are happening in the river during summer seasons due to build-up of organic load as a result of inadequate flushing.*** *It's only during the rainy season that the dam overflow reaches the river.*

Observations near Baikampady Industrial Area

Major water intensive industries in the Baikampady industrial area have provided inhouse ETP and some of them have Zero liquid discharge (ZLD).

- ***Few small industries generating less waste water are yet to install ETP and STP.***
- ***Sullage/sewage is being discharged to Storm water drain from many Godowns, commercial establishments, hotels and some small industries, Labour quarter's/shed. Etc.***

- ***No proper collection mechanism for Municipal and other Solid Waste in Baikampady industrial area. Solid waste heaps dumped along road sides were observed.*** *Photos enclosed as Annexure-12.*

- ***Construction debris and solid waste is being disposed at ODC Road to Jokatte at the bank of the back water of Gurupura River.***

- ***The Back water /Creek at the Baikampady Industrial area is blocked and the water is stagnated, there is no easy flushing.***

- ***During random inspection of industries in the Baikampady industrial area by KSPCB officials, it is observed that the following industries are discharging untreated effluents to the storm water drain, some of them in spite of having ETP facilities.***

Conclusions and Recommendations:

1. *The Committee from the Monitoring results and from other available data is of the opinion that the present fish kill is an isolated, very small one possibly by the Organic/Sewage load dumped in this particular location leading to oxygen stress during summer season.*

2. *There was no fish kill in the main Gurupura river, fish kill has happened in the stagnant pockets of the storm water drain leading to the river. Measured Dissolved oxygen levels at locations of fish death (along the two stagnant pockets of stormwater drain) were 0.8mg/l and 0.9 mg/l, whereas, at the point where storm water joined the river, DO level was 4 mg/l, whichshows that the fish death must have occurred due to inadequate tidal flushing in the creek/storm water drain resulting in low D.O levels.*

3. *The Committee has also observed that there is no traces of any discharge of industrial effluent in that Storm Water Drain in which fish kill has occurred.*

4. *Committee has observed entry of domestic sewage all along the river through Storm Water Drains; this needs an urgent attention by Mangaluru City Corporation (MCC).*

5. *There is no Underground drainage (UGD) facility with terminal Sewage Treatment Plant (STP) in Baikampady industrial area to take care of sewage/sullage discharge from Godown,* commercial establishments, hotels and some small industries, Labour quarter's/sheds. etc. Responsible organisations like KIADB and Mangaluru City Corporation (MCC) are required to initiate action to construct a proper UGD system with terminal sewage treatment plant.

6. *Mangaluru City Corporation also has to initiate action for treatment and disposal of sewage generated from the area around the Baggundi lake such as, MSEZ RR colony, Angaragundi, Kudumbur Villages so as to prevent joining of untreated sewage into Baggundi lake thereby to Gurupura river.*

7. *Action plan for Sl. No. 4,5 and 6 along with cost estimate and timelines shall be prepared by MCC and KIADB and necessary funds have to be released by Urban Development Department, Government of Karnataka and CEO, KIADB respectively for undertaking the above work.*

8. *Town Panchayath, Bajpe and Grama Panchayath, Jokatte are unsewered area along the catchment of the river Gurupura. Chief Officer, Bajpe has to take action for treatment and disposal of sewage generated in the area near airport andBajpe village to avoid entering of sewage into the storm water drain ultimately joining the Gurupura*

river and PDO, Grama Panchayat, Jokatte has to take action for treatment and disposal of Sewage generated from Jokatte areas. Directions have to be issued to DMA and CEO, ZP to release necessary funds required for undertaking the STP work.

9. There is no proper Solid waste collection mechanism in the Baikampady industrial Area. Construction debris (C and D waste) and solid waste including plastic waste are being dumped everywhere across the industrial area including the bank of the back water of Gurupura River. KIADB and Mangaluru City Corporation (MCC) being responsible agencies are required to initiate action to bring in a proper collection mechanism of Municipal solid waste/C and D /plastic and other types of waste and create awareness too in co- ordination with Industrial Associations.

10. There were lot of complaints in Media and by Industries Association that cess pool operators are discharging sewage through tankers and dumping/discharging indirectly in to rivers. Committee suggests that KIADB, MCC, ZP, PRED, Industrial Association and Police shall have to install CCTVCamera at Strategic locations in their respective jurisdiction to prevent any unauthorized/illegal dumping of waste water/sewage/solid waste in to the river.

11. The Committee suggests that the Minor Irrigation department who is in charge of protecting the river boundaries shall initiate steps to conduct a comprehensive survey on river encroachment along with other line departments such as, Revenue, CRZ, MCC and corresponding Town/Grama Panchayats and take appropriate action on the encroachers.

12. Upstream of the Gurupura river a vented dam is built, which is the drinking water source for Maravooru Grama Panchayathand 14 other villages. Since the construction of the dam, the river doesn't get minimum flow and during summer seasons fish kill incidents are happening in the river during summer seasons due to build-up of organic load as a result of inadequate flushing. Zilla Panchayat, PRED, Mangalore Officials will have to submit compliance to conditions imposed during clearance of vented dam.

13. KSPCB to ensure Zero Liquid Discharge in all the industriesand establishment of ETP in all small-scale industries irrespective of effluent quantity.

14. KSPCB has listed out few non-complying industries which are habituated to discharge into storm water drains in spite of some of them having the ETP units. Continuous monitoring of such non-complying industries followed by action as per law shall he initiated by KSPCB on priority.

15. KSPCB to take up strengthening of its laboratory at Mangaluru, adequate manpower to be deployed and upgrade the laboratory with advanced equipments."

In letter No. PCB/CEO-2/307-2022/2022-23/323 dated 02-12-2022 the member secretary, KSPCB has addressed the letter to the Managing Director, KUWS & D Board, Bengaluru stating that, the Hon'ble Tribunal has also directed the concerned departments (Mangaluru City Corporation (MCC), Urban Development Department (UDD), Karnataka Urban Water Supply & Drainage Board (KUWS & D B), Karnataka Industrial areas Development Board (KIADB), Zilla Panchayath Mangaluru, Minor Irrigation & KSPCB to prepare the Action Plan in this regard and inform to prepare and submit the Action Plan pertaining KUWS & DB on or before 15-12-2022.

The KUWS & D B is the implementing agency for Water Supply & UGD systems in urban areas. Out of the recommendations of the Joint Committee, Town Panchayath Bajpe Municipal area pertains to KUWS & D B.

As per Mangaluru City Corporation is concerned, KUIDFC is implementing Water Supply and UGD schemes. Hence, for the Mangaluru City Corporation limit, KUIDFC are concerned to submit the Action Plan.

The matter is discussed with the Environmental Officer, KSPCB, Regional office, Mangaluru, the Executive Engineer, MCC, Mangaluru, the Chief Officer, TP, Bajpe and site inspection on 08-12-2022. It is observed that, Town Panchayath Bajpe is unsewered area along the catchment of Gurupura river.

Gurupura river originates in the Western Ghats and flows for about 80Km from Western Ghats. It is a tributary of the Netravati River, which empties into the Arabian Sea, south of Mangaluru. It gets its name from the town Gurupura, situated near Mangaluru. It is also known as Puchamogeru River, Phalguni River or Kulur River. The river flows for a length of about 3.00 Km in Bajpe Town Panchayath limits. Bajpe town is situated at a distance of 18.00 Km from Mangaluru, the District Head Quarters. Bajpe Town Panchayath is upgraded from Bajpe Grama Panchayath by including Malavooru and Kenjar areas on 19-02-2021. The total area of the town is 19.92 Sqkm and has 19 wards. The population of the town as per 2011 census is 18507 (population: - Bajpe – 9701, Malavooru – 3468, Kenjaru – 5338). The Mangaluru International Airport is situated in Bajpe town limits. Bajpe town is not covered by Under Ground Drainage system.

At present, individual domestic soak pits and septic tanks exist. As observed by the Joint Committee, the sewage is being disposed into storm water drains which reaches nearest Nala and eventually, enter into Gurupura/Phalguni river. The quantity of sewage generated in the town at present is estimated to be approximately 1.64 MLD. There is no sucking machine with the Town Panchayath. As per private owners who are collecting the faecal sludge informed that, the frequency of desludging is about twice a week 6000 ltrs. Capacity cess pool.

From the above observations, the Town Panchayath Bajpe needs Faecal Sludge and Septage Management as a short term measure and sewerage network for entire town with Sewage Treatment Plant as long term measure.

Tentative Action Plan

I) Immediate measure

- The ULB has to take immediate action to bring awareness in the public to construct soak pits /septic tanks to prevent letting of sewage into open drains directly.
- Linking of soak pits /septic tanks to open drains if any has to be detected and disconnected immediately by the Local Body.
- Soak pits / effluent from septic tank overflowing directly into open drains have to be blocked immediately by the Local Body.
- Cleaning of drains by the Local Body and repairing the storm water drains to ascertain the smooth flow.
- Instructing the Apartments/Commercial buildings/School/Colleges who are letting untreated sewage to drains to stop and to treat the sewage collected in their premises before letting to drains.

II) Short term measure

1. FAECAL SLUDGE AND SEPTAGE MANAGEMENT (FSSM)

In on-site sanitation system, the faecal sludge and black water is accumulated in septic tank and soak pit, situated within the premises. Periodically, specialized collection vehicles will be used for desludging the septic tanks and transporting the same for treatment at standalone FSTP.

Faecal Sludge generation calculation:

Population as per 2011 census	Total House holds	Town Decadal growth rate	Avg. HH size	Population Base year 2025	Volume of the faecal sludge to be treated (cum)						FSTP cap. Required/ Considered (cum)
					1) Population based				2) Volume based (considering volume of the pit 4-6cum)	3) Based on daily collection* data (Cap. Of vehicle x No.of trips x No. of vehicles)	
					Year 2025		Year 2040				
					For pits	For septic tanks	For pits	For septic tanks			
18507	4358	20.76%	4.25	24101	2.17	2.53	2.88	3.36	14.92	1.70	6.00

Hence, considering above calculation, a 6 cum/day capacity Faecal Sludge Treatment Plant is required for Bajpe town.

Name of the work : Construction of 6.00 cum capacity Faecal Sludge Treatment Plant in Bajpe town		
	Abstract Estimate	
Sl No.	**Description of work**	**Amount (Rs. In lakh)**
1)	Construction of 6.00 cum capacity Faecal Sludge Treatment Plant (FSTP Plant) in Bajpe town incl. GST 18%	210.00
2)	Providing 6000 ltrs. capacity sucking machine / cess pool incl. GST 18%	75.00
3)	Administrative charges (ETP, Contingencies, labour cess & others @25%)	71.25
	Sub total	**356.25**
4)	Land Acquisition charges (about 0.50 Acre 45 m x 45 m)	100.00
	Total	**456.25**

Period of construction/execution of FSTP needs about 1 year from date of entrustment of work to the agency.

The ULB has to identify the land required and has to hand over the same for construction.

2. BY INTERCEPTION AND DIVERSION OF DRAINS (I&D):

This is a system of intercepting and collecting sewage from municipal drains (where sewer network is absent) and to divert it to STP for treatment.

Interception and Diversion:

This is a system of intercepting & collecting sewage from municipal drains (where sewer network is absent) and to divert it to STP for treatment. As an interim arrangement, till sewers are laid in town, strengthening of drainage networks is to be taken up and intercepted into existing/upcoming sewer network, wherever feasible, or brought to I&D point from where, sewage/sullage can be conveyed to STP/FSTP cum STP. The existing open drain carrying sullage can be strengthened after providing suitable I&D structures like coarse screen, grit chamber, fin screen and settling basin etc., before intercepting into river.

Urban drains of various sizes comprising of tertiary, secondary and primary tributaries (main drains) discharge sewage into natural water bodies. During dry weather, almost the entire flow in urban drains consists of,

- Raw sewage from toilets not connected to a sanitary disposal system
- Partially treated effluent from existing septic tanks, and
- Other onsite (septic tank with soak pits) management systems where soak pits are not provided or are blocked.

As an interim arrangement, till sewers are laid or in the periphery outside core area of the town where providing sewerage system is uneconomical, strengthening of drainage networks can be taken up and intercepted in the sewer network wherever feasible, so as to efficiently convey sewage/sullage to STP in the town.

Sullage Diversion (I&D) plan leading to Used Water treatment facility:

All tertiary and secondary drains will be provided with bar screens to trap floating debris, as per the following norms;

- Drain upto 1m width cross section - @ every 1km
- Drain above1m width cross section – as per the survey and assessment
- On primary drain, before outfall into a water body, there should be at least two bar screens within 2km before discharge point into the water body.
- Proper daily cleaning mechanism for drains to avoid overflowing in case of choking.

Repairs and maintenance of drains:

The local body will also need to repair all surface drains to maintain continuity so that the discharge is not dissipated through a breach or overflow. The dry weather discharge flowing in the drains needs to be intercepted by local body at suitable locations so that at least 50% of the current sewage generation in the town is collected and conveyed to the used water treatment facility. This criterion is a mandatory condition for sanctioning Used water facility for ULB.

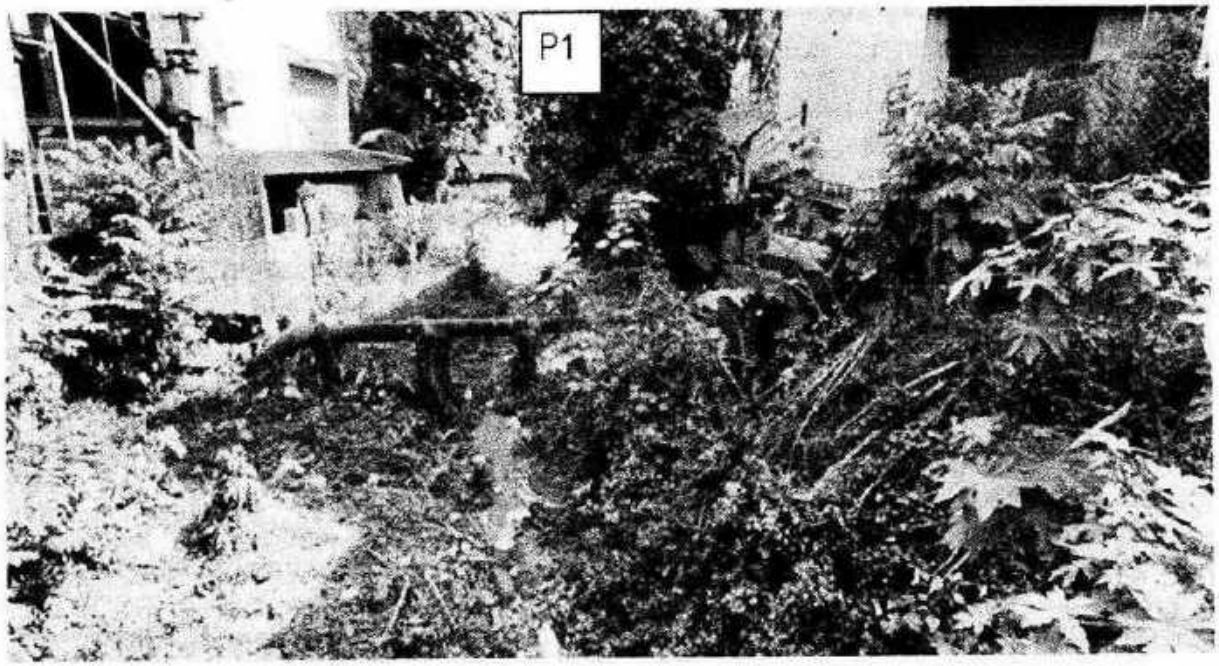
Pumping arrangements are permitted, if absolutely necessary. However, gravity sewers ar preferred. The treated used water to the environmental discharge in compliance with Hon'ble NGT O.A. no. 673/2018.

However, it is the responsibility of the Local Body to carry out necessary repairs to the drains and to maintain them in proper condition.

After detailed discussion with Chief officer, Bajpe and site visit on Date:21-12-2022, it is observed that, in several places' sewage either grey or black discharged directly to drains by hotels, restaurants, apartments, marriage hall, lodges, households etc., further it reaches nala and Gurupura river. The places of contamination observed at site on 21-12-2022 are as follows;

Thotlaguri Nala: The entire Bajpe town core area (commercial) grey sewage flows through open drain along the main road is discharge to Thotlaguri nala near Bridge on main road. After 200m flowing as greywater, the flow scattered in forest area for 200m to 400m (near Central ground, Bajpe where households are letting grey sewage directly to nala) then crystal clear water is observed @ 600m and 1km along the nala before it reaches SEZ area. After passing SEZ area water combined with an industrial waste observed near Bridge of Koncharu main road.

After SEZ area, flowing about 3.5Km length it reaches nala at Jokatte junction railway combines with Grey sewage from Devi college hostels, apartments, households at Kenjaru airport entrance on Bajpe main road. Then it reaches Gurupura river after passing through Indian Coast Guard area.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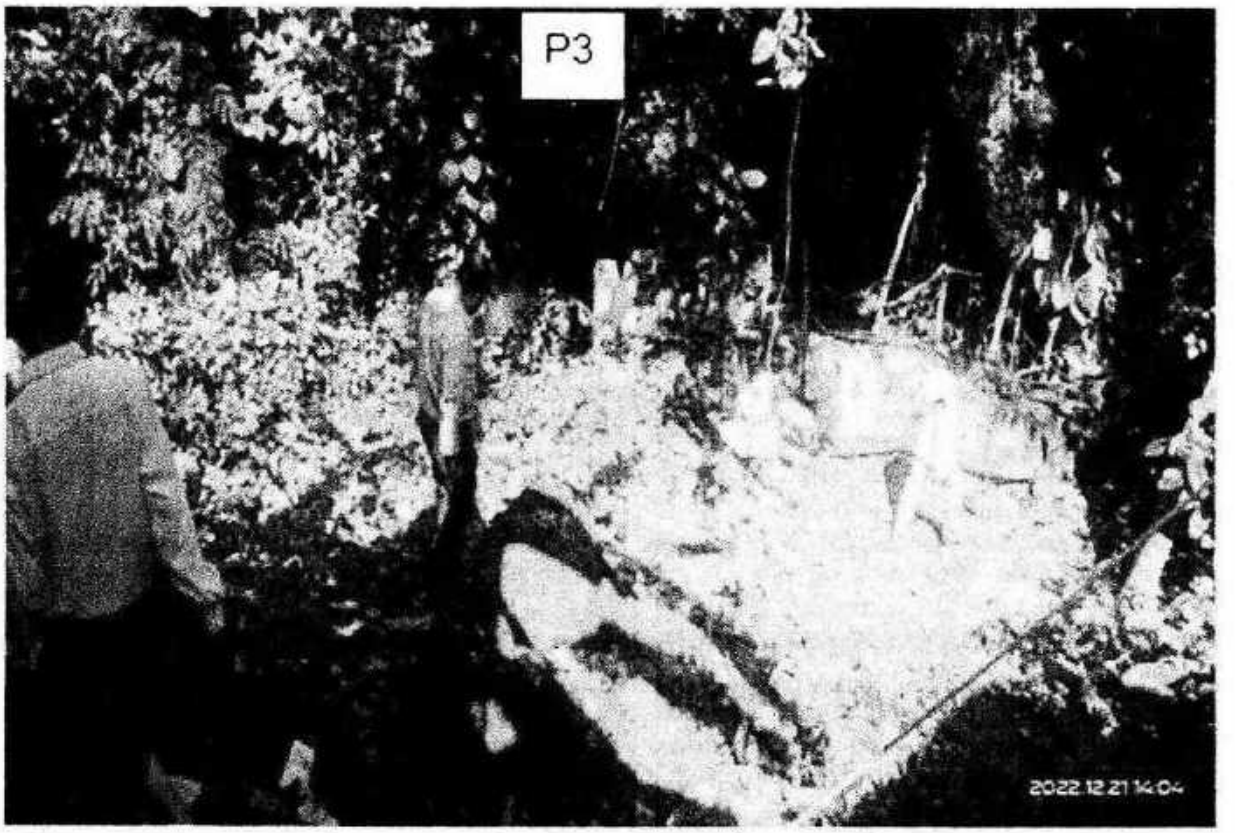
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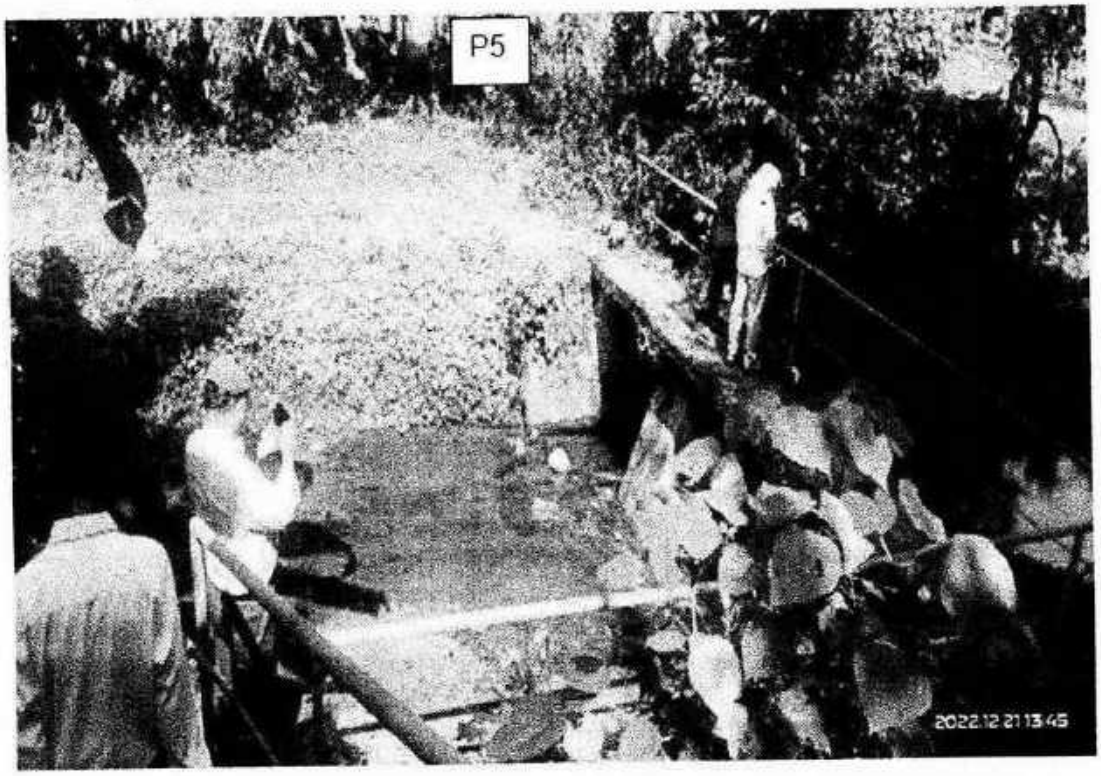
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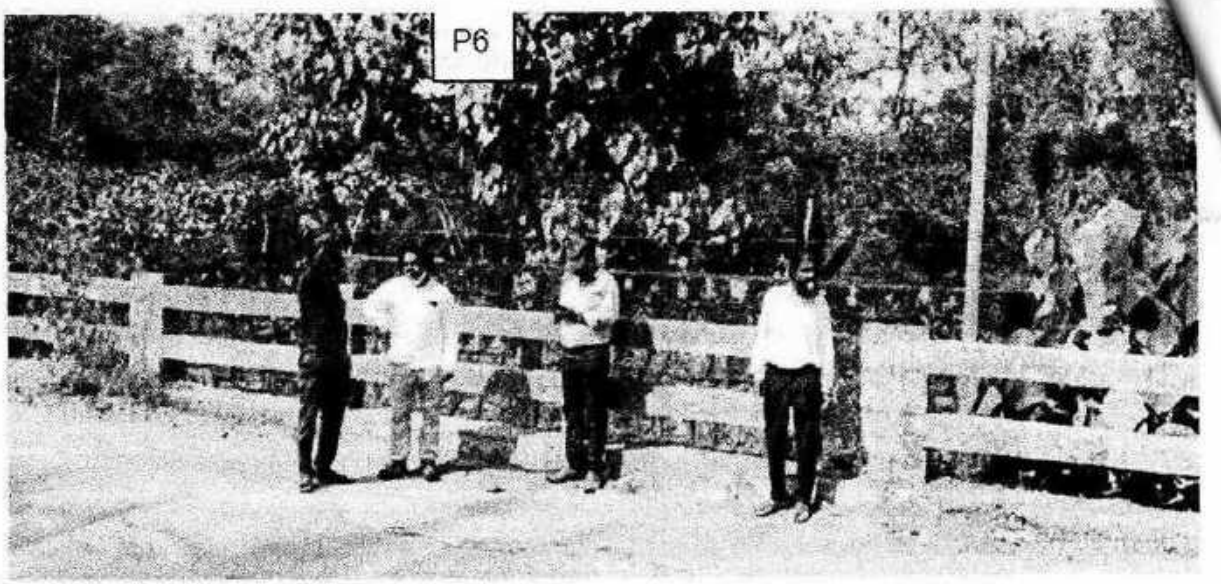
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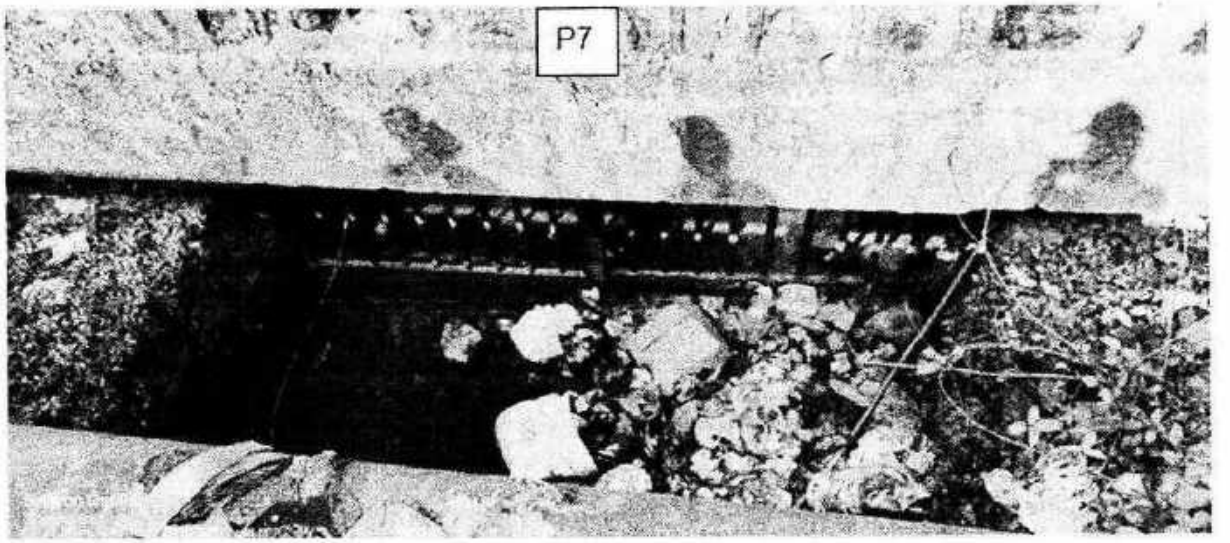
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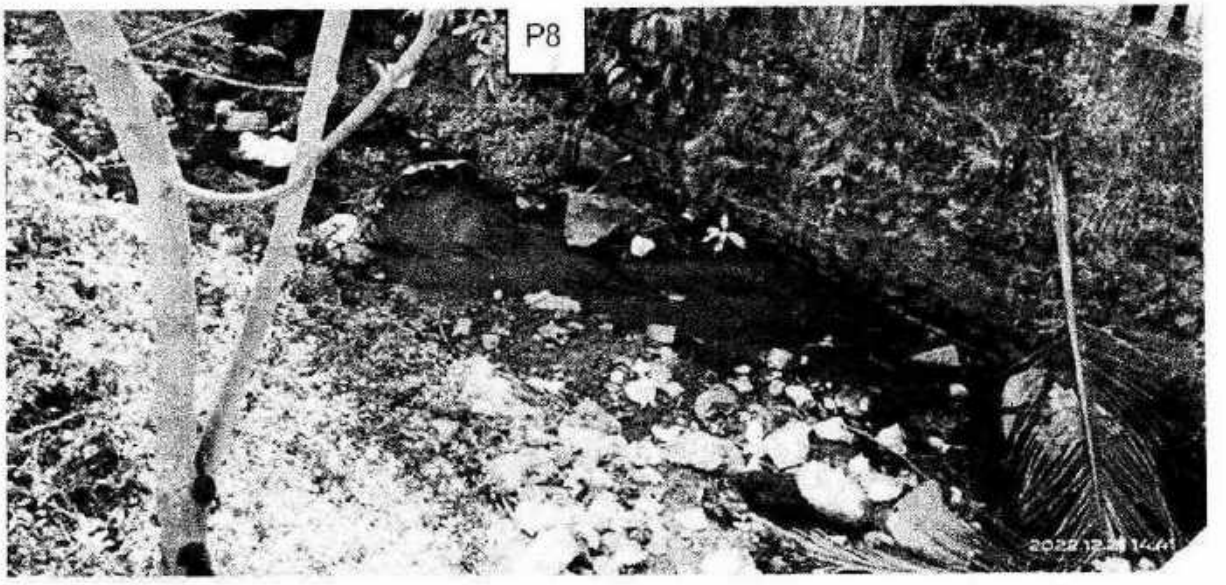
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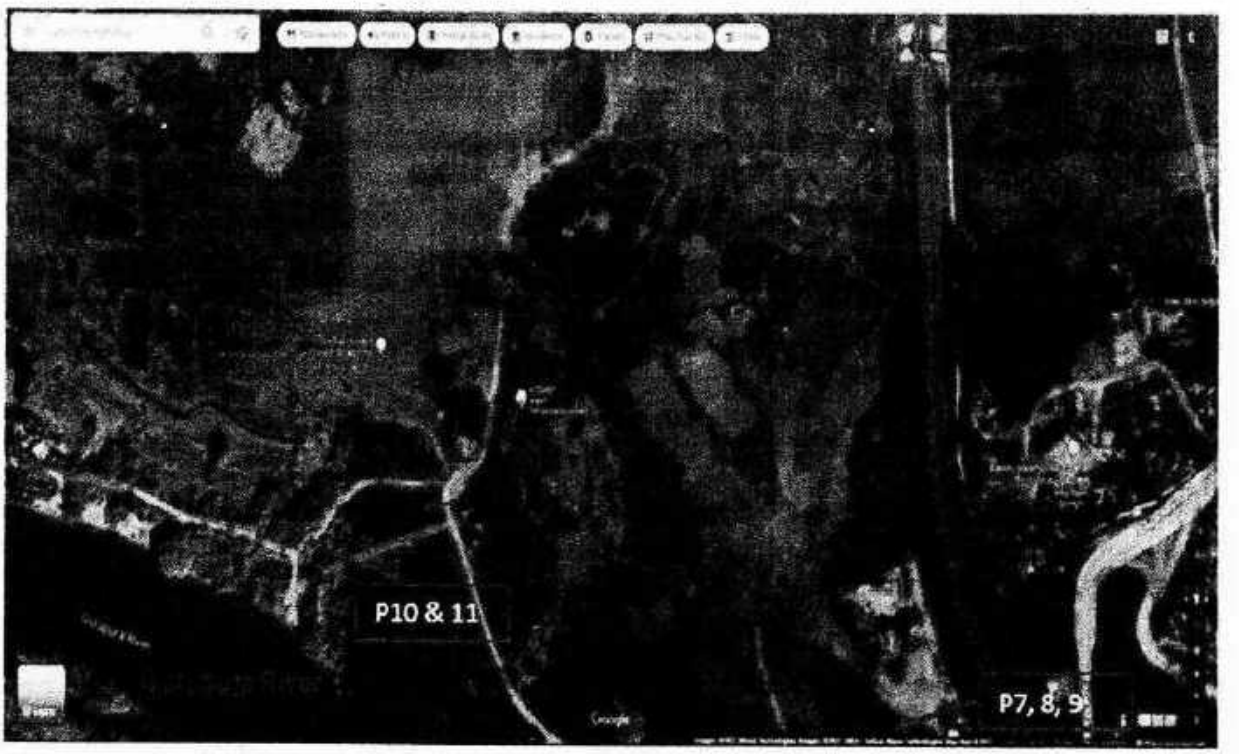
Nala near Rego Bus stop, Karambaru, Malavooru:

This nala covers Kenjaru airport area, part of Malavooru area, but it is observed that there is no any grey or black sewage flowing in this nala except solid waste. It reaches nala at Jokatte junction railway combines with grey sewage from Devi college hostels, apartments, households at Kenjaru airport entrance on Bajpe main road. Then it reaches Gurupura river after passing through Indian Coast Guard area.

Bajpe Main road near Airport road and Sri Devi college area Nala:

The nala starts from Bajpe main road near airport road covered by hotels, restaurant apartments, Sridevi college and Hostel area letting sewage directly into nala observed black sewage. It reaches nala at Thokur railway bridge then it reaches Gurupura river after passing through Indian Coast Guard area.

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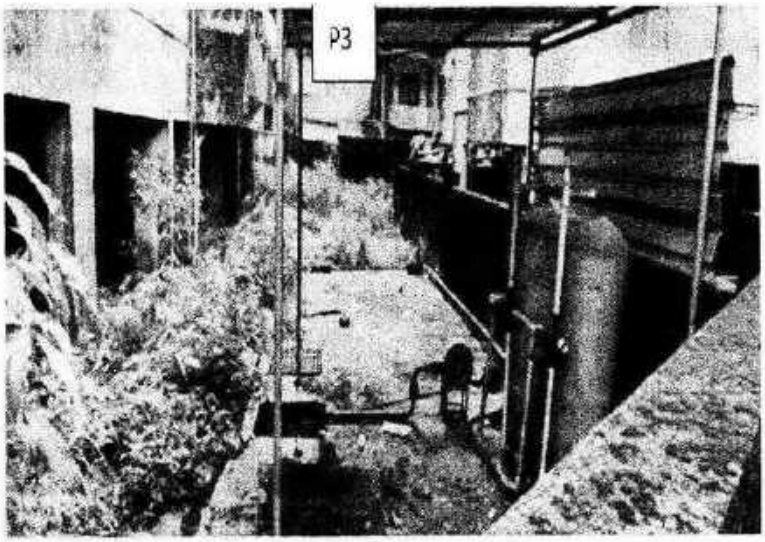
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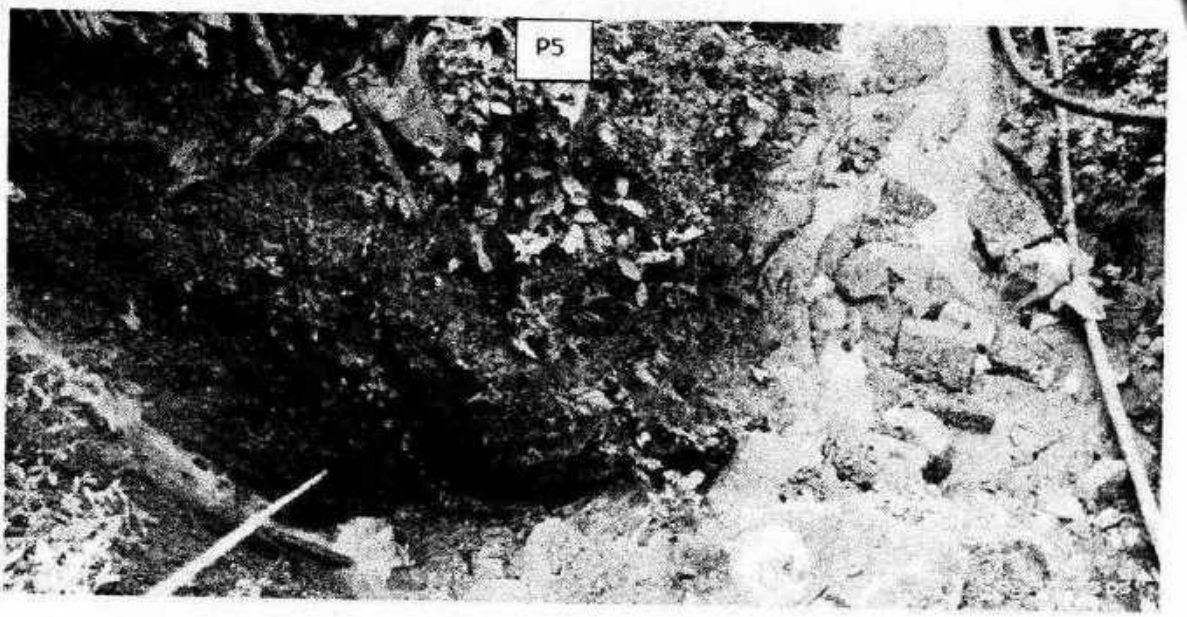
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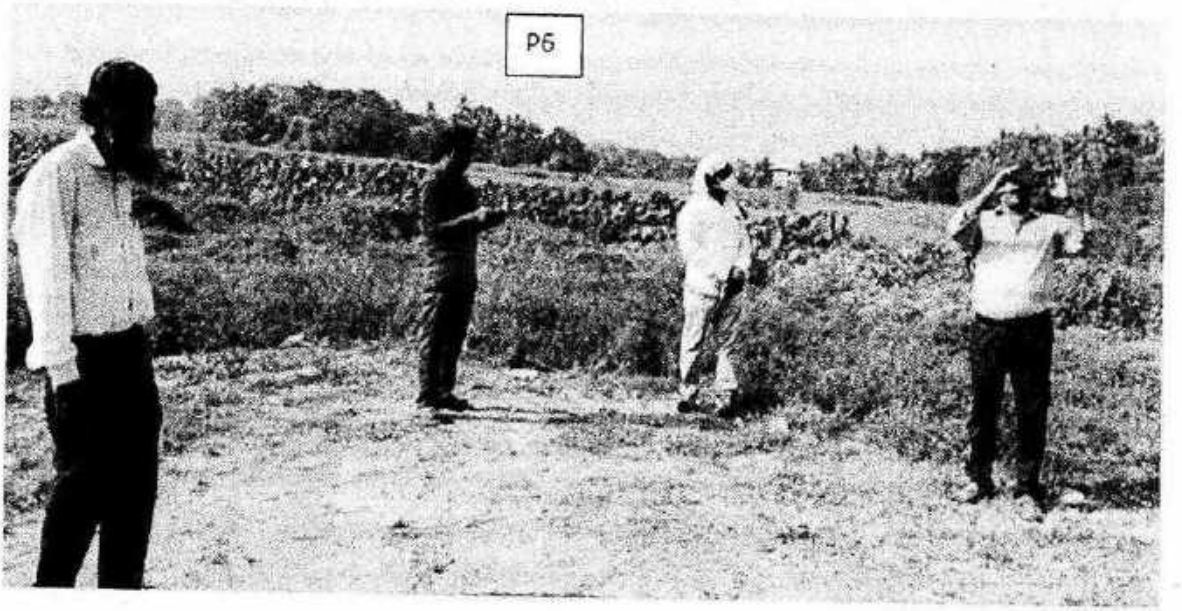
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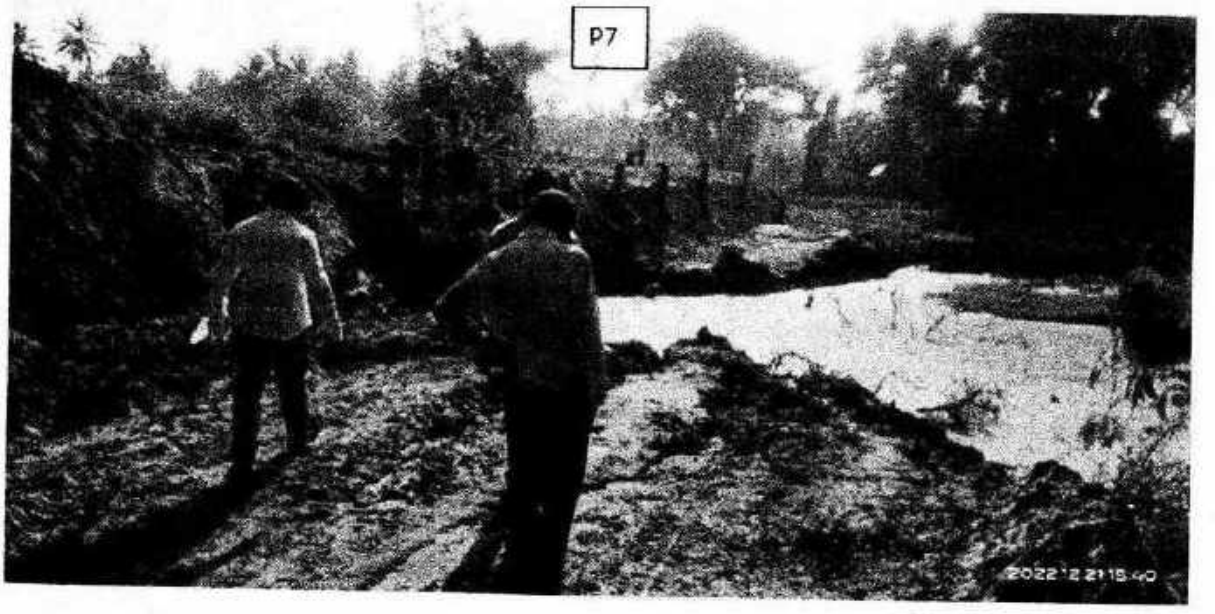
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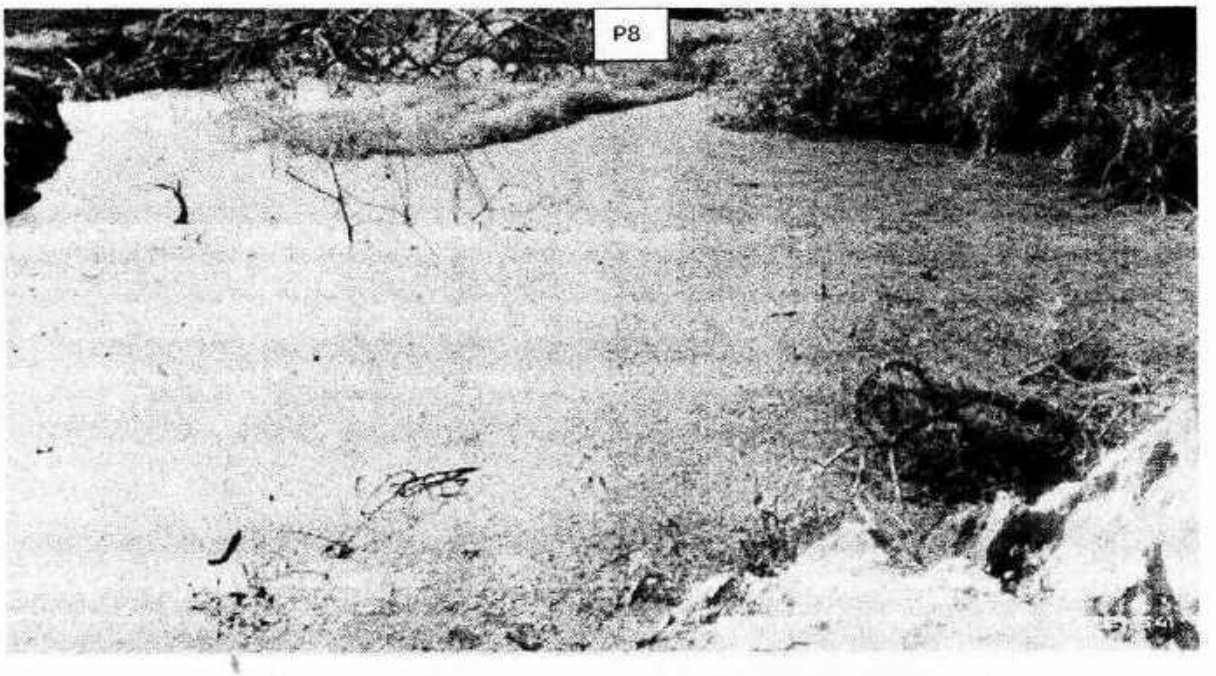
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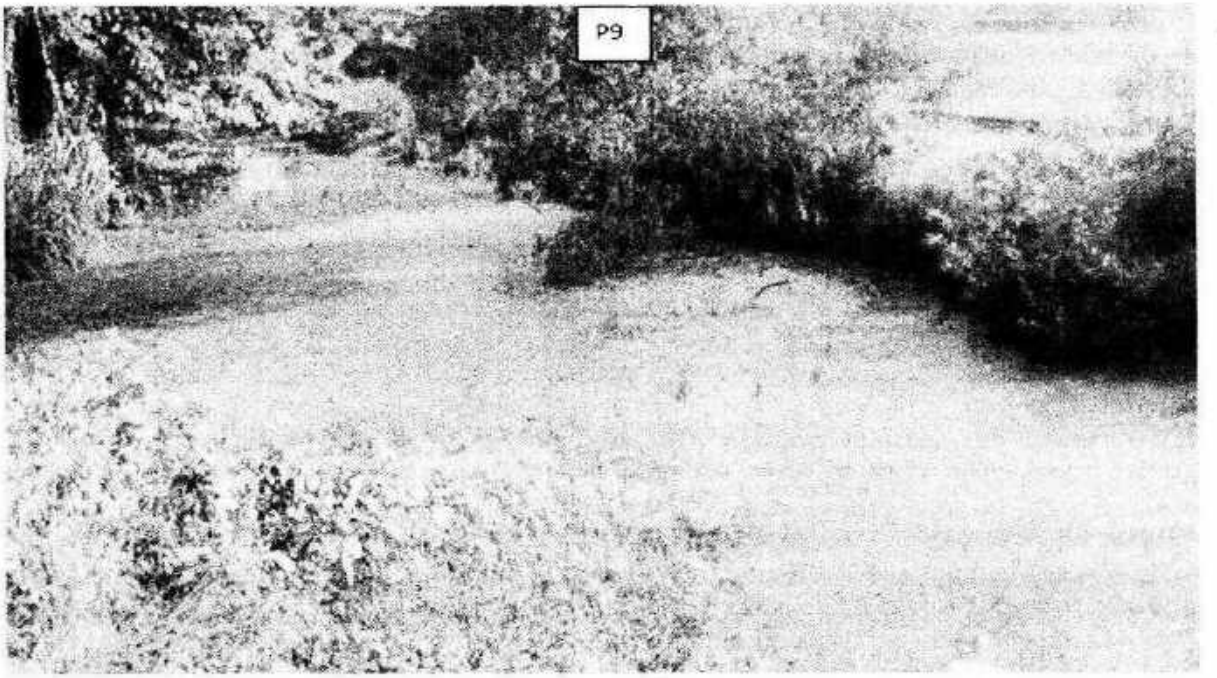
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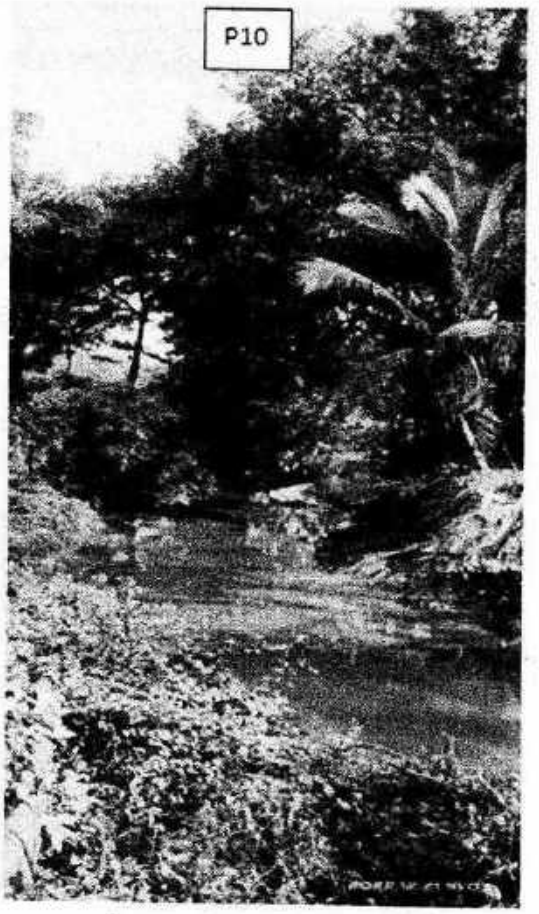

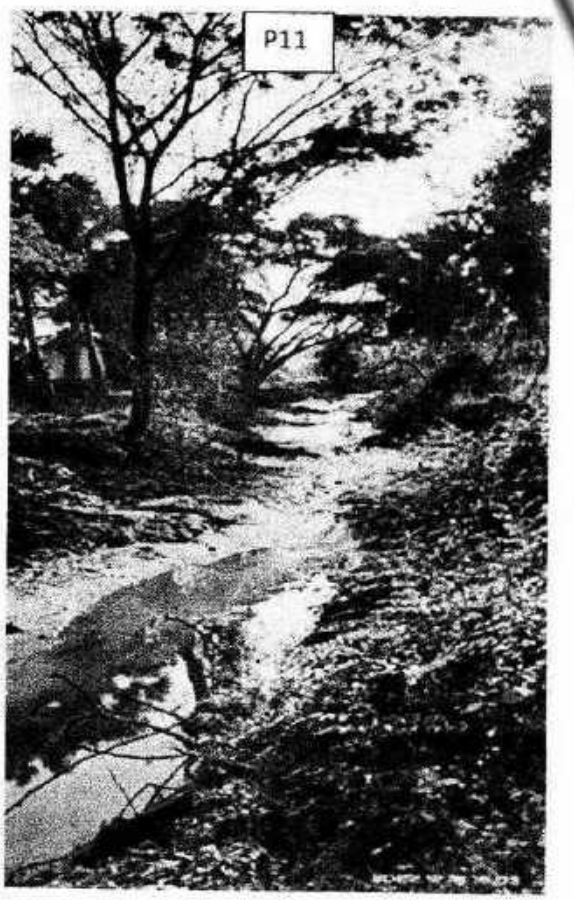

Bajpe More super market area drains: The municipal drains which collects the sewage from More super market area towards Kenjaru observed black water. The publics of these area complaint about letting of sewage from apartments during late night leads to mosquito breeding and pungent smell. The flow of sewage observed along the alignment of municipal drains, in the residential area flow obstructed due to accumulation of silt and in the main road sewage is stagnant.


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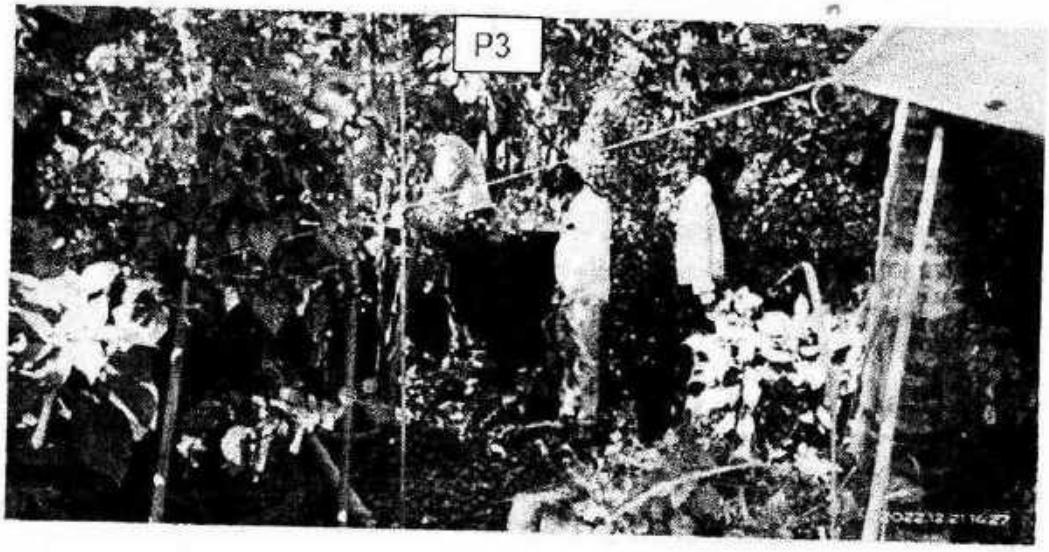
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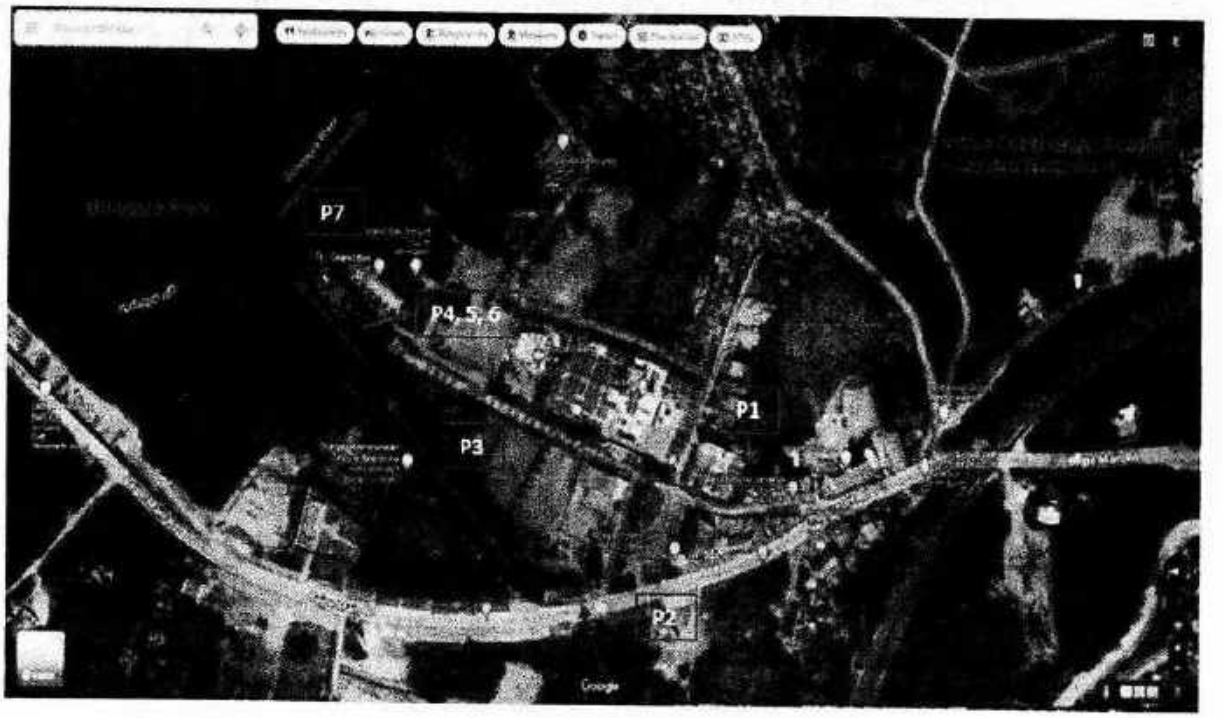
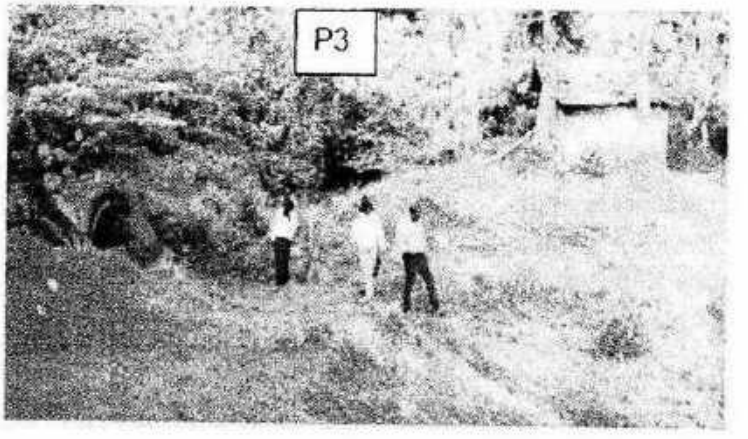
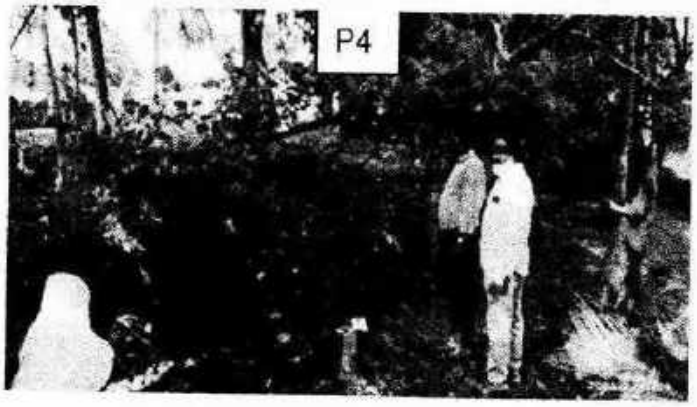
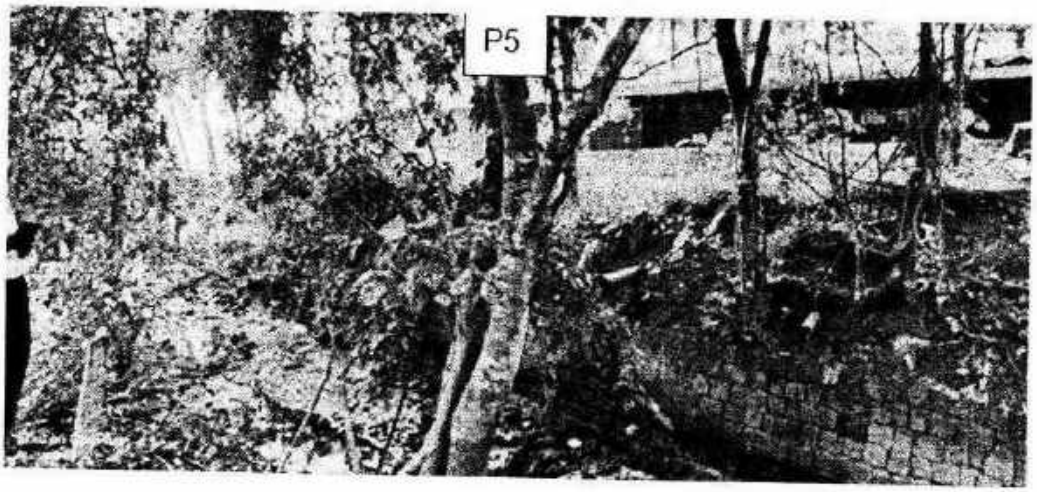
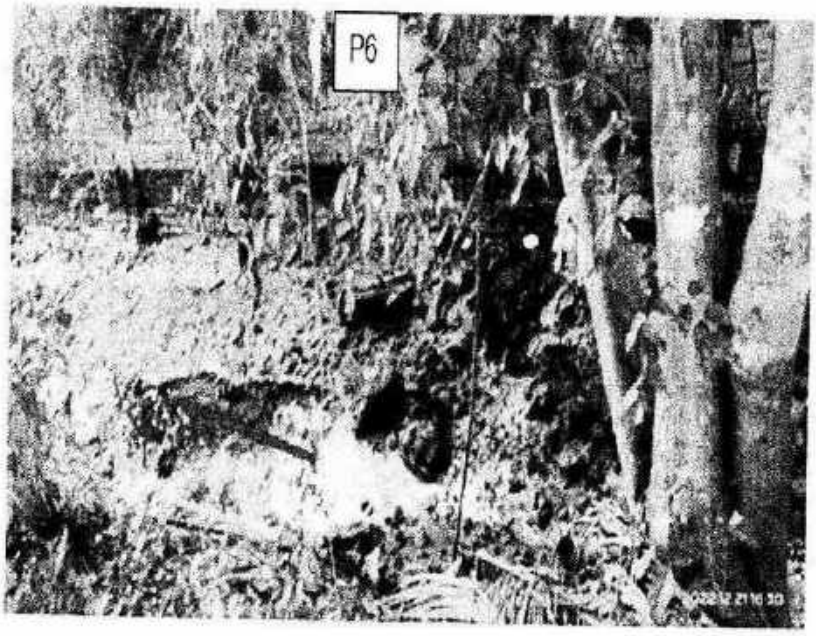
Malavooru area Nala: The municipal drains originates from Maravooru lake near Hot Grandbay joins with nala at entrance near to Maravooru Bridge-Bajpe main road. The flow o municipal drains about 250m obstructed by local people by objection to construction of drains or by filling the drains. The flow of sewage observed along the nala, the flow is obstructed by filling the earth for crossing the nala and letting the sewage directly to nala from marriage hall turned the sewage to black.











From all the above observations following measure to be taken up by ULB as an interim arrangement, till sewers are laid in town,

1) **Thotlaguri Nala:** Construction of I&D works with DI 300mm dia 600m gravity sewer line, collection chamber with PTU, 0.5MLD capacity MBBR type STP by tapping nala.

2) **Nala near Rego Bus stop, Karambaru, Malavooru:** On primary drain, before outfall in a water body, there should be at least two bar screens within 2km before discharge point into the water body. Proper daily cleaning mechanism for drains to avoid overflowing in case of choking.

3) **Bajpe Main road near airport road and Sri Devi college area Nala:** Construction of I&D works with collection chamber and 0.5MLD MBBR type STP by tapping from nala.

4) **Bajpe More super market area drains:** Desilting municipal drains about 100m, Construction of I&D works with collection chamber and 0.5MLD MBBR type STP by tapping from municipal drains.

5) **Malavooru area Nala:** Desilting and construction of drains about 200m, Construction of I&D works with collection chamber and 0.25MLD MBBR type STP by tapping from nala.

Project Cost:

NAME OF WORK: PROVIDING INTERCEPTION & DIVERSION (I&D) OF MUNICIPAL DRAINS/NALA CARRYING SULLAGE AS A SHORT TERM MEASURE BAJPE TOWN .		
LINE ESTIMATE		
Sl. No.	**Particulars**	**Amount (Rs in lakhs.)**
1.	Thotlaguri Nala: Construction of I&D works with DI 300mm dia 600m gravity sewer line with RCC machine hole, collection chamber with PTU, DG room and 0.50 MLD capacity MBBR type STP.	200.00
2.	Nala near Rego Bus stop, Karambaru, Malavooru: Two bar screens within 2km before discharge point into the water body with daily cleaning mechanism.	5.00
3.	Bajpe Mainroad near airport road and SriDevi college area Nala: Construction of I&D works with collection chamber/wetwell-cum-pump house, sewage pumping machineries and 0.50 MLD MBBR type STP.	150.00
4.	Bajpe More super market area drains: Desilting of municipal drains about 100m, Construction of I&D works with collection chamber/wetwell-cum-pumphouse and 0.50 MLD MBBR type STP	150.00
5.	Malavooru area Nala: Desilting and construction of drains about 200m, Construction of I&D works with collection chamber and 0.25 MLD MBBR type STP	200.00
6.	Fencing, Staff quarters/ Laboratary Room and Service Road/ Approach Road to STP.	10.00
7.	11kv express feeder from muss in Industrial area WW & STP.	50.00
8.	Providing Online Continuous Effluent Monitoring System as per KSPCB norms	15.00
9.	Providing O&M to I & D and Online Continuous Effluent Monitoring System for 5 Years O&M.	100.00
	Total	**880.00**

10.	Add GST18%	
		158.40
	Sub Total	**1038.40**
11.	Administrative charges (ETP, Contingencies, labour cess, 3rd party inspection charges & others @25%)	259.60
12.	Provision towards acquisition of land for Wet Well & STP site (20m x 20m size).	150.00
13.	Deposit towards PWD, MESCOM, KPTCL for permission	15.00
14.	Survey, Designs & Preparation of DPR	10.00
15.	Rounding off	0.00
	Total Amount:	1473.00
	In Lakh	**1473.00**

The ULB has yet to identify the land required for proposed STPs and has to hand over the same for construction. The Local Body has been requested to deposit Rs. 10.00 lakhs towards survey and preparation of DPR for UGD. The detailed estimate or DPR can be prepared after conducting survey only.

The approximate amount required for short term measures as detailed above will be as under ;

1) For providing FSSM system - Rs. 456.25 lakh
2) For I&D works - Rs. 1473.00 lakh
Total - **Rs. 1929.25 lakh**

The amounts indicated is based on the line estimates. However, the Detailed Project Report will be prepared after conducting detailed survey.

III) Long term measure

Present sewage generation

Present population of the town (apprx) - 22775
Source of water supply - Borewells/ open wells and Maravoor vented dam under Jal Jeevan Mission.
Present rate of water supply - 90 LPCD
Sewage generation - 22775 x 90LPCD x 80% =1.64 MLD

By sewer network and STP (under ground drainage system):

Population projection and sewage generation;

Population of year			Sewage generation (in MLD)		
2025	2040	2055	2025	2040	2055
24101	31983	42442	2.74	3.60	4.80

Name of the work : Providing UGD system to Bajpe town		
	Abstract Estimate	
Sl No.	**Description of work**	**Amount (Rs. In lakh)**
1)	Providing sewer network with sewer pipelines and machine holes @ 80.00 lakh/km – length 90 km. (with RCC machine holes) incl. GST 18%	7200.00
2)	Wetwells, rising mains, outfall sewer lines and pumping machineries and all allied accessories incl. GST @18%	500.00
3)	Sewage Treatment Plant – 2.00 MLD incl. GST @18%	400.00
4)	House Service Connections – 6900 Nos. projected for year 2040 @ Rs. 10,000.00/No. incl. GST @18%	690.00
	Sub Total (A)	**8790.00**
5)	Administrative charges (ETP, Contingencies, labour cess & others @25%)	2198.00
6)	Land Acquisition charges (3.00 Acre) for outfall sewer line, wetwells & STP	625.00
	Sub Total (B)	**2823.00**
	(A+B) Total	**11613.00**

Period of execution is 2 years after entrusting the work to tendered agency. The ULB has to identify the land required and has to hand over the same for construction.

For preparation of Detailed Project Report, it is necessary to conduct detailed topographical survey of the town for which, approximately Rs. 10.00 lakh is required which is to be deposited by Town Panchayath, Bajpe. However, request for UGD scheme to Bajpe is also to be given by the Town Panchayath.

This is a preliminary report. After deposition of the survey amount, the detailed topographical survey will be conducted and the DPR for providing UGD scheme to Bajpe will be submitted.

Executive Engineer
KUWS & D Board Division
Mangaluru

ಬಜಪೆ ಪಟ್ಟಣ ಪಂಚಾಯತ್

ಬಜ್ಪೆ ಅಂಚೆ –574142 ಮಂದಬೂರು ತಾಲೂಕು,ದ.ಕ.ಜಿಲ್ಲೆ.

Phone No: 0824-2252418 Email:cobajpetp@gmail.com

ನಂ: ಬ.ಪ.ಪಂ.ಸಿ.ಆರ್.ನಂ:272/2022-23 10-01-2023

ರಿಗೆ.

ಮಾನ್ಯ ಪ್ರಾದೇಶಿಕ ಅಧಿಕಾರಿ,
ಪರಿಸರ ಭವನ 10ಬಿ,
ಬೈಕಂಪಾಡಿ ಕೈಗಾರಿಕಾ ಅಧಿಕಾರಿ,
ಮಂಗಳೂರು–575011.

ಮಾನ್ಯರೇ,

ವಿಷಯ : ಕಾರಣ ಕೇಳಿ ನೋಟೀಸಿಗೆ ಉತ್ತರ.

ಉಲ್ಲೇಖ : ತಮ್ಮ ಕಛೇರಿ ನೋಟೀಸು ಪತ್ರ ಸಂಖ್ಯೆ: KPSCB/Ro(MNG)STP/LB/2022-23 1578 ದಿನಾಂಕ:31-12-2022.

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ಈ ಮೇಲಿನ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ಬಜಪೆ ಪಟ್ಟಣ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯಲ್ಲಿ ಎಸ್‌ಟಿಪಿ ಒಳಚರಂಡಿ ವ್ಯವಸ್ಥೆ ಹಾಗೂ ತ್ಯಾಜ್ಯ ನೀರಿನ ಸಂಸ್ಕರಣಾ ಘಟಕ ಇರುವುದಿಲ್ಲ. ಸ್ವಚ್ಛ ಭಾರತ್ ಮಿಷನ್ 2.0 ರಡಿಯಲ್ಲಿ ಬಜಪೆ ಪಟ್ಟಣ ಪಂಚಾಯತಿಗೆ ಎಫ್‌ಎಸ್‌ಟಿಪಿ ಘಟಕ ಹಾಗೂ ಒಳಚರಂಡಿ ವ್ಯವಸ್ಥೆ ಕಲ್ಪಿಸುವ ಸಲುವಾಗಿ ಕರ್ನಾಟಕ ನೀರು ಸರಬರಾಜು ಮತ್ತು ಒಳಚರಂಡಿ ಮಂಡಳಿಯವರು 1 ಎಕ್ರೆ ಸ್ಥಳವನ್ನು ಹಾಗೂ ಸರ್ವೆ ಕಾರ್ಯವನ್ನು ಹಮ್ಮಿಕೊಳ್ಳಲು ರೂ.10 ಲಕ್ಷವನ್ನು ನೀಡುವಂತೆ ಕೋರಿರುತ್ತಾರೆ. ಈ ಬಗ್ಗೆ ಆಡಳಿತಾಧಿಕಾರಿಯವರ ನಿರ್ಣಯದಂತೆ ಕ್ರಮಕ್ಕೆಗೊಳ್ಳಲಾಗುವುದು. ಬಜಪೆ ಪಟ್ಟಣ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯಲ್ಲಿ ಸರ್ಕಾರದ ನಿವೇಶನ ಇಲ್ಲದಿರುವುದರಿಂದ ಖಾಸಗಿ ಸ್ಥಳವನ್ನು ಗುರುತಿಸುತ್ತಿದ್ದು, ಭೂಸ್ವಾಧೀನ ಪಡಿಸಿಕೊಂಡ ಕೂಡಲೇ ಕಾಮಗಾರಿಯ ಪ್ರಕ್ರಿಯೆಯನ್ನು ಪ್ರಾರಂಭಿಸಲಾಗುವುದು. ವಿಳಂಬವಾದ ಬಗ್ಗೆ ಯಾವುದೇ ಶಿಸ್ತು ಕ್ರಮ ಕೈಗೊಳ್ಳದಂತೆ ತಮ್ಮಲ್ಲಿ ನಿವೇದಿಸಿಕೊಳ್ಳಲಾಗಿದೆ.

ತಮ್ಮ ವಿಶ್ವಾಸಿ,

ಮುಖ್ಯಾಧಿಕಾರಿ 10/01/2023
ಬಜಪೆ ಪಟ್ಟಣ ಪಂಚಾಯತ್
ಮಂಗಳೂರು ತಾಲೂಕು, ದ.ಕ.

ಕರ್ನಾಟಕ ಸರ್ಕಾರ
ಗ್ರಾಮ ಪಂಚಾಯತ್ ಜೋಕಟ್ಟೆ
ಮಂಗಳೂರು ತಾಲೂಕು. ದ.ಕ.ಜಿಲ್ಲೆ
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ಜೋ.ಗ್ರಾ.ಪಂ:47/2022-23

ದಿನಾಂಕ: 04/11/2022

ರಿಗೆ,

ರಿಜನಲ್ ಆಫೀಸರ್
ಕೆ.ಎಸ್.ಪಿ.ಸಿ.ಬಿ
ಮಂಗಳೂರು.

ಮಾನ್ಯರೇ,

ವಿಷಯ: ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯತ್ ನ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆ ಬಗ್ಗೆ

ಉಲ್ಲೇಖ:1)PCB/EO(MNG)/SCN/2022-23/1137 Date 19/10/2022

2) ಜೋ.ಗ್ರಾ.ಪಂ.15/2022-23 ದಿನಾಂಕ 15/06/2022

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ಈ ಮೇಲಿನ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯತ್ ಕಛೇರಿಯು ಮೇಲಿನ ಉಲ್ಲೇಖ(1)ರಂತೆ ಕಾರಣ ಕೇಳುವ ನೋಟೀಸನ್ನು ದಿನಾಂಕ 28/10/2022ರಂದು ಸ್ವೀಕರಿಸಲಾಗಿದೆ. ಸದರಿ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ಮಂಗಳೂರು ತಾಲೂಕಿನ ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯಲ್ಲಿ ಘನ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಗೆ ಸಂಬಂಧಿಸಿದ ಯೋಜನಾ ವರದಿ ತಯಾರಿಸಿದ್ದು, ಸ್ವಚ್ಚ ಸಂಕೀರ್ಣ ಘಟಕ ನಿರ್ಮಾಣಗೊಂಡಿರುತ್ತದೆ. ಹಸಿ ಕಸ ಹಾಗೂ ಒಣ ಕಸವನ್ನು ಪ್ರತ್ಯೇಕವಾಗಿ ವಿಲೇ ಮಾಡಲು ಈಗಾಗಲೇ ಸಾಹಸ್ ಸಂಸ್ಥೆಯೊಂದಿಗೆ ಮನೆ ಮನೆ ಭೇಟಿ ಮಾಡಿ ಮಾಹಿತಿ ಸಂವಹನ ಕಾರ್ಯಕ್ರಮವನ್ನು ನಡೆಸಿ ಹಸಿ ಕಸ ಹಾಗೂ ಒಣಕಸವನ್ನು ಸಂಗ್ರಹಿಸಲಾಗುತ್ತಿದೆ. ಹಾಗೂ ಹಸಿ ಕಸದಿಂದ ಗೊಬ್ಬರವನ್ನು ಸ್ವಚ್ಚ ಸಂಕೀರ್ಣ ಘಟಕದಲ್ಲಿ ಮಾಡಲಾಗುತ್ತಿದೆ.

ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯಲ್ಲಿ ಪ್ರತಿ ಮನೆಗಳು ಶೌಚಾಲಯವನ್ನು ಹೊಂದಿದ್ದು, ಪ್ರತಿ ಶೌಚಾಲಯಕ್ಕೂ ಪ್ರತ್ಯೇಕ ಶೌಚಾಲಯ ಗುಂಡಿ ಹೊಂದಿರುತ್ತದೆ. ಪ್ರತಿ ಮನೆಗಳು ಶೌಚಾಲಯದ ತ್ಯಾಜ್ಯವನ್ನು ಶೌಚಾಲಯ ಗುಂಡಿಗಳ ಮೂಲಕ ವಿಲೇ ಮಾಡಲಾಗುತ್ತಿದೆ. ಸದರಿ ಶೌಚಾಲಯ ಗುಂಡಿ ತುಂಬಿದಾಗ ಮಹಾನಗರ ಪಾಲಿಕೆಯಿಂದ ಲೈಸನ್ಸ್ ಪಡೆದಿರುವ ಸಕ್ಕಿಂಗ್ ಯಂತ್ರ ವಾಹನದ ಮೂಲಕ ವಿಲೇ ಮಾಡುತ್ತಿದ್ದಾರೆ. ಮುಂದುವರೆದು ರಾಜ್ಯ ಸರ್ಕಾರದ ಇತ್ತೀಚಿನ ಸೂಚನೆಯಂತೆ ಅವಳಿ ಗುಂಡಿ ಶೌಚಾಲಯ ಬಗ್ಗೆ ಮಹಿತಿ ಸಂವಹನ ಮೂಲಕ ಜಾಗೃತಿ ಮೂಡಿಸಲಾಗುತ್ತಿದೆ.

ದ್ರವ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆ ಸಂಬಂಧಿಸಿದಂತೆ ಈಗಾಗಲೇ ವೈಯಕ್ತಿಕ ಇಂಗುಗುಂಡಿಯನ್ನು ಮಹಾತ್ಮಗಾಂಧಿ ರಾಷ್ಟ್ರೀಯ ಗ್ರಾಮೀಣ ಉದ್ಯೋಗ ಖಾತರಿ ಯೋಜನೆ ಮೂಲಕ ಅನುಷ್ಟಾನಗೊಳಿಸಲಾಗುತ್ತಿದ್ದು, ಸಾರ್ವಜನಿಕ ದ್ರವ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಸ್ವಚ್ಛ ಭಾರತ್ ಮಿಷನ್ (ಗ್ರಾಮೀಣ)– ಹಂತ 2 ರಡಿ ದ್ರವ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಯ ವಿಸ್ಕೃತ ಯೋಜನಾ ವರದಿ ತಯಾರಿಸಿದ್ದು ಅನುಮೋದನೆಯಾಗಿರುತ್ತದೆ. ಸದರಿ ವಿಸ್ಕೃತ ಯೋಜನಾ ವರದಿಯನ್ವಯ 51.3014 ಲಕ್ಷ ಅಂದಾಜು ಮೊತ್ತದ ಕಾಮಗಾರಿ ಟೆಂಡರ್ ಹಂತದಲ್ಲಿರುತ್ತದೆ. ಆದ್ದರಿಂದ ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯ ಮನೆ ಹಾಗೂ ಕಟ್ಟಡಗಳ ಘನ ಮತ್ತು ದ್ರವ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಯನ್ನು ಗ್ರಾಮ ಪಂಚಾಯತ್ ಹಂತದಲ್ಲಿ ನಿರ್ವಹಿಸಲಾಗುತ್ತಿದೆ ಹಾಗೂ ಈ ಬಗ್ಗೆ ಉಲ್ಲೇಖ (2)ರಂತೆ ತಮ್ಮ ಕಛೇರಿಯ ಇ ಮೇಲ್ ಮೂಲಕ ಪತ್ರವನ್ನು ಕಳುಹಿಸಲಾಗಿದೆ ಎಂದು ತಮ್ಮ ಅವಗಾಹನೆಗೆ ಸಲ್ಲಿಸಿದೆ.

ವಂದನೆಗಳೊಂದಿಗೆ,

ತಮ್ಮ ನಂಬುಗೆಯ

ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯತ್
ಮಂಗಳೂರು
ತಾ-575011

ಕರ್ನಾಟಕ ಸರ್ಕಾರ
ಗ್ರಾಮ ಪಂಚಾಯತ್ ಜೋಕಟ್ಟೆ
ಮಂಗಳೂರು ತಾಲೂಕು. ದ.ಕ.ಜಿಲ್ಲೆ

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ಜೋ.ಗ್ರಾ.ಪಂ:54/2022-23 ದಿನಾಂಕ: 24/12/2022

ರಿಗೆ,

ಮಾನ್ಯ ಮುಖ್ಯಕಾರ್ಯನಿರ್ವಾಹಣಾಧಿಕಾರಿ
ದ.ಕ ಜಿಲ್ಲಾ ಪಂಚಾಯತ್
ಮಂಗಳೂರು.

ಇವರ ಮುಖಾಂತರ,

ಮಾನ್ಯ ಕಾರ್ಯನಿರ್ವಹಣಾಧಿಕಾರಿ
ತಾಲೂಕು ಪಂಚಾಯತ್
ಮಂಗಳೂರು.

ಮಾನ್ಯರೇ,

ವಿಷಯ: ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯತ್ ನ ದ್ರವ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಗೆ ಶಾಶ್ವತ ಪರಿಹಾರ ಕಲ್ಪಿಸುವ ಬಗ್ಗೆ

ಉಲ್ಲೇಖ: 1) ಗ್ರಾಮ ಪಂಚಾಯತ್ ಸಾಮಾನ್ಯ ಸಭೆಯ ದಿನಾಂಕ 19/12/2022

2)KSPCB(MNG)/NGT-OA No.307/2022-23/1370

Date : 05/12/2022

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ಮಂಗಳೂರು ತಾಲೂಕಿನ ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯಲ್ಲಿ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಗೆ ಸಂಬಂಧಿಸಿದಂತೆ, ರಾಷ್ಟ್ರೀಯ ಹಸಿರು ಪೀಠ ದಾಖಲಾಗಿರುವ ಪ್ರಕರಣಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ಕರ್ನಾಟಕ ಪರಿಸರ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿಯು ಈಗಾಗಲೇ ಪತ್ರದ ಮೂಲಕ ತ್ಯಾಜ್ಯ ವಿಲೇವಾರಿಗೆ ಕ್ರಿಯಾಯೋಜನೆ ತಯಾರಿಸಿ ನೀಡಲು ತಿಳಿಸಿರುತ್ತಾರೆ. ಈ ಬಗ್ಗೆ ದಿನಾಂಕ 19/12/2022ರಂದು ಸಾಮಾನ್ಯ ಸಭೆಯಲ್ಲಿ ಚರ್ಚಿಸಲಾಗಿ 62ನೇ ತೋಕೂರು ಗ್ರಾಮದಲ್ಲಿ ವಾಸ್ತವ್ಯ ಮನೆಗಳು ಒತ್ತೊತ್ತಾಗಿ ಇದ್ದು, ಸ್ಥಳಾವಕಾಶ ಕೊರತೆ ಇರುತ್ತದೆ. ಹಾಗೂ ಅಂತರ್ಜಲ ಕಲುಷಿತಗೊಳ್ಳದಂತೆ ದ್ರವತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಇಂಗುಗುಂಡಿಗೆ ಪರ್ಯಾಯವಾಗಿ ದ್ರವ ತ್ಯಾಜ್ಯ ಸಂಸ್ಕರಣಾ ಘಟಕದ ಮೂಲಕ ನೀರನ್ನು ಶುದ್ದೀಕರಿಸಿ ಬಿಡಲು ಕ್ರಮವಹಿಸುವುದು ಸೂಕ್ತವಾಗಿರುತ್ತದೆ.

ಆದರೆ ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯತ್ ಆರ್ಥಿಕ ಸ್ಥಿತಿಯಲ್ಲಿ ಈ ಯೋಜನೆ ಜಾರಿ ತರಲು ಸಾಧ್ಯವಿರುವುದಿಲ್ಲ. ಮಾತ್ರವಲ್ಲ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶಗಳಿಂದ **KIDB** ಮತ್ತು **MSEZ** ಗಳಿಗೆ ಹೆಚ್ಚಿನ ಜಾಗವು ಭೂಸ್ವಾಧೀನಗೊಂಡಿರುವುದರಿಂದ, ಖಾಲಿ ಜಾಗದ ಲಭ್ಯತೆ ಇರುವುದಿಲ್ಲ. ಮುಂದುವರೆದು ಜೋಕಟ್ಟೆ ಕೆಬಿಯಸ್ ಜನವಸತಿ ಪ್ರದೇಶದಿಂದ ಪಂಚಾಯತ್ ಗುಡ್ಡೆ ಪ್ರದೇಶದವರೆಗೆ ಎಲ್ಲಾ ಚರಂಡಿಗಳೂ ಒಂದು ಮುಖ್ಯ ಚರಂಡಿಗೆ ಸೇರುತ್ತದೆ. ಆದರೆ ಆ ಮುಖ್ಯ ಚರಂಡಿಯು **MSEZ**ನ ಭೂಸ್ವಾಧೀನಗೊಂಡ ಜಾಗದಲ್ಲಿರುತ್ತದೆ. ಈ ಎಲ್ಲಾ ಕಾರಣಗಳಿಂದಾಗಿ ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯತ್‌ನ ದ್ರವ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆ ಮಾಡಲು ಪಂಚಾಯತ್ ಆಡಳಿತ ಮಂಡಳಿಗೆ ಕಷ್ಟ ಸಾಧ್ಯವಾಗಿರುವುದರಿಂದ ಸರಕಾರದಿಂದ ಅಥವಾ ಸಿಎಸ್‌ಆರ್ ಅನುದಾನದಡಿ **MSEZ** ಮತ್ತು **KIDB** ರ ಸಹಯೋಗದಿಂದ ಸದರಿ ಸಮಸ್ಯೆಗೆ ಶಾಶ್ವತ ಪರಿಹಾರ ಮಾಡಲು ಮಾನ್ಯ ಜಿಲ್ಲಾ ಪಂಚಾಯತ್ ಮುಖ್ಯ ಕಾರ್ಯನಿರ್ವಹಣಾಧಿಕಾರಿಯರಿಗೆ ಪತ್ರದ ಮೂಲಕ ಕೋರಿಕೊಳ್ಳುವುದೆಂದು ಉಲ್ಲೇಖ (1)ರ ನಿರ್ಣಯಿಸಲಾಗಿರುತ್ತದೆ. ಆದ್ದರಿಂದ ಸದರಿ ನಿರ್ಣಯವನ್ನು ತಮ್ಮ ಅವಗಾಹನೆಗೆ ಸಲ್ಲಿಸಿದೆ.

"ವಂದನೆಗಳೊಂದಿಗೆ"

ತಮ್ಮ ನಂಬುಗೆಯ

ಕರ್ನಾಟಕ ಸರ್ಕಾರ
ಗ್ರಾಮ ಪಂಚಾಯತ್ ಜೋಕಟ್ಟೆ
ಮಂಗಳೂರು ತಾಲೂಕು. ದ.ಕ.ಜಿಲ್ಲೆ
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ಜೋ.ಗ್ರಾ.ಪಂ:55/2022-23

ದಿನಾಂಕ: 26/12/2022

ರಿಗೆ,

ಪರಿಸರ ಅಧಿಕಾರಿ
ಕೆ.ಎಸ್.ಪಿ.ಸಿ.ಬಿ
ಮಂಗಳೂರು.

ಮಾನ್ಯರೇ,

ವಿಷಯ: ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯತ್‌ನ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆ ವರದಿ ಸಲ್ಲಿಸುವ ಬಗ್ಗೆ

ಉಲ್ಲೇಖ:1)KSPCB/(MNG)/NGT-OA No.307/2022-23/1370
Date : 05/12/2022
2) ಜೋ.ಗ್ರಾ.ಪಂ.ಸಾಮಾನ್ಯ ಸಭೆಯ ದಿನಾಂಕ 19/12/2022
3)ಜೋ.ಗ್ರಾ.ಪಂ.54/2022–23 ದಿನಾಂಕ 24/12/2022

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ಈ ಮೇಲಿನ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ಮಂಗಳೂರು ತಾಲೂಕಿನ ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯಲ್ಲಿ ಘನ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಗೆ ಸಂಬಂಧಿಸಿದ ಯೋಜನಾ ವರದಿ ತಯಾರಿಸಿದ್ದು, ಸ್ವಚ್ಛ ಸಂಕೀರ್ಣ ಘಟಕ ನಿರ್ಮಾಣಗೊಂಡಿರುತ್ತದೆ. ಹಸಿ ಕಸ ಹಾಗೂ ಒಣ ಕಸವನ್ನು ಪ್ರತ್ಯೇಕವಾಗಿ ವಿಲೇ ಮಾಡಲು ಈಗಾಗಲೇ ಸಾಹಸ್ ಸಂಸ್ಥೆಯೊಂದಿಗೆ ಮನೆ ಮನೆ ಭೇಟಿ ಮಾಡಿ ಮಾಹಿತಿ ಸಂವಹನ ಕಾರ್ಯಕ್ರಮವನ್ನು ನಡೆಸಿ ಹಸಿ ಕಸ ಹಾಗೂ ಒಣಕಸವನ್ನು ಸಂಗ್ರಹಿಸಲಾಗುತ್ತಿದೆ. ಹಾಗೂ ಹಸಿ ಕಸದಿಂದ ಗೊಬ್ಬರವನ್ನು ಸ್ವಚ್ಛ ಸಂಕೀರ್ಣ ಘಟಕದಲ್ಲಿ ಮಾಡಲಾಗುತ್ತಿದ್ದು, ಒಣಕಸವನ್ನು ಶೇಖರಣೆ ಮಾಡಲಾಗುತ್ತಿದೆ.

ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯಲ್ಲಿ ಪ್ರತಿ ಮನೆಗಳು ಶೌಚಾಲಯವನ್ನು ಹೊಂದಿದ್ದು, ಪ್ರತಿ ಶೌಚಾಲಯಕ್ಕೂ ಪ್ರತ್ಯೇಕ ಶೌಚಾಲಯ ಗುಂಡಿ ಹೊಂದಿರುತ್ತದೆ. ಪ್ರತಿ ಮನೆಗಳು ಶೌಚಾಲಯದ ತ್ಯಾಜ್ಯವನ್ನು ಶೌಚಾಲಯ ಗುಂಡಿಗಳ ಮೂಲಕ ವಿಲೇ ಮಾಡಲಾಗುತ್ತಿದೆ. ಸದರಿ ಶೌಚಾಲಯ ಗುಂಡಿ ತುಂಬಿದಾಗ ಮಹಾನಗರ ಪಾಲಿಕೆಯಿಂದ ಲೈಸನ್ಸ್ ಪಡೆದಿರುವ ಸಕ್ಕಿಂಗ್ ಯಂತ್ರ ವಾಹನದ ಮೂಲಕ ವಿಲೇ ಮಾಡುತ್ತಿದ್ದಾರೆ. ಮುಂದುವರೆದು ರಾಜ್ಯ ಸರ್ಕಾರದ ಇತ್ತೀಚಿನ ಸೂಚನೆಯಂತೆ ಅವಳಿ ಗುಂಡಿ ಶೌಚಾಲಯ ಬಗ್ಗೆ ಮಹಿತಿ ಸಂವಹನ ಮೂಲಕ ಜಾಗೃತಿ ಮೂಡಿಸಲಾಗುತ್ತಿದೆ.

ದ್ರವ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆ ಸಂಬಂಧಿಸಿದಂತೆ ಈಗಾಗಲೇ ವೈಯಕ್ತಿಕ ಇಂಗುಗುಂಡಿಯನ್ನು ಮಹಾತ್ಮಗಾಂಧಿ ರಾಷ್ಟ್ರೀಯ ಗ್ರಾಮೀಣ ಉದ್ಯೋಗ ಖಾತರಿ ಯೋಜನೆ ಮೂಲಕ ಅನುಷ್ಠಾನಗೊಳಿಸಲಾಗುತ್ತಿದ್ದು, ಸಾರ್ವಜನಿಕ ದ್ರವ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಸ್ವಚ್ಛ ಭಾರತ್ ಮಿಷನ್ (ಗ್ರಾಮೀಣ)– ಹಂತ 2 ರಡಿ ದ್ರವ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಯ ವಿಸ್ಕೃತ ಯೋಜನಾ ವರದಿ ತಯಾರಿಸಿದ್ದು ಅನುಮೋದನೆಯಾಗಿರುತ್ತದೆ. ಸದರಿ ವಿಸ್ಕೃತ ಯೋಜನಾ ವರದಿಯನ್ವಯ 51.3014 ಲಕ್ಷ ಅಂದಾಜು ಮೊತ್ತದ ಕಾಮಗಾರಿ ಟೆಂಡರ್ ಹಂತದಲ್ಲಿರುತ್ತದೆ. ಸದರಿ ದ್ರವ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಯ ವಿಸ್ಕೃತ ಯೋಜನಾ ವರದಿ ಮತ್ತು ಕ್ರಿಯಾಯೋಜನೆ ಈ ಪತ್ರದೊಂದಿಗೆ ಲಗತ್ತಿಸಲಾಗಿದ್ದು, ಶಾಶ್ವತ ಪರಿಹಾರಕ್ಕಾಗಿ ಉಲ್ಲೇಖ (3)ರಂತೆ ಜಿಲ್ಲಾ ಪಂಚಾಯತ್ ಮುಖ್ಯ ಕಾರ್ಯನಿರ್ವಹಣಾಧಿಕಾರಿಯವರಿಗೆ ಪತ್ರ ಬರೆಯಲಾಗಿರುತ್ತದೆ.

ಇಂದಿಗೆ,

ತಮ್ಮ ನಂಬುಗೆಯ

ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ಸ್ವಚ್ಛ ಭಾರತ ಮಿಷನ್ (ಗ್ರಾಮೀಣ) – ಹಂತ2

2021-22 ನೇ ಸಾಲಿನ ದ್ರವತ್ಯಾಜ್ಯ ನಿರ್ವಹಣಾ ವಿಸ್ತೃತಯೋಜನೆ

ಜಿಲ್ಲೆ: ದಕ್ಷಿಣ ಕನ್ನಡ

ತಾಲ್ಲೂಕು: ಮಂಗಳೂರು

ಗ್ರಾಮಪಂಚಾಯತಿ: ಜೋಕಟ್ಟೆ

ಗ್ರಾಮದ ಹೆಸರು: 62ನೇ ತೋಕೂರು

ಅಂದಾಜು ಮೊತ್ತ: 51.3014ಲಕ್ಷ

ಬೂದು ನೀರು ನಿರ್ವಹಣೆಯ ವಿಸ್ತೃತಯೋಜನಾ ವರದಿ

ಯೋಜನೆ ಪರಿಚಯ:

ಸ್ವಚ್ಛ ಭಾರತ ಮಿಷನ್ (ಗ್ರಾ) ಯೋಜನೆಯಉದ್ದೇಶವು2019ಅಕ್ಟೋಬರ್2ರಂದು ಮಹಾತ್ಮಗಾಂಧೀಜಿಯವರ150ನೇ ಜನ್ಮದಿನೋತ್ಸವಕ್ಕೆದೇಶವನ್ನು ಬಯಲು ಬಹಿರ್ದೆಸೆ ಮುಕ್ತ ಎಂದು ಘೋಷಿಸುವುದಾಗಿತ್ತು.ಅದರಂತೆಅಕ್ಟೋಬರ್2, 2019 ರಂದುದೇಶವನ್ನು'**ಬಯಲು ಬಹಿರ್ದೆಸೆ ಮುಕ್ತ**'ಎಂದು ಘೋಷಿಸಲಾಯಿತು. ಮುಂದುವರೆದು2020-21ರಿಂದ2024-25ರಅವಧಿಗೆ ಸ್ವಚ್ಛ ಭಾರತ ಮಿಷನ್(ಗ್ರಾ) ಹಂತ–2ನ್ನು ಫೆಬ್ರವರಿ2020ರಂದುಕೇಂದ್ರ ಸರ್ಕಾರವು ಅನುಮೋದಿಸಿದ್ದು, ಬಯಲು ಬಹಿರ್ದೆಸೆ ಮುಕ್ತ ಸುಸ್ಥಿರತೆ (ODF-Sustainability) ಮತ್ತುODF Plusಚಟುವಟಿಕೆಗಳಾದ ಘನ ಮತ್ತುದ್ರವತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಯಕುರಿತುಹೆಚ್ಚಿನಆದ್ಯತೆ ನೀಡಲಾಗಿದೆ.

ಈ ಅನುಮೋದಿತ ಸ್ವಚ್ಛ ಭಾರತ ಮಿಷನ್(ಗ್ರಾ) ಹಂತ–2ರ ಮಾರ್ಗ ಸೂಚಿಗಳನ್ವಯ ಗ್ರಾಮ ಪಂಚಾಯತಿಗಳ/ಗ್ರಾಮಗಳ ಮಟ್ಟದಲ್ಲಿ ವಿಸ್ತೃತಯೋಜನಾ ವರದಿಯನ್ನುತಯಾರಿಸಿ ಅನುಮೋದನೆ ಪಡೆದು ಅನುಷ್ಠಾನ ಮಾಡಬೇಕಾಗಿರುತ್ತದೆ.

ಗುರಿ/ಧ್ಯೇಯ:

- ಬಯಲು ಬಹಿರ್ದೆಸೆ ಮುಕ್ತ (ODF) ಸ್ಥಿತಿಯನ್ನು ನಿರಂತರವಾಗಿಎಲ್ಲಾಗ್ರಾಮ ಪಂಚಾಯತ್‌ಗಳಲ್ಲಿ ಕಾಪಾಡಿಕೊಳ್ಳುವುದು.
- ನಿರಂತರ ಶೌಚಾಲಯ ಬಳಕೆ, ಸುರಕ್ಷಿತ ಮತ್ತುಆರೋಗ್ಯಕರ ನಡುವಳಿಕೆಗಳನ್ನು ರೂಢಿಸಿಕೊಳ್ಳುವುದು ಮತ್ತು ನಿರಂತರವಾಗಿ ಮುಂದುವರೆಸುವುದು.
- ಗ್ರಾಮ ಪಂಚಾಯಿತಿ ವ್ಯಾಪ್ತಿಯಲ್ಲಿ ಸ್ವಚ್ಛತೆಗಾಗಿ ವೈಜ್ಞಾನಿಕ ಹಾಗೂ ಸುಸ್ಥಿರ ಘನ ಮತ್ತುದ್ರವತ್ಯಾಜ್ಯ ನಿರ್ವಹಣಾ ಪದ್ಧತಿಯನ್ನು ಅನುಷ್ಠಾನಗೊಳಿಸುವುದು.
- ಗ್ರಾಮೀಣ ಪ್ರದೇಶಗಳಲ್ಲಿ ಜನಸಾಮಾನ್ಯರಜೀವನ ಶೈಲಿಯಲ್ಲಿ ಸುಧಾರಣೆ.
- ಸಮುದಾಯದಜನರಲ್ಲಿಆರೋಗ್ಯ, ನೈರ್ಮಲ್ಯ ಹಾಗೂ ಶುಚಿತ್ವದ ಬಗ್ಗೆ ಜಾಗೃತಿ ಮೂಡಿಸುವುದು.
- ಗ್ರಾಮ ಪಂಚಾಯಿತಿಯನ್ನು ಮಾದರಿಗ್ರಾಮ ಪಂಚಾಯತಿಯನ್ನಾಗಿರೂಪಿಸುವುದು.
- ತ್ಯಾಜ್ಯವನ್ನು ಸಂಪನ್ಮೂಲವಾಗಿ ಬಳಕೆ ಮಾಡುವುದರ ಮುಖಾಂತರ ಮರುಬಳಕೆ ಮಾಡುವುದು
- ಪರಿಸರ ಮಾಲಿನ್ಯವನ್ನುತಡೆಗಟ್ಟುವ ಮೂಲಕ ಗ್ರಾಮೀಣ ಪ್ರದೇಶವನ್ನು ಸ್ವಚ್ಛವಾಗಿಡುವುದು.

ಬೂದು ನೀರಿನ ನಿರ್ವಹಣೆ:

ಅಡುಗೆ ಮನೆ, ಸ್ನಾನ ಹಾಗೂ ಬಟ್ಟೆ ತೊಳೆಯುವುದರಿಂದ ಉತ್ಪತ್ತಿಯಾಗುವತ್ಯಾಜ್ಯ ನೀರನ್ನು ಬೂದುನೀರುಎನ್ನುತ್ತಾರೆ.ಬೂದುನೀರನ್ನು ಸೂಕ್ತ ರೀತಿಯಲ್ಲಿ ನಿರ್ವಹಿಸದಿದ್ದಾಗ, ಅದು ನಿಂತಲ್ಲೇ ಸೊಳ್ಳೆಗಳ ಸಂತಾನೋತ್ಪತ್ತಿಗೆ ಹಾಗೂ ರೋಗಗಳಿಗೆ ಕಾರಣವಾಗುತ್ತದೆ.ಅಥವಾ ಕೊಳಗಳಿಗೆ, ಸರೋವರಗಳಿಗೆ ಹಾಗು ನದಿಗಳಿಗೆ ಸೇರಿದಲ್ಲಿ ಸೂಕ್ಷ್ಮಾಣುಜೀವಿಗಳ ಮತ್ತುರಾಸಾಯನಿಕ ಮಾಲಿನ್ಯಕ್ಕೆಕಾರಣವಾಗುತ್ತದೆ. ಬೂದು ನೀರಿನ ನಿರ್ವಹಣೆಯನ್ನುಕಿಚನ್‌ಗಾರ್ಡನ್, ವೈಯಕ್ತಿಕ/ಸಮುದಾಯ ಇಂಗು ಗುಂಡಿ, ತ್ಯಾಜ್ಯ ಸ್ಥಿರೀಕರಣ ಹೊಂಡ (Waste Stabilization Pond), ಕನ್ಸಟ್ರೆಕ್ಟಡ್ ವೆಟ್ ಲ್ಯಾಂಡ್ (Constructed wetland), ಇತ್ಯಾದಿ ತಂತ್ರಜ್ಞಾನದಿಂದ ನಿರ್ವಹಣೆ ಮಾಡಬುದಾಗಿದೆ.

ಗ್ರಾಮದಸಾಮಾನ್ಯ ಮಾಹಿತಿ

ಗ್ರಾಮದ ಹೆಸರು	62ನೇ ತೋಕೂರು
ಗ್ರಾಮದಜನಸಂಖ್ಯೆ (೨೦೧೧ರ ಜನಗಣತಿಯ ಪ್ರಕಾರ)	7433
ಪ್ರಸ್ತುತಗ್ರಾಮದಜನಸಂಖ್ಯೆ (add17%)	8697
ಒಟ್ಟು ಮನೆಗಳ ಸಂಖ್ಯೆ	1900
ಶಾಲೆಗಳ ಸಂಖ್ಯೆ ಅಂಗನವಾಡಿಗಳ ಸಂಖ್ಯೆ ಸಮುದಾಯ ಭವನಗಳ ಸಂಖ್ಯೆ ಅಂಗಡಿಗಳ ಸಂಖ್ಯೆ ದೇವಾಲಯಗಳ ಸಂಖ್ಯೆ ಕೈಗಾರಿಕೆ ಘಟಕಗಳ ಸಂಖ್ಯೆ ನೀರಿನಟ್ಯಾಂಕ್ ಸಂಖ್ಯೆ ಮತ್ತು ಪ್ರಮಾಣ(ಲಿಟರ್ ಗಳಲ್ಲಿ)	5 6 1 141 1 0 4 6(50000ಲೀ)
ಶುದ್ಧಕುಡಿಯುವ ನೀರಿನ ಘಟಕಗಳ ಸಂಖ್ಯೆ	0
ಅಂತರ್ಜಲದ ನೀರಿನ ಮಟ್ಟ (ನೆಲ ಮಟ್ಟದಿಂದ) (ಅಡಿಗಳಲ್ಲಿ)	550-700
ತೆರೆದ ಬಾವಿಗಳ ಸಂಖ್ಯೆ	6
ಕೊಳವೆ ಬಾವಿಗಳ ಸಂಖ್ಯೆ	8
ಹ್ಯಾಂಡ್ ಪಂಪ್‌ಗಳ ಸಂಖ್ಯೆ	0
ಹತ್ತಿರದ ನೀರಿನ ಮೂಲಗಳ ಮಾಹಿತಿ	ಕೆರೆ,ಬಾವಿ ,ಕೊಳವೆ ಬಾವಿ
ವಾರ್ಷಿಕಅಂದಾಜು ಮಳೆ ಪ್ರಮಾಣ	4500mm
ಪ್ರಮುಖ ಬೆಳೆಗಳು	ಭತ್ತ, ಅಡಿಕೆತೆಂಗು ,ಬಾಳೆ,ಕಾಳುಮೆಣಸು,ತರಕಾರಿ

Abstract			
SL. No	**Treatment Module**	**No.**	**Total cost (in lakh)**
1	Construction of 10 Numbers of Community Soak Pit and Chambers at Different Habitation at 62 thokuruvillage, jokatteGram Panchayath, mangalore Taluk..	10	4018014.00
2	Construction of 65 Numbers of House Hold Soak Pit and Chambers at Different Habitation at 62 thokuruvillage, jokatte Gram Panchayath, mangalore Taluk..	65	1105000.00
	GRAND TOTAL		**5123014.00**

ಪಂಚಾಯತ್ ಅಭಿವೃದ್ಧಿ ಅಧಿಕಾರಿ
ಪಂಚಾಯಿತಿ ಅಭಿವೃದ್ಧಿ ಅಧಿಕಾರಿ
ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯಿತ್

ಪಂಚಾಯತಿ ಅಧ್ಯಕ್ಷರು
ಅಧ್ಯಕ್ಷರು
ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯತ್

ನೀರಿನ ಪ್ರಮಾಣ ಅಳೆಯುವ ವಿಧಾನ:

ಕ್ರಮ ಸಂ	ವಿಧಾನ	Outfall	ಅಳತೆ	ಬೂದು ನೀರುಉತ್ಪತಿಯಾಗುತ್ತಿರುವ ಪ್ರಮಾಣ (ಲಿಟರ್ ಪ್ರತಿ ನಿಮಿಷಕ್ಕೆ)
೧	ಜನಸಂಖ್ಯೆ ವಿಧಾನ	Outfall Point 1	20*55*5*70%/1000	3.85 KLD
೨		Outfall Point 2	24*55*5*70%/1000	4.62 KLD
೩		Outfall Point 3	20*55*5*70%/1000	3.85 KLD
೪		Outfall Point 4	22*55*5*70%/1000	4.23 KLD
೫		Outfall Point 5	25*55*5*70%/1000	4.81 KLD
೬		Outfall Point 6	25*55*5*70%/1000	4.81 KLD
೭		Outfall Point 7	20*55*5*70%/1000	3.85 KLD
೮		Outfall Point 8	25*55*5*70%/1000	4.81 KLD
೯		Outfall Point 9	20*55*5*70%/1000	3.85 KLD
೧೦		Outfall Point 10	20*55*5*70%/1000	3.85 KLD

ಬೂದು ನೀರು ಹೊರ ಹೋಗುವ ಪಾಯಿಂಟ್ (Outfall Points)	ಪ್ರತಿ ದಿನದ ಪ್ರಮಾಣ ಲೀಟರ್ / ದಿನಕ್ಕೆ (litres/day)	ಜಾಗದ ಮಾಹಿತಿ			Type of technology selected ಬಳಸುವ ತಂತ್ರಜ್ಞಾನ	Final Discharge point ಬೂದು ನೀರು ಹೊರ ಹೋಗುವ ಕೊನೆಯಜಾಗ
		Gramathana/ GP Land ಗ್ರಾಮ ಪಂಚಾಯತಿಯಜಾಗ	Revenue ಸರ್ಕಾರಿಜಾಗ	Private ಖಾಸಗಿಜಾಗ		
Outfall Point 1	3.85 KLD	ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯಕೊಂಕಣಕೋಡಿರಸ್ತೆ ಶ್ರೀದರ ಶೆಟ್ಟಿ ಮನೆ ಬಳಿ	ಹೌದು	ಇಲ್ಲ	ಸಾರ್ವಜನಿಕಬಚ್ಚಲು ಗುಂಡಿ	Recharge to Ground
Outfall Point 2	4.62 KLD	ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯ ಶೇಡಿಗುರಿರಾಮನಗರ ತುಳಸಿ ಶೆಟ್ಟಿ ಮನೆ ಬಳಿ	ಹೌದು	ಇಲ್ಲ	ಸಾರ್ವಜನಿಕಬಚ್ಚಲು ಗುಂಡಿ	Recharge to Ground
Outfall Point 3	3.85 KLD	ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯ ಶೇಡಿಗುರಿತಾರಾನಾಥ ಸುವರ್ಣ ಮನೆ ಬಳಿ	ಹೌದು	ಇಲ್ಲ	ಸಾರ್ವಜನಿಕಬಚ್ಚಲು ಗುಂಡಿ	Recharge to Ground
Outfall Point 4	4.23 KLD	ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯ ಶೇಡಿಗುರಿರತ್ನ ಶೇಖರ ಶೆಟ್ಟಿ ಮನೆ ಬಳಿ	ಹೌದು	ಇಲ್ಲ	ಸಾರ್ವಜನಿಕಬಚ್ಚಲು ಗುಂಡಿ	Recharge to Ground
Outfall Point 5	4.81 KLD	ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯ ಶೇಡಿಗುರಿ ನಾಗಯ್ಯ ಮನೆ	ಹೌದು	ಇಲ್ಲ	ಸಾರ್ವಜನಿಕಬಚ್ಚಲು ಗುಂಡಿ	Recharge to

ನೀರಿನ ಪ್ರಮಾಣ ಅಳೆಯುವ ವಿಧಾನ:

ಕ್ರಮ ಸಂ	ವಿಧಾನ	Outfall	ಅಳತೆ	ಬೂದು ನೀರುಉತ್ಪತಿಯಾಗುತ್ತಿರುವ ಪ್ರಮಾಣ (ಲಿಟರ್ ಪ್ರತಿ ನಿಮಿಷಕ್ಕೆ)
೧	ಜನಸಂಖ್ಯೆ ವಿಧಾನ	Outfall Point 1	20*55*5*70%/1000	3.85 KLD
೨		Outfall Point 2	24*55*5*70%/1000	4.62 KLD
೩		Outfall Point 3	20*55*5*70%/1000	3.85 KLD
೪		Outfall Point 4	22*55*5*70%/1000	4.23 KLD
೫		Outfall Point 5	25*55*5*70%/1000	4.81 KLD
೬		Outfall Point 6	25*55*5*70%/1000	4.81 KLD
೭		Outfall Point 7	20*55*5*70%/1000	3.85 KLD
೮		Outfall Point 8	25*55*5*70%/1000	4.81 KLD
೯		Outfall Point 9	20*55*5*70%/1000	3.85 KLD
೧೦		Outfall Point 10	20*55*5*70%/1000	3.85 KLD

ಬೂದು ನೀರು ಹೊರ ಹೋಗುವ ಪಾಯಿಂಟ್ (Outfall Points)	ಪ್ರತಿ ದಿನದ ಪ್ರಮಾಣ ಲೀಟರ್ / ದಿನಕ್ಕೆ (litres/day)	ಜಾಗದ ಮಾಹಿತಿ			Type of technology selected ಬಳಸುವ ತಂತ್ರಜ್ಞಾನ	Final Discharge point ಬೂದು ನೀರು ಹೊರ ಹೋಗುವ ಕೊನೆಯಜಾಗ
		Gramathana/ GP Land ಗ್ರಾಮ ಪಂಚಾಯತಿಯಜಾಗ	Revenue ಸರ್ಕಾರಿಜಾಗ	Private ಖಾಸಗಿ ಜಾಗ		
Outfall Point 1	3.85 KLD	ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯಕೊಂಕಣಕೋಡಿರಸ್ತೆ ಶ್ರೀಧರ ಶೆಟ್ಟಿ ಮನೆ ಬಳಿ	ಹೌದು	ಇಲ್ಲ	ಸಾರ್ವಜನಿಕಬಚ್ಚಲುಗುಂಡಿ	Recharge to Ground
Outfall Point 2	4.62 KLD	ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯ ಶೇಡಿಗುರಿರಾಮನಗರ ತುಳಸಿ ಶೆಟ್ಟಿ ಮನೆ ಬಳಿ	ಹೌದು	ಇಲ್ಲ	ಸಾರ್ವಜನಿಕಬಚ್ಚಲುಗುಂಡಿ	Recharge to Ground
Outfall Point 3	3.85 KLD	ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯ ಶೇಡಿಗುರಿತಾರಾನಾಥ ಸುವರ್ಣ ಮನೆ ಬಳಿ	ಹೌದು	ಇಲ್ಲ	ಸಾರ್ವಜನಿಕಬಚ್ಚಲುಗುಂಡಿ	Recharge to Ground
Outfall Point 4	4.23 KLD	ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯ ಶೇಡಿಗುರಿರತ್ನ ಶೇಖರ ಶೆಟ್ಟಿ ಮನೆ ಬಳಿ	ಹೌದು	ಇಲ್ಲ	ಸಾರ್ವಜನಿಕಬಚ್ಚಲುಗುಂಡಿ	Recharge to Ground
Outfall Point 5	4.81 KLD	ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯ	ಹೌದು	ಇಲ್ಲ	ಸಾರ್ವಜನಿಕಬಚ್ಚಲುಗುಂಡಿ	Recharge to Ground

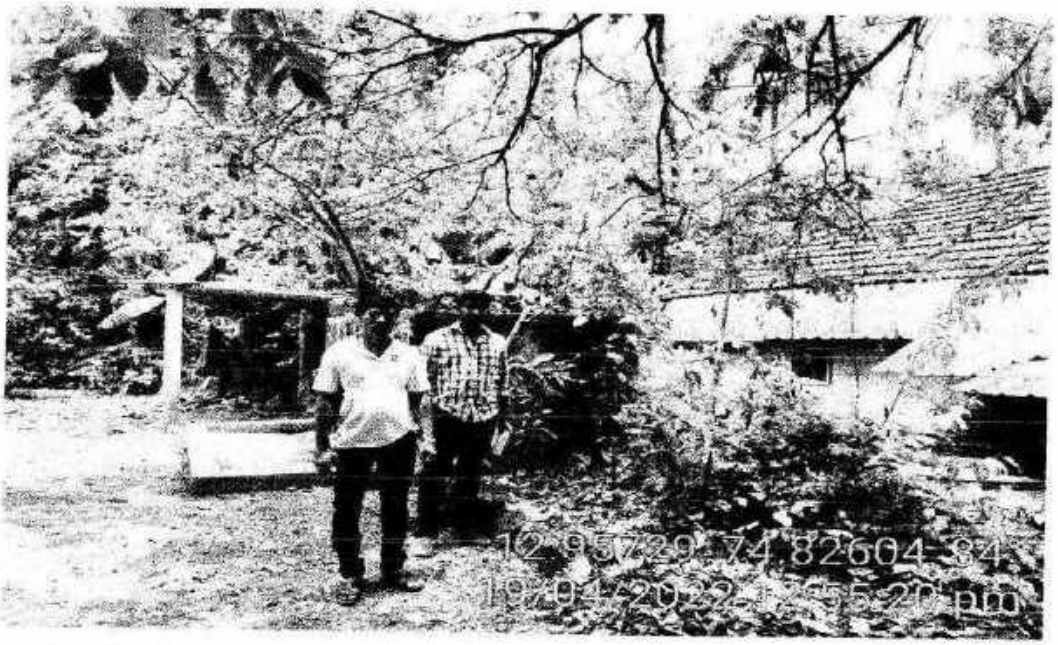
ಗ್ರಾಮ ಚರಂಡಿಗಳ ನಕ್ಷೆ ಮತ್ತು ಬೂದು ನೀರು ಹೊರ ಹೋಗುವ ಪಾಯಿಂಟ್‌ಗಳು

VILLAGE DRAINAGE MAP AND OUT FALL POINTS:

ಬೂದು ನೀರು ಹೊರ ಹೋಗುವ ಪಾಯಿಂಟ್‌ಗಳ ಛಾಯಚಿತ್ರಗಳು

Geo tag Photos of the selected outfall points sites

ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯಕೊಂಕಣಕೋಡಿರಸ್ತೆ ಶ್ರೀದರ ಶೆಟ್ಟಿ ಮನೆ ಬಳಿ



ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯ ಕೇಡಿಗುರಿರತ್ನ ಶೇಖರ ಕೆಟ್ಟ ಮನೆ ಬಳಿ

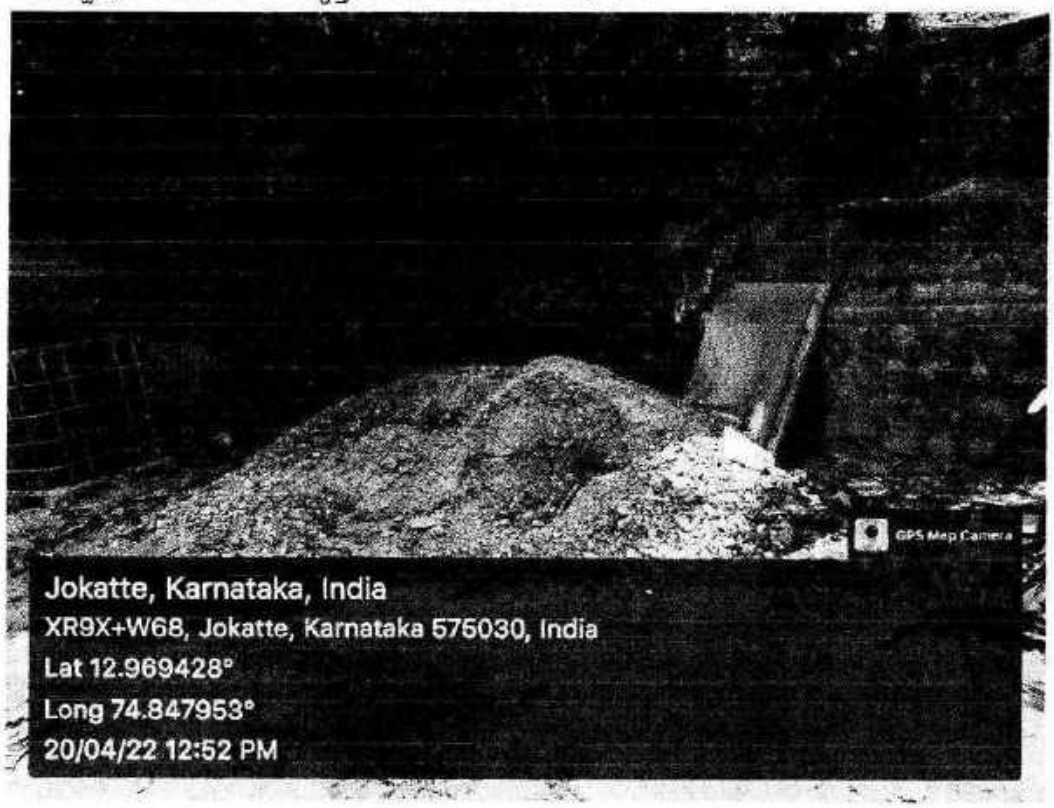
ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯ ಕೇಡಿಗುರಿಕಾರಾನಾಥ ಸುವರ್ಣ ಮನೆ ಬಳಿ

ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯ ಕೇಡಿಗುರಿ ನಾಗಯ್ಯ ಮನೆ ಬಳಿ -1

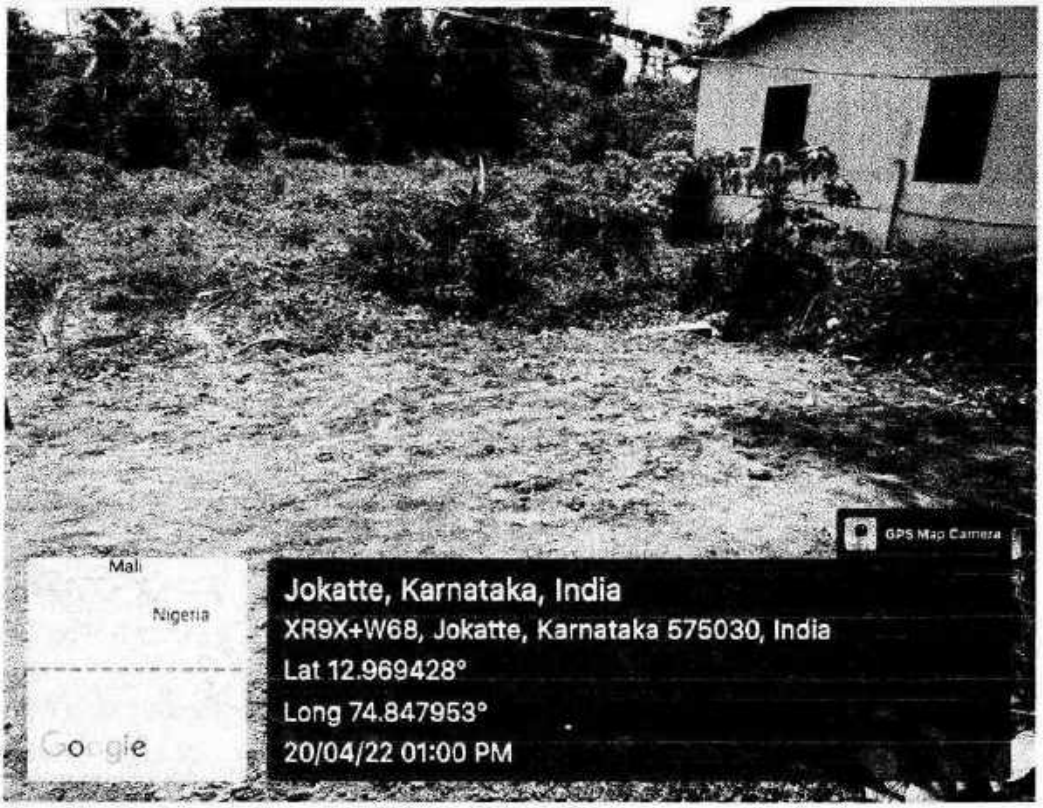
ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯ ಕೇಡಿಗುರಿ ನಾಗಯ್ಯ ಮನೆ ಬಳಿ-2

ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯ ಮೈಂದಗುರಿಅಬ್ಬುಲ್ಲ ಮನೆ ಬಳ

ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯಗೋವಿಂದಆಚಾರಿ ಮನೆ ಬಳಿ



ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯ ಪಂಚಾಯತ್‌ಕಚೇರಿ ಬಳಿ



ಜೋಕಟ್ಟೆಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಯನಿರ್ಮಾಂಜೆಶರೀಫ್ಮನೆಬ

ಸ್ವಚ್ಛ ಭಾರತ ಮಿಷನ್ (ಗ್ರಾ) ಯೋಜನೆಯಡಿ ಬೂದು ನೀರು ನಿರ್ವಹಣೆಗೆ ಲಭ್ಯವಿರುವಅನುದಾನದ ಮಾಹಿತಿ

ABVAILABLE FUNDS UNDER SBM(G)-II BASED ON POPULATION	
ಜನಸಂಖ್ಯೆ ೫೦೦೦ ಕ್ಕಿಂತ ಮೇಲ್ಪಟ್ಟ ಗ್ರಾಮಗಳಿಗೆ	ರೂ. ೬೬೦ ಪ್ರತಿ ವ್ಯಕ್ತಿಗೆ
ಜನಸಂಖ್ಯೆ ೫೦೦೦ ಕ್ಕಿಂತ ಕಡಿಮೆಯಿರುವ ಗ್ರಾಮಗಳಿಗೆ	ರೂ. ೨೪೦ ಪ್ರತಿ ವ್ಯಕ್ತಿಗೆ
*Funds for GPs which are approved under SBM(G)-I, should be borne by 15th FC / MGNREGA/ GP Fund/ Others *ಈಗಾಗಲೆ ಸ್ವ.ಭಾ.ಮಿ ಹಂತ -೦ರಲ್ಲಿ ಅನುಮೋದನೆಗೊಂಡಿರುವ ಗ್ರಾಮ ಪಂಚಾಯತಿಗಳು ೧೫ನೇ ಹಣಕಾಸು/ನರೇಗಾ/ಗ್ರಾ.ಪಂ ಅನುದಾನ/ ಇತರೆ ಅನುದಾನವನ್ನು ಉಪಯೋಗಿಸತಕ್ಕದ್ದು.	

SL NO	DETAILS	CONVERGENCE OF FUNDS
1	ವೈಯಕ್ತಿಕಇಂಗುಗುಂಡಿ HH SOAKPITS	MGNREGA/GP FUNDS
2	ಸಮುದಾಯಇಂಗುಗುಂಡಿ COMMUNITY LEVEL SOAK PITS	SBMG/MGNREGA/GP FUNDS/15TH FC
3	ತ್ಯಾಜ್ಯ ಸ್ಥಿರೀಕರಣ ಹೊಂಡ WASTE STABILIZATION PONDS	SBMG/MGNREGA/GP FUNDS/15TH FC
4	DEWATS	SBMG/MGNREGA/GP FUNDS/15TH FC
5	ಚರಂಡಿಯಲ್ಲಿಸಂಸ್ಕರಿಸುವ ವಿಧಾನÀ INLINE TREATMENT	SBMG/MGNREGA/GP FUNDS/15TH FC
6	CONSTRUCTED WETLAND	SBMG/MGNREGA/GP FUNDS/15TH FC
7	ಚರಂಡಿಗಳು DRINAGE SYSTEM	MGNREGA/GP FUNDS/15TH FC
8	ಪೈಪ್‌ಗಳು ಮತ್ತು ಇತ್ಯಾದಿ PIPES & ACCESSORIES	MGNREGA/GP FUNDS/15TH FC

ಸ್ವಚ್ಛ ಭಾರತ ಮಿಷನ್ (ಗ್ರಾ) ಯೋಜನೆಯಡಿಶಿರ್ತಾಡಿಗ್ರಾಮಕ್ಕೆ ಬೂದು ನೀರು ನಿರ್ವಹಣೆಗೆ ಲಭ್ಯವಿರುವಅನುದಾನದ ಮಾಹಿತಿ

ಕ್ರ.ಸಂ	ಗ್ರಾಮದ ಹೆಸರು	ಒಟ್ಟು ಮನೆಗಳ ಸಂಖ್ಯೆ	ಗ್ರಾಮದ ಒಟ್ಟು ಜನಸಂಖ್ಯೆ	ಪ್ರತಿ ವ್ಯಕ್ತಿಗೆ(೨೪೦/೬೬೦)	ಒಟ್ಟು	ಸ್ವ.ಭಾ.ಮಿ(ಗ್ರಾ) (೭೦%)	೧೫ನೇ ಹಣಕಾಸು (೩೦%)
1	62ನೇ ಹೊಕೂರು	1900	7433*1.17=8697	660	5740020	4018014	1722006

ತಂತ್ರಜ್ಞಾನದ ಮಾಹಿತಿ (Treatment unit details)

ಕ್ರಸಂ	ತಂತ್ರಜ್ಞಾನ/Treatment system	ಅನುಷ್ಠಾನಗೊಳಿಸುವ ಸಂಖ್ಯೆ Proposed no of units	ಪ್ರಮಾಣ ಸರಾಸರಿ ಲೀಟರ್ / ದಿನಕ್ಕೆ (Capacity in KL/D)
1	ವೈಯಕ್ತಿಕಇಂಗುಗುಂಡಿ HH SOAKPITS	65	13.475
2	ಸಮುದಾಯ ಇಂಗು ಗುಂಡಿ COMMUNITY SOAK PITS	10	42.53(221HH)

ಅಂದಾಜು ವೆಚ್ಚ:(Approximate expenditure)

Abstract costing			
S. No	Treatment Module	No.	Total cost (in lakh)
1	ವೈಯಕ್ತಿಕ ಇಂಗು ಗುಂಡಿ	65	1105000
2	ಸಮುದಾಯ ಇಂಗು ಗುಂಡಿ	10(221HH)	4018014
	GRAND TOTAL (A+B)		5123014

ವಿವಿಧ ಯೋಜನೆಯಡಿಯಲ್ಲಿ ಅನುದಾನ ಬಳಸುವ:(Convergence of funds for component)

SL NO	Component	SBM(G)	15TH FINANCE	MGNREGA	GP FUNDS	OTHERS	TOTAL
1	ವೈಯಕ್ತಿಕಇಂಗುಗುಂಡಿ HH SOAKPITS	N/A	N/A	1105000	N/A	N/A	1105000
2	ಸಮುದಾಯಇಂಗುಗುಂಡಿ COMMUNITY SOAK PITS	4018014	N/A	N/A	N/A	N/A	4018014
Total cost of all components for a Village							5123014

ಕಾರ್ಯಚರಣೆ ಮತ್ತು ನಿರ್ವಹಣೆ (Operation and Maintenance)

ಗ್ರಾಮದಎಲ್ಲಾ ಬೂದು ನೀರು ನಿರ್ವಹಣಾ ಘಟಕಗಳನ್ನು ೧೫ನೇ ಹಣಕಾಸು ಮತ್ತು ಗ್ರಾಮ ಪಮಚಾಯತಿಅನುದಾನದಲ್ಲಿ ನಿರ್ವಹಣೆ ಮತ್ತು ಕಾರ್ಯಚರಣೆ ಮಾಡಲಾಗುವುದು.

15th finance and GP Funds Shall be used for Operation and Maintenance for all the treatment units constructed (including desilting of drains) for Grey Water Management.

ಪಂಚಾಯತ್‌ಅಭಿವೃದ್ಧಿಅಧಿಕಾರಿ
ಪಂಚಾಯಿತಿ ಅಭಿವೃದ್ಧಿ ಅಧಿಕಾರಿ
ಮೋಕಟ್ಟಿ ಗ್ರಾಮ ಪಂಚಾಯಿತಿ

ಪಂಚಾಯತಿ ಅಧ್ಯಕ್ಷರು
ಅಧ್ಯಕ್ಷರು
ಮೋಕಟ್ಟಿ ಗ್ರಾಮ ಪಂಚಾಯತ್

ಕರ್ನಾಟಕ ಸರ್ಕಾರ
ಗ್ರಾಮ ಪಂಚಾಯತ ಜೋಕಟ್ಟೆ
ಮಂಗಳೂರು ತಾಲೂಕು ದಕ್ಷಿಣ ಕನ್ನಡ
jokatte.mng.dk@gmail.com Ph:0824-2292653

ಜೋ.ಗ್ರಾ.ಪಂ:15/2022-23 ದಿನಾಂಕ: 15/06/2022

ರಿಗೆ.

ಪರಿಸರ ಅಧಿಕಾರಿ
ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
ಮಂಗಳೂರು.

ಮಾನ್ಯರೇ,

ವಿಷಯ: ಫಲ್ಗುಣಿ ನದಿಗೆ ತ್ಯಾಜ್ಯ ಬಿಡುತ್ತಿರುವ ಬಗ್ಗೆ
ಉಲ್ಲೇಖ: KSPCB/EO(MNG)/Notice/2022-23/401 Dt. 14/06/2022

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ಮೇಲಿನ ವಿಷಯ ಹಾಗೂ ಉಲ್ಲೇಖಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಮಂಗಳೂರು ತಾಲೂಕು ಜೋಕಟ್ಟೆ ಗ್ರಾಮ ಪಂಚಾಯತ್ ವ್ಯಾಪ್ತಿಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಕೆಲವು ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಯನ್ನು ಪ್ರತಿ ಮನೆಯಿಂದ ಕಲೆಸುವುದು ಗುರಿ ನದಿಗೆ ಬಿಡಿ ಮಾಡುತ್ತಿದ್ದಾರೆ ಕಾರಣ ಘನ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಈಗಾಗಲೇ ಇದೇ ಕಸವನ್ನು ಮನೆಯವರು ತಮ್ಮ ತೆಂಗಿನ ಗಿಡಗಳಿಗೆ ಹಾಕುತ್ತಿದ್ದು, ಒಣಕಸವನ್ನು ಪ್ರತ್ಯೇಕವಾಗಿ ನೀಡಿ ಮಾಡಲಾಗುತ್ತಿದೆ.

ಜೋಕಟ್ಟೆ ಒಡಿಸಿ ರಸ್ತೆ ಮಾಡಿಲ್ಲವು ಸೈಕಾಲಿ ಬರುತ್ತಿದ್ದು, ಇದರ ರಸ್ತೆಯ ಬದಿ ಮಳೆಗೆ ಜೋಕಟ್ಟೆ ಈ ಮೂಲಕ ಕಸ ಎಸೆಯಲಾಗುತ್ತಿದೆ.

17 SEP 2022

ಧನ್ಯವಾದಗಳೊಂದಿಗೆ.

OA 307 file

ಮಂಗಳೂರು ಮಹಾನಗರಪಾಲಿಕೆ

ಆಯುಕ್ತರು
ಮಹಾನಗರಪಾಲಿಕೆ
ಮಂಗಳೂರು

ಅಂಚೆ ಪೆಟ್ಟಿಗೆ ನಂಬ್ರ:756,
ಲಾಲ್ ಭಾಗ್, ಮಂಗಳೂರು- 575003
ದೂರವಾಣಿ:2220313-318
ಫ್ಯಾಕ್ಸ್:0824-2220310

ಮ.ನ.ಪಾ/ಎನ್.ಜಿ.ಟಿ.1/2022-23/ಎಫ್6 ದಿನಾಂಕ: .03.2023

ರಿಗೆ,
ಪರಿಸರ ಅಧಿಕಾರಿ
ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
ಪರಿಸರ ಭವನ ,10ಬಿ
ಬೈಕಂಪಾಡಿ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ
ಮಂಗಳೂರು.

ಕ.ರಾ.ಮಾ.ನಿ.ಮಂಡಳಿ ಪ್ರಾದೇಶಿಕ ಕಚೇರಿ ಮಂಗಳೂರು-575011
ಸ್ವೀಕೃತಿ ಸಂಖ್ಯೆ 4709 ದಿನಾಂಕ 8-3-2023

ವಿಷಯ: ಮಾನ್ಯ ರಾಷ್ಟ್ರೀಯ ಹಸಿರು ನ್ಯಾಯ ಮಂಡಳಿಯ ಪ್ರಕರಣ ಸಂಖ್ಯೆ:O.A ಸಂಖ್ಯೆ:307/2022 ರಲ್ಲಿನ ನಿರ್ದೇಶನದಂತೆ ಕ್ರಮ ಕೈಗೊಳ್ಳುವ ಬಗ್ಗೆ.

ಉಲ್ಲೇಖ:1. ಪರಿಸರ ಅಧಿಕಾರಿ ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ ಪರಿಸರ ಭವನ ,10ಬಿ ಬೈಕಂಪಾಡಿ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ ಮಂಗಳೂರು ರವರ ಪತ್ರ ಸಂಖ್ಯೆ:
No:KSPCB/EO(MNG)/NGT-OA No.307 of 2022/2022-2023/1953 d:24.02.2023
2 ಕಿರಿಯ ಅಭಿಯಂತರರ ವರದಿ.ದಿ:06.03.2023

ಮೇಲಿನ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಮಾನ್ಯ ರಾಷ್ಟ್ರೀಯ ಹಸಿರು ನ್ಯಾಯ ಮಂಡಳಿಯ ಪ್ರಕರಣ ಸಂಖ್ಯೆ:O.A.ಸಂಖ್ಯೆ: 307/2022 ರಂತೆ ಮಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ ವ್ಯಾಪ್ತಿಯ ಫಾಲ್ಗುಣಿ (ಗುರುಪುರ) ನದಿಯ ಮಾಲಿನ್ಯವನ್ನು ತಗ್ಗಿಸುವ ನಿಟ್ಟಿನಲ್ಲಿ ಸೂಕ್ತ ಕ್ರಮ ಕೈಗೊಳ್ಳಲು ನಿರ್ದೇಶಿಸಲಾಗಿರುತ್ತದೆ. ಸದರಿ ಪ್ರಕರಣದಲ್ಲಿ ಫಲ್ಗುಣಿ ನದಿಗೆ ಮಹಾನಗರಪಾಲಿಕೆಯಿಂದ ಘನತ್ಯಾಜ್ಯ ಹಾಗೂ ದ್ರವ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಯನ್ನು ಅಸಮರ್ಪಕವಾಗಿ ಹಾಗೂ ಅವೈಜ್ಞಾನಿಕವಾಗಿ ನಿರ್ವಹಿಸುತ್ತಿರುವುದರಿಂದ ಹಾಗೂ ನದಿಯು ಕಲುಷಿತಗೊಂಡಿರುವುದಾಗಿ , ನಗರಗಳ ಕೆಲವು ಪ್ರದೇಶಗಳಲ್ಲಿ ಸಂಸ್ಕರಿಸದೆ ಇರುವ ಮಲತ್ಯಾಜ್ಯವನ್ನು ಮಳೆನೀರು ಚರಂಡಿಯಲ್ಲಿ ಹರಿದುಬಿಡುತ್ತಿರುವುದಾಗಿ ನಿರ್ದೇಶದನ್ವಯ ಪ್ರಕರಣದ ಅದೇಶದಲ್ಲಿ ತಿಳಿಸಲಾಗಿರುತ್ತದೆ. ಘನತ್ಯಾಜ್ಯ ಹಾಗೂ ದ್ರವ ತ್ಯಾಜ್ಯವನ್ನು ವೈಜ್ಞಾನಿಕವಾಗಿ ನಿರ್ವಹಣೆ ಮಾಡುವ ನಿಟ್ಟಿನಲ್ಲಿ ಅಂಶಗಳನ್ನು ನಿಯಮಾನುಸಾರ ಪರಿಶೀಲಿಸಿ , ರಾಷ್ಟ್ರೀಯ ಹಸಿರು ನ್ಯಾಯ ಮಂಡಳಿಯ ನಿರ್ದೇಶದನ್ವಯ ಕ್ರಿಯಾಯೋಜನೆಯನ್ನು ತಯಾರಿಸಿ ಈ ಪತ್ರದೊಂದಿಗೆ ಲಗತ್ತೀಕರಿಸಿ ಮುಂದಿನ ಸೂಕ್ತ ಕ್ರಮಕ್ಕೆ ಸಲ್ಲಿಸಿದೆ.

ತಮ್ಮ ವಿಶ್ವಾಸಿ,

ಆಯುಕ್ತರು
ಮಹಾನಗರ ಪಾಲಿಕೆ, ಮಂಗಳೂರು

Action Plan for Solid Waste Collection Mechanism in the Baikampady Industrial Area.

Three major solid waste/ C & D waste dump sites were identifying in the area which are as follows;

1. Industrial area at Jokatte Road
2. River bank at Kuluru Bridge
3. Along the Road within the industrial area in parallel to Kudumbooru Hole

Sl. No	Action plan	Fund	Scheme	Time Limit	Remarks
1	Fencing all along the identified area	General Funds	MCC shall seek funding from CSR component of different industries.	10 months	1. Works at Jokatte Road cannot be taken up as it is outside the MCC limits. 2a. Fencing of river bank at Kuluru Bridge shall be taken up, upon receiving permission from the Port Authority. 2b. Green Belt / Urban Forest Development is being considered for fencing. 3. Any development / construction activity within the Baikampady Industrial Area shall be taken up the KIADB.
2	Installing CCTV to monitor *at Strategic locations*	SBM	IEC	6 months	MCC has already installed 18 nos. of solar powered CCTV Cameras (which can be relocated) at different locations across the

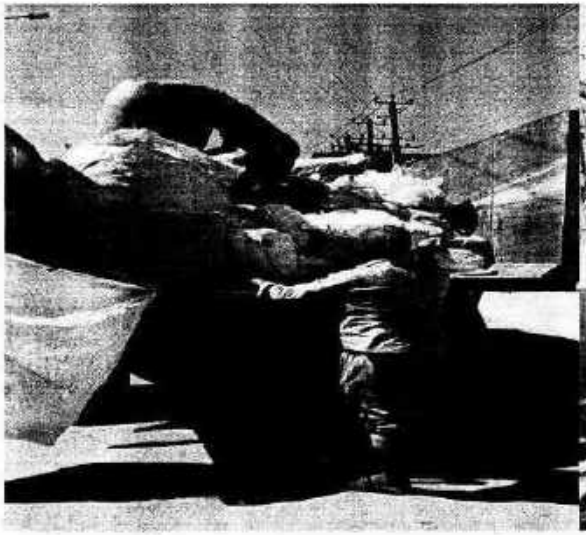
					city.
3	Installing and commencing the operation of the C&D waste processing unit at already identified C&D waste site	SFC & General Funds	-	1 year	DPR under completion stage. The project shall be implemented immediately after the tender is awarded.
4	Awareness to people through paper notification	SBM Funds & General Funds	-	NA	MCC has been publishing notifications regarding awareness on segregation of waste

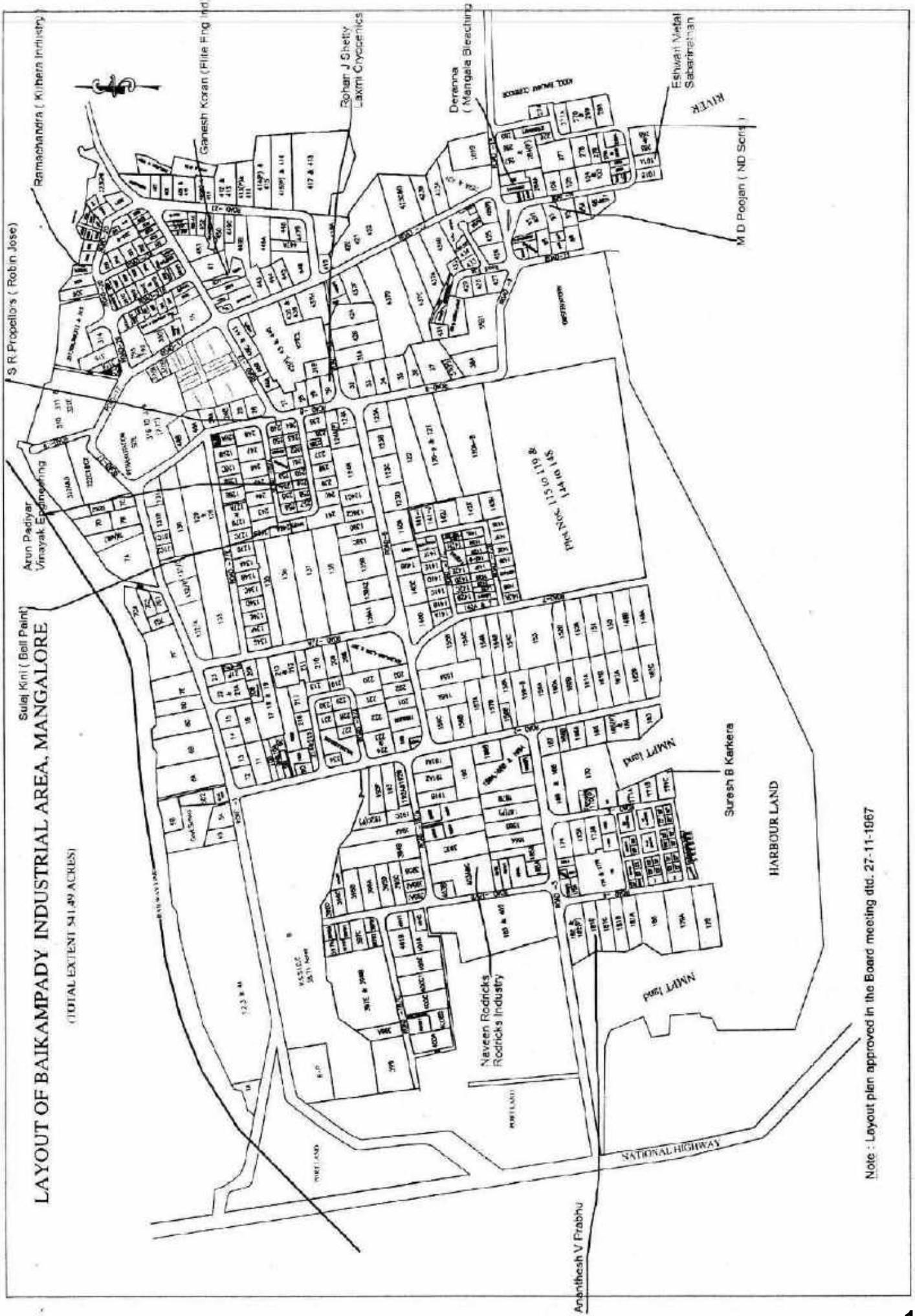
Remarks:

- MCC has proper MSW collection and transportation system in place.
- Additional door to door vehicles are being deployed for domestic waste (MSW) collection from Baikampady industrial area.
- The solid waste heaps/ Garbage Vulnerable Points are being cleared with utmost priority and beautification of such points are also taken up by MCC as an initiative.
- More IEC activities regarding waste segregation and MSW management shall be taken up.
- Defaulters dumping waste shall be identified through proper vigilance and penalized accordingly.

1. ***Report of Municipal Solid Waste Management in Baikampady Industrial Area:***

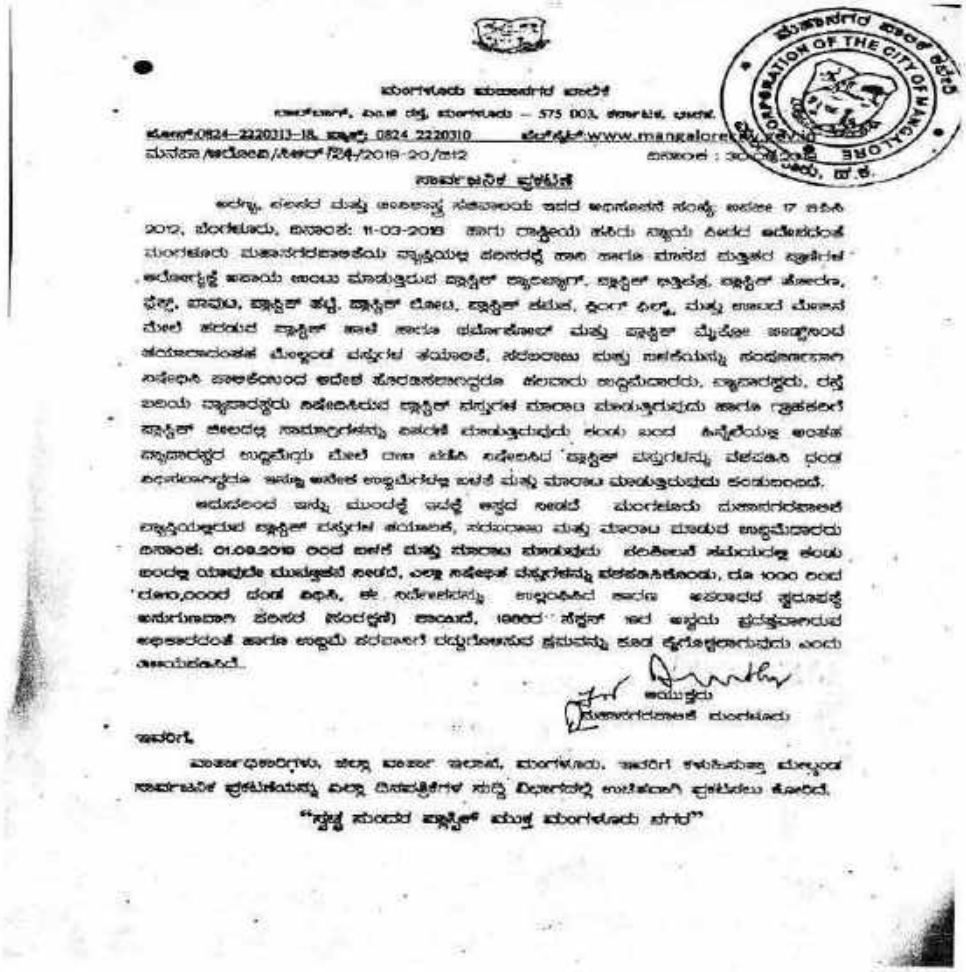
As per the KSPCB Norms and SWM Rules, 2016, Mangaluru City Corporation collects only domestic waste from the industrial units and the hazardous waste is to be handled by the industry itself to a TSDF. MCC deploys two Door to Door Waste collection tippers of capacity 1.5 ton and 1 ton respectively (Vehicle Nos. KA 19 AB 5623 and KA 19 AA 7690) for collection of domestic waste from Baikampady Industrial Area. These vehicles make 2 trips a day and cover the entire industrial area. The photos are attached for reference:




LAYOUT OF BAIKAMPADY INDUSTRIAL AREA, MANGALORE
(TOTAL EXTENT 341.49 ACRES)
Sulaj Kini (Bell Paint)
Arun Padiyar
Vinayak Engineering
S R Propellors (Robin Jose)
Ramachandra (Kithera Industry)
Ganesh Karan (Flite Eng Ind)
Rohan J Shetty
Laxmi Cryogenics
Derenna
(Mangala Bleaching
Eshwari Metal
Sabarinathan
M D Poojari (ND Sons)
RIVER
Suresh B Karkera
MMPT land
HARBOUR LAND
Naveen Rodricks
Rodricks Industry
NATIONAL HIGHWAY
Ananthesh V Prabhu
Note : Layout plan approved in the Board meeting dtd. 27-11-1967

2. ***City Beautification by transformation of Garbage Vulnerable Points (GVPs)***

Before
After
Before
After



ಮಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ

ಮಾಲೋಚನಾಗ, ಎಂ.ಜಿ ರಸ್ತೆ, ಮಂಗಳೂರು – 575 003, ಕರ್ನಾಟಕ, ಭಾರತ.

ದೂರವಾಣಿ:0824-2220313-18, ಫ್ಯಾಕ್ಸ್: 0824 2220310 ವೆಬ್‌ಸೈಟ್:www.mangalorecity.gov.in

ಮನಪಾ/ಆರೋಪಿ/ಸೆಕ್ಷನ್/24/2018-20/ಜಿಪಿ2 ದಿನಾಂಕ : 30.[illegible]

ಸಾರ್ವಜನಿಕ ಪ್ರಕಟಣೆ

ಅಧ್ಯಕ್ಷ, ಸಲಹಾ ಮತ್ತು ಅಂತರಾಷ್ಟ್ರ ಸಹಯೋಗ ಇವರ ಆದೇಶದಂತೆ ಸಂಖ್ಯೆ ಆಡಳಿ 17 ಪಸಿಸಿ 2012, ಬೆಂಗಳೂರು, ದಿನಾಂಕ: 11-03-2013 ರಂತೆ ರಾಷ್ಟ್ರೀಯ ಹಸಿರು ನ್ಯಾಯ ಪೀಠದ ಆದೇಶದಂತೆ ಮಂಗಳೂರು ಮಹಾನಗರಪಾಲಿಕೆಯ ವ್ಯಾಪ್ತಿಯಲ್ಲಿ ಪರಿಸರದಲ್ಲಿ ಹಾನಿ ಸಾಧಿಸಿ ಮಾಡುವ ಮತ್ತು ಇದರ ಸ್ಥಳೀಯ ಅಧಿಕಾರಿಯ ಅನುಮತಿ ಪಡೆಯದೆ ಮಾಡುತ್ತಿರುವ ಪ್ಲಾಸ್ಟಿಕ್ ಕ್ಯಾರಿಬ್ಯಾಗ್, ಪ್ಲಾಸ್ಟಿಕ್ ಕಪ್ಪುಪೇಪರ್, ಪ್ಲಾಸ್ಟಿಕ್ ಹೊದಿಕೆ, ಫೈಲ್, ಬಾವುಟ, ಪ್ಲಾಸ್ಟಿಕ್ ತಟ್ಟೆ, ಪ್ಲಾಸ್ಟಿಕ್ ಲೋಟ, ಪ್ಲಾಸ್ಟಿಕ್ ಪಿಚುಪ, ಪ್ಲಾಸ್ಟಿಕ್ ಹೂವಿನ ಹಾರ, ಫ್ಲಾಂಗ್ ಫಿಲ್ಮ್, ಮತ್ತು ಉಪಯೋಗಿಸಿದ ಮೇಲೆ ಪರಿಸರದಲ್ಲಿ ಪ್ಲಾಸ್ಟಿಕ್ ಹಾಳೆ ಹಾಗೂ ಥರ್ಮೋಕೋಲ್ ಮತ್ತು ಪ್ಲಾಸ್ಟಿಕ್ ಮೈಕ್ರೋ ಬಣ್ಣಗಳಿಂದ ಪರಿಸರಾಧಿಕಾರಿಯವರ ಮೇಲ್ಕಂಡ ಪರ್ಯಾಯ ತಯಾರಿಕೆ, ಸರಬರಾಜು ಮತ್ತು ಸಾಗಿಕೆಯನ್ನು ಸಂಪೂರ್ಣವಾಗಿ ನಿಷೇಧಿಸಿ ಜಾರಿಕೆಯಿಂದ ಆದೇಶ ಹೊರಡಿಸಲಾಗಿದ್ದರೂ ಸಹ ಬಹಳಷ್ಟು ಉದ್ದಿಮೆದಾರರು, ವ್ಯಾಪಾರಿಗಳು, ದಿನ್ನೆ ಅಂಗಡಿ ವ್ಯಾಪಾರಿಗಳು ನಿಷೇಧಿಸಿರುವ ಪ್ಲಾಸ್ಟಿಕ್ ಪರ್ಯಾಯ ಸಾಮಾನು ಮಾರಾಟ ಮಾಡುತ್ತಿರುವುದು ಹಾಗೂ ಗ್ರಾಹಕರಲ್ಲಿ ಪ್ಲಾಸ್ಟಿಕ್ ಕೈಚೀಲದ ಸಾಮಾನ್ಯಗಳನ್ನು ಖರೀದಿ ಮಾಡುತ್ತಿರುವುದು ಕಂಡು ಬಂದ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ಅಂತಹ ವ್ಯಾಪಾರಿಗಳ ಉದ್ದಿಮೆಗಳು ಮೇಲೆ ದಾಳಿ ನಡೆಸಿ ನಿಷೇಧಿಸಿದ ಪ್ಲಾಸ್ಟಿಕ್ ಪರ್ಯಾಯಗಳನ್ನು ವಶಪಡಿಸಿ ದಂಡ ವಿಧಿಸಲಾಗಿದ್ದರೂ ಇನ್ನೂ ಅನೇಕ ಉದ್ದಿಮೆದಾರರಲ್ಲಿ ಬಳಕೆ ಮತ್ತು ಮಾರಾಟ ಮಾಡುತ್ತಿರುವುದು ಕಂಡುಬಂದಿದೆ.

ಆದುದರಿಂದ ಇನ್ನು ಮುಂದಕ್ಕೆ ಇಲ್ಲಿ ಅನ್ವಯ ಸಂಬಂಧ ಮಂಗಳೂರು ಮಹಾನಗರಪಾಲಿಕೆ ವ್ಯಾಪ್ತಿಯಲ್ಲಿರುವ ಪ್ಲಾಸ್ಟಿಕ್ ಪರ್ಯಾಯ ತಯಾರಿಕೆ, ಸರಬರಾಜು ಮತ್ತು ಮಾರಾಟ ಮಾಡುವ ಉದ್ದಿಮೆದಾರರು ದಿನಾಂಕ: 01.09.2018 ರಿಂದ ಜಾರಿ ಮತ್ತು ಸಾಮಾನು ಮಾರಾಟ ಮಾಡುವುದು ಕಂಡುಬಂದಲ್ಲಿ ಸಂಬಂಧಪಟ್ಟ ಅಂಗಡಿ ಅಥವಾ ಯಾವುದೇ ಮುದ್ರಣಕ್ಕೆ ಸಂಬಂಧ, ಎಲ್ಲಾ ನಿಷೇಧಿತ ಪರ್ಯಾಯಗಳನ್ನು ವಶಪಡಿಸಿಕೊಂಡು, ರೂ 1000 ರಿಂದ ರೂ10,000ದ ವರೆಗೆ ದಂಡ ವಿಧಿಸಿ, ಈ ಸಂಬಂಧದಲ್ಲಿ ಉಲ್ಲಂಘಿಸಿದ ಹಾಗೂ ಅಪರಾಧದ ಪ್ರಮಾಣಕ್ಕೆ ಅನುಗುಣವಾಗಿ ಪರವಾನಿಗೆ (ಲೈಸೆನ್ಸ್) ರದ್ದಾಗಿ, ಅಂಗಡಿ ಸೀಲ್ ಆಗಿ ಅಥವಾ ಪ್ರಕರಣವನ್ನು ಅಧಿಕಾರದಂತೆ ಹಾಗೂ ಉದ್ದಿಮೆ ಪರವಾನಿಗೆ ರದ್ದುಗೊಳಿಸುವ ಪ್ರಮಾಣವನ್ನು ಕೂಡ ಕೈಗೊಳ್ಳಲಾಗುವುದು ಎಂದು ತಿಳಿಯಪಡಿಸಿದೆ.

ಆಯುಕ್ತರು
ಮಹಾನಗರಪಾಲಿಕೆ ಮಂಗಳೂರು

ಇವರಿಗೆ,

ಪತ್ರಿಕಾ ಪ್ರತಿನಿಧಿಗಳು, ಪತ್ರಿಕಾ ಕಾರ್ಯಾಲಯ, ಮಂಗಳೂರು. ಇವರಿಗೆ ಕಳುಹಿಸಲಾದ ಮೇಲ್ಕಂಡ ಸಾರ್ವಜನಿಕ ಪ್ರಕಟಣೆಯನ್ನು ಎಲ್ಲಾ ದಿನಪತ್ರಿಕೆಗಳ ಸಂಜೆ ಪ್ರಿಂಟಾಗಲ್ಲಿ ಉಚಿತವಾಗಿ ಪ್ರಕಟಿಸಲು ಕೋರಿದೆ.

"ಸ್ವಚ್ಛ ಸುಂದರ ಪ್ಲಾಸ್ಟಿಕ್ ಮುಕ್ತ ಮಂಗಳೂರು ನಗರ"

Plastic ban notification

Notification regarding C&D waste disposal

ಮಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ

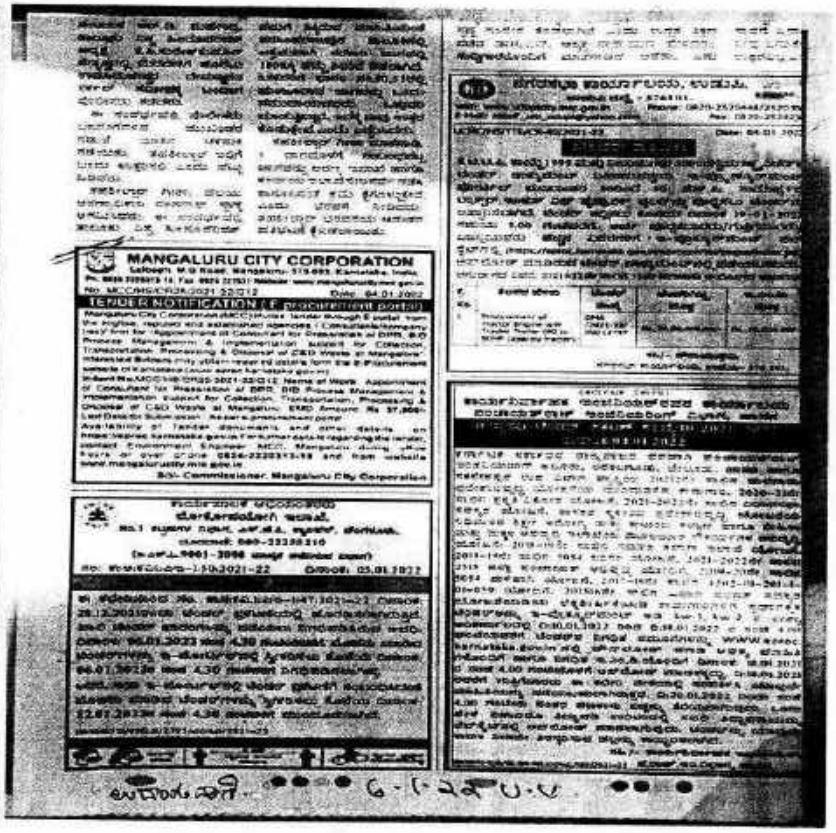
ಪಾಲಿಕೆ ಭವನ, ಎಂ.ಜಿ. ರಸ್ತೆ, ಮಂಗಳೂರು-575 003. ಫೋನ್: 0824-2220313-18.
ಫ್ಯಾಕ್ಸ್: 0824-2220310 ವೆಬ್‌ಸೈಟ್: www.mangalurucity.mrc.gov.in

ಮಾನಪಾ/ಆರೋಪ/ಟೆಂಡರ್-28/2015-16/312 ದಿನಾಂಕ: 27.01.2022

ಸಾರ್ವಜನಿಕ ಪ್ರಕಟಣೆ

ಕಟ್ಟಡ ನಿರ್ಮಾಣ ಮತ್ತು ಧ್ವಂಸಗೊಳಿಸುವ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆ 2016ರ ಪ್ರಕಾರ ಮಂಗಳೂರು ಮಹಾನಗರಪಾಲಿಕೆಯು ಏರ್ಪಡಿಸಲಾಗಿದೆ. ಪ್ರಸ್ತುತ ಕಟ್ಟಡ ನಿರ್ಮಾಣ ಮತ್ತು ಧ್ವಂಸಗೊಳಿಸುವ ತ್ಯಾಜ್ಯ (Construction and Demolition Wastes) ಗಳನ್ನು ಮಂಗಳೂರು ಮಹಾನಗರಪಾಲಿಕೆ ವ್ಯಾಪ್ತಿಯಲ್ಲಿರುವ ಸಾರ್ವಜನಿಕರು ಪ್ರಸ್ತುತ ನಿರ್ಮಾಣ ಘಟಕದ ಬಳಿ ಇರುವ ಜಾಗೆಯಲ್ಲಿ ಸಮರ್ಪಕ ಸಂಗ್ರಹಣೆ ಸಂಗ್ರಹಣಾಗಾರವನ್ನು ನಿರ್ಮಿಸಲಾಗುತ್ತದೆ. ಅನ್ವಯಿಂದ ಸಾರ್ವಜನಿಕರು ಕಟ್ಟಡ ತ್ಯಾಜ್ಯಗಳನ್ನು ಸಮೀಪದ ಜಾಗೆಗೆ ಹಾಗೂ ಮಂಗಳೂರು ಮಹಾನಗರಪಾಲಿಕೆಯು ಗುರುತಿಸಿರುವ ಇತರ ಸ್ಥಳಕ್ಕೆ ಸಾಗಿಸಬೇಕಾಗಿದ್ದು, ಪಾಲಿಕೆಯು ವ್ಯಾಪ್ತಿಯಲ್ಲಿ ಯಾವುದೇ ಖಾಸಗಿ ಜಾಗದಲ್ಲಿ ಕಟ್ಟಡ ತ್ಯಾಜ್ಯಗಳನ್ನು ಸಂಗ್ರಹಿಸಿಡುವುದು ಕಂಡುಬಂದಲ್ಲಿ ಅಂತಹವರಿಗೆ ರೂ. 25,000/- ದಂಡವನ್ನು ವಿಧಿಸಲಾಗುವುದು. ಕಟ್ಟಡ ನಿರ್ಮಾಣ ಮತ್ತು ಧ್ವಂಸಗೊಳಿಸುವ ತ್ಯಾಜ್ಯಗಳ ನಿರ್ವಹಣೆ ನಿಯಮಾವಳಿಯ Schedule VIII ರಲ್ಲಿ ರೂ. 25,000/- ರ ವರೆಗೆ ದಂಡವನ್ನು ವಿಧಿಸಲಾಗುವುದು. ಈ ಸಂಬಂಧ ಹೆಚ್ಚಿನ ಮಾಹಿತಿಗಾಗಿ ಮಂಗಳೂರು ಮಹಾನಗರಪಾಲಿಕೆಯಿಂದ ನೀಡಲಾಗುವ ಕಟ್ಟಡ ನಿರ್ಮಾಣ ಮತ್ತು ಧ್ವಂಸಗೊಳಿಸುವ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆ ಸೇವೆಯನ್ನು ಪಡೆಯಬಹುದಾಗಿರುತ್ತದೆ. ಹೆಚ್ಚಿನ ಮಾಹಿತಿಯನ್ನು ಮಂಗಳೂರು ಮಹಾನಗರಪಾಲಿಕೆಯ ಅಧಿಕೃತ www.mangaluruicity.gov.in ರಲ್ಲಿ ಪಡೆಯಬಹುದಾಗಿರುತ್ತದೆ ಹಾಗೂ ಸೋಷಿಯಲ್ ಮೀಡಿಯಾದಲ್ಲಿ ಈ ಪ್ರಕಟಣೆಯನ್ನು ಪ್ರಕಟಿಸಲಾಗಿರುತ್ತದೆ.

ಸಹಿ/- ಆಯುಕ್ತರು, ಮಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ



MANGALURU CITY CORPORATION

TENDER NOTIFICATION (E procurement portal)

ಉದಯವಾಣಿ ... 6-1-22 ...

Paper Articles

Paper article regarding Plastic ban

ಪ್ಲಾಸ್ಟಿಕ್ ನಿಷೇಧ, ಬೀದಿವ್ಯಾಪಾರ ಸ್ಥಗಿತ

ಮಂಗಳೂರು: ಮಂಗಳೂರು ಮಹಾನಗರಪಾಲಿಕೆ ವ್ಯಾಪ್ತಿಯಲ್ಲಿ ಪ್ಲಾಸ್ಟಿಕ್ ನಿಷೇಧವನ್ನು ಕಟ್ಟುನಿಟ್ಟಾಗಿ ಜಾರಿಗೆ ತರುವಂತೆ ಮತ್ತು ಬೀದಿ ಬದಿ ಆಹಾರ ತಯಾರಿ/ ಮಾರಾಟವನ್ನು ಕೂಡಲೇ ಸ್ಥಗಿತಗೊಳಿಸುವಂತೆ ಆಯುಕ್ತರು ಸೂಚನೆ ನೀಡಿದ್ದಾರೆ.

ಕಾನೂನು ಪ್ರಕಾರ ಪ್ಲಾಸ್ಟಿಕ್ ಕ್ಯಾರಿಬ್ಯಾಗ್, ಪ್ಲಾಸ್ಟಿಕ್ ಭಿತ್ತಿಪತ್ರ, ಪ್ಲಾಸ್ಟಿಕ್ ತೋರಣ, ಫ್ಲೆಕ್ಸ್, ಬಾವುಟು, ಪ್ಲಾಸ್ಟಿಕ್ ತಟ್ಟೆ, ಪ್ಲಾಸ್ಟಿಕ್ ಲೋಟ, ಪ್ಲಾಸ್ಟಿಕ್ ಚಮಚ ಇತ್ಯಾದಿ ನಿಷೇಧಿತ ಪಾಲಿಕೆ ಆದೇಶ ಹೊರಡಿಸಿತ್ತು. ಆದರೂ ಪ್ಲಾಸ್ಟಿಕ್ ವಸ್ತುಗಳ ಬಳಕೆ ಮಾರಾಟ ನಡೆಯುತ್ತಿದ್ದು, ತಕ್ಷಣ ನಿಷೇಧಿತ ಪ್ಲಾಸ್ಟಿಕ್ ವಸ್ತುಗಳನ್ನು ಮಟ್ಟಹಾಕಿ, 500ರಿಂದ 1000 ರೂ. ದಂಡ ವಿಧಿಸುವಂತೆ ಎಲ್ಲ ಆರೋಗ್ಯ ನಿರೀಕ್ಷಕರಿಗೆ ಆಯುಕ್ತರು ಸೂಚಿಸಿದ್ದಾರೆ.

ನಗರದಲ್ಲಿ ಅನಧಿಕೃತ ಫಾಸ್ಟ್‌ಫುಡ್ ವ್ಯಾಪಾರಸ್ಥರ ಸಂಖ್ಯೆ ದಿನೇ ದಿನೆ ಹೆಚ್ಚುತ್ತಿದೆ. ಸಂಚಾರ ಮತ್ತು ಆರೋಗ್ಯದ ಮೇಲೆ ಇದು ದುಷ್ಪರಿಣಾಮ ಬೀರುತ್ತಿರುವ ಬಗ್ಗೆ ದೂರು ಬರುತ್ತಿದೆ. ಇದನ್ನು ತೆರವುಗೊಳಿಸುವ ಕಾರ್ಯವನ್ನು ಮೇ 7ರಿಂದ ಆರಂಭಿಸಲಿದ್ದು, ಇದಕ್ಕೆ ಮುಂದೆ ಎಲ್ಲರೂ ಸ್ವಯಂ ತೆರವು ಮಾಡಬೇಕು. ತಪ್ಪಿದಲ್ಲಿ ಮುಂದಿನ ಅಗುಹೊಗುಗೆಗೆ ತಾವೇ ಜವಾಬ್ದಾರರು ಎಂದು ಆಯುಕ್ತರು ಹೇಳಿದ್ದಾರೆ.

ಏಕಬಳಕೆ ಪ್ಲಾಸ್ಟಿಕ್ ನಿಲ್ಲಿಸಲು ಸೂಚನೆ

2

■ ವಿಶ್ವ ಸುದ್ದಿಲೋಕ ಮಂಗಳೂರು

ಸಾರ್ವಜನಿಕರು ಸ್ವಯಂಪ್ರೇರಿತರಾಗಿ ಏಕ ಬಳಕೆಯ ಪ್ಲಾಸ್ಟಿಕ್ ಬಳಕೆಯನ್ನು ನಿಲ್ಲಿಸುವಂತೆ ಮಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ ಆಯುಕ್ತೆ ಅಕ್ಷತಾ ಶ್ರೀಧರ್ ಸೂಚನೆ ನೀಡಿದರು.

ಪ್ಲಾಸ್ಟಿಕ್‌ಮುಕ್ತ ಅಮೃತ ಮಹೋತ್ಸವದ ಸಂದರ್ಭ ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿಯ ಮಂಗಳೂರು ಪ್ರಾದೇಶಿಕ ಕಚೇರಿ, ಮಂಗಳೂರು ಮಹಾ ನಗರ ಪಾಲಿಕೆ ಹಾಗೂ ಮಂಗಳೂರು ವಿಶೇಷ ಆರ್ಥಿಕ ವಲಯ ಆಶ್ರಯದಲ್ಲಿ ಏಕ ಬಳಕೆಯ ಪ್ಲಾಸ್ಟಿಕ್ ವಸ್ತುಗಳ ಬಳಕೆಯ ನಿಷೇಧ ಕುರಿತಂತೆ ಮಂಗಳೂರು ವಿಶೇಷ ಆರ್ಥಿಕ ವಲಯದ ಕಚೇರಿಯಲ್ಲಿ ಇತ್ತೀಚೆಗೆ ಹಮ್ಮಿಕೊಳ್ಳಲಾಗಿದ್ದ ಕಾರ್ಯಕ್ರಮವನ್ನು ಉದ್ಘಾಟಿಸಿ ಮಾತನಾಡಿದರು.

ಏಕ ಬಳಕೆಯ ಪ್ಲಾಸ್ಟಿಕ್ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಯಲ್ಲಿ ಸಾಕಷ್ಟು ಸಮಸ್ಯೆಗಳು ಉಂಟಾಗುತ್ತಿವೆ. ಹಾಗೂ ಪ್ಲಾಸ್ಟಿಕ್ ಪರಿಸರಕ್ಕೆ ಅತ್ಯಂತ ಮಾರಕವಾಗುತ್ತಿದೆ. ಆದ್ದರಿಂದ ಜನರೇ ಜಾಗೃತರಾಗಿ ಆಂತಹ ಪ್ಲಾಸ್ಟಿಕ್ ವಸ್ತುಗಳ ಬಳಕೆಯನ್ನು ಸ್ವಯಂ ಪ್ರೇರಿತರಾಗಿ ನಿಲ್ಲಿಸುವಂತೆ ಕೋರಿದರು.

ಕೇಂದ್ರದ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿಯ ವಿಜ್ಞಾನಿ ಪಿ.ಕೆ. ನೆಲ್ಲಿ ಏಕ ಬಳಕೆಯ ಪ್ಲಾಸ್ಟಿಕ್ ಉತ್ಪಾದನೆ, ಬಳಕೆ ಹಾಗೂ ನಂಗ್ರಹಣೆ ಪ್ರಸ್ತುತ ಸ್ಥಿತಿಗತಿ ಹಾಗೂ ಕೇಂದ್ರ ಸರಕಾರ ಸೂಚನೆಯಾಗಿ ಜಾರಿಗೊಳಿಸಿದ ಪ್ಲಾಸ್ಟಿಕ್ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆ ಕಾಯಿದೆಯ ಕುರಿತು ಮಾಹಿತಿ ನೀಡಿದರು.

ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ ಪ್ರಾದೇಶಿಕ ಅಧಿಕಾರಿ ಕಿರಣ್ ಕುಮಾರ್ ಹಾಗೂ ಮಂಗಳೂರು ವಿಶೇಷ ಆರ್ಥಿಕ ವಲಯದ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಧಿಕಾರಿ ಪಿ. ಸೂರ್ಯ ನಾರಾಯಣ ಮಾತನಾಡಿದರು.

ಕೈಗಾರಿಕಾ ಪ್ರತಿನಿಧಿಗಳು ಹಾಗೂ ಸಾರ್ವಜನಿಕರು ಆಂತರ್ಜಾಲದ ಮೂಲಕ ಕಾರ್ಯಕ್ರಮದಲ್ಲಿ ಭಾಗವಹಿಸಿದರು. ಕಾರ್ಯಕ್ರಮನ್ನು ಆಂತರ್ಜಾಲ ಸಂಪರ್ಕದ ಮೂಲಕ ಸಾರ್ವಜನಿಕರು ಭಾಗವಹಿಸಲು ಅವಕಾಶ ಕಲ್ಪಿಸಲಾಗಿತ್ತು.

ಜಾಗೃತಿ ಮೂಡಿಸಲು, ದಂಡ ವಿಧಿಸಲು ಸಿದ್ಧತೆ | ಪರಿಸರಸ್ನೇಹಿ ರದ್ದುಮಾಡಲು ಚಿಂತನೆ

ಏಕಬಳಕೆ ಪ್ಲಾಸ್ಟಿಕ್ ವಿರುದ್ಧ ಕಾರ್ಯಾಚರಣೆ

ಸಂಪೂರ್ಣ ಪ್ಲಾಸ್ಟಿಕ್ ಬಳಕೆಗೆ ಕಡಿವಾಣ

ಪರ್ಯಾಯ ಬಳಕೆ: ಜಾಗೃತಿಗೆ ಮುಂದಾದ ಪಾಲಿಕೆ

Paper article regarding Cleanliness Awareness Drive

ಸ್ವಚ್ಛ ಸುರತ್ಕಲ್ ಅಭಿಯಾನ-3: ಸ್ವಚ್ಛತ ಶ್ರಮದಾನ

ಸ್ವಚ್ಛತ ಕೆಲಸವು ಸುತ್ಕರ್ಹ: ಅರುಣ್ ಕುಮಾರ್

'ಸ್ವಚ್ಛ ಭಾರತದೊಂದಿಗೆ ಸಮೃದ್ಧ ಭಾರತ'

ಸ್ವಚ್ಛ ಸುರತ್ಕಲ್ ಅಭಿಯಾನ

ಸ್ವಚ್ಛ ಸುರತ್ಕಲ್ ಅಭಿಯಾನ-3: ಸ್ವಚ್ಛತಾ ಶ್ರಮದಾನಕ್ಕೆ ಚಾಲನೆ

ಸ್ವಚ್ಛತೆ ಪ್ರತಿಯೊಬ್ಬರ ಬಾಧ್ಯತೆ: ಗೋಪಿನಾಥ್ ರಾವ್

150 ಕಿ.ಮೀ. ಮಾರ್ಗ ಪರಿಸರ ಸ್ವಚ್ಛತೆ ಅಭಿಯಾನಕ್ಕೆ ಚಾಲನೆ

ಸ್ವಚ್ಛತಾ ಕೇಂದ್ರಗಳು

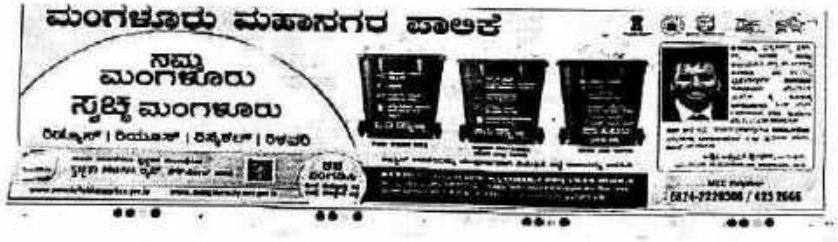
- ಸಸ್ಯಾಹಾರಿ ಹೋಟೆಲ್‌ಗಳು ಬಿಸ್ಮಿಲ್ಲಾಹ್ ಹೋಟೆಲ್ ಮಾಲೀಕರ ಸಂಘದಿಂದ ಪಡೆಯಲಾಗಿದೆ
- ಮೊಬೈಲ್ ಶೌಚಾಲಯಗಳು: ಮೊಬೈಲ್ ಶೌಚಾಲಯಗಳು ಮಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆಯ ಪ್ರವೇಶದ್ವಾರದಲ್ಲಿ ಹಾಗೂ ಪಣಂಬೂರು ಬೀಚ್‌ನಲ್ಲಿ ಒಟ್ಟು 5 ಕಡೆಗಳಲ್ಲಿ ಇರಲಿವೆ.
- ಪೊರಕೆ ಮತ್ತು ಬಕೆಟ್: ಪೊರಕೆ ಮತ್ತು ಬಕೆಟ್‌ಗಳನ್ನು ಮಹಾನಗರ ಪಾಲಿಕೆಯ ಪೌರಕಾರ್ಮಿಕರಿಂದ ಪಡೆಯಲಾಗಿದೆ. ಒಟ್ಟು 1,000 ಪೊರಕೆ ಮತ್ತು ಬಕೆಟ್‌ಗಳನ್ನು ಪೌರಕಾರ್ಮಿಕರಿಗೆ ಹಂಚಲಾಗಿದೆ.
- ಸಂಗ್ರಹಣೆ ಕೇಂದ್ರಗಳು: ಸಂಗ್ರಹಿಸಿದ ತ್ಯಾಜ್ಯವನ್ನು ಸಂಗ್ರಹಿಸಲು ಒಟ್ಟು 5 ಕಡೆಗಳಲ್ಲಿ ಕೇಂದ್ರಗಳನ್ನು ತೆರೆಯಲಾಗಿದೆ.

Selfie stand

'ನಾನು ಮಂಗಳೂರಿನ ಸ್ವಚ್ಛ ಸೈನಿಕ': ಸೆಲ್ಫೀ ಸ್ಟಾಂಡ್

ಸೆಲ್ಫೀ ಸ್ಟಾಂಡ್.

Paper article regarding source segregation awareness



ಸ್ವಚ್ಛತೆಯ ಸ್ವಯಂ ಜಾಗೃತಿ ಅಗತ್ಯ: ಅಕ್ಷಯ್ ಶ್ರೀಧರ್

ನಿಯಮಾವಳಿ ಜಾರಿ: ಪಾಲಿಕೆ ತೀರ್ಮಾನ

ಅಪಾರ್ಟ್‌ಮೆಂಟ್‌ನಲ್ಲೇ 'ತ್ಯಾಜ್ಯ ಸಂಸ್ಕರಣೆ'; ಇಲ್ಲವಾದರೆ ದಂಡ!

'ನಮ್ಮ ಕಸ-ನಮ್ಮ ಹೊಣೆ ಎಂಬ ಪ್ರಜ್ಞೆಯಿರಲಿ'

ಸುರತ್ಕಲ್: ಸ್ವಚ್ಛತೆ ಜಾಗೃತಿ, ಹಸಿ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆ ಮಾಹಿತಿ ಕಾರ್ಯಾಗಾರ

Paper article regarding beach cleaning

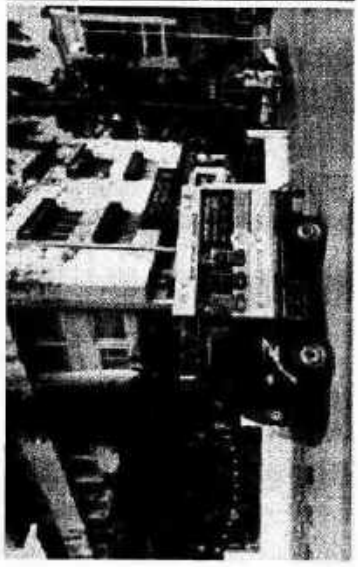
ಎಸ್ ಎಫ್ ಡಿ ಮಂಗಳೂರು: ಬೀಚ್ ಸ್ವಚ್ಛತೆ

Segregation of Waste at Source Awareness Campaign

MCC in coordination with APD foundation visited the different locations and identify the GVP also made voluntary visits to the adjacent homes and shops to spread awareness of the importance of segregating waste at the source.

MCC in coordination with APD foundation and Hasirudala visited the different schools, Colleges, other organisations and conducted the Solid waste management awareness session to bring in a behaviour change. Also given public awareness through IEC vehicles.


SALARANGA



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ಮಂಗಳೂರು

ಆಯುಕ್ತರು
ಮಹಾನಗರಪಾಲಿಕೆ
ಮಂಗಳೂರು

ಮಹಾನಗರಪಾಲಿಕೆ

ಅಂಚೆ ಪೆಟ್ಟಿಗೆ ನಂಬ್ರ:756,
ಲಾಲ್ ಭಾಗ್, ಮಂಗಳೂರು- 575003
ದೂರವಾಣಿ:2220313-318
ಫ್ಯಾಕ್ಸ್:0824-2220310

ಮ.ನ.ಪಾ/ಎನ್.ಜಿ.ಟಿ.1/2022-23/ಎಫ್6 ದಿನಾಂಕ: .03.2023

ರಿಗೆ,

ಪರಿಸರ ಅಧಿಕಾರಿ
ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
ಪರಿಸರ ಭವನ ,10ಬಿ
ಬೈಕಂಪಾಡಿ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ
ಮಂಗಳೂರು.

ವಿಷಯ: ಮಾನ್ಯ ರಾಷ್ಟ್ರೀಯ ಹಸಿರು ನ್ಯಾಯ ಮಂಡಳಿಯ ಪ್ರಕರಣ ಸಂಖ್ಯೆ:O.A ಸಂಖ್ಯೆ:307/2022 ರಲ್ಲಿನ ನಿರ್ದೇಶನದಂತೆ ಕ್ರಮ ಕೈಗೊಳ್ಳುವ ಬಗ್ಗೆ.

ಉಲ್ಲೇಖ:1. ಪರಿಸರ ಅಧಿಕಾರಿ ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ ಪರಿಸರ ಭವನ ,10ಬಿ ಬೈಕಂಪಾಡಿ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ ಮಂಗಳೂರು ರವರ ಪತ್ರ ಸಂಖ್ಯೆ: No:KSPCB/EO(MNG)/NGT-OA No.307 of 2022/2022-2023/1953 d:24.02.2023

2 ಕಿರಿಯ ಅಭಿಯಂತರರ ವರದಿ.ದಿ:06.03.2023

ಮೇಲಿನ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಮಾನ್ಯ ರಾಷ್ಟ್ರೀಯ ಹಸಿರು ನ್ಯಾಯ ಮಂಡಳಿಯ ಪ್ರಕರಣ ಸಂಖ್ಯೆ:O.A.ಸಂಖ್ಯೆ: 307/2022 ರಂತೆ ಮಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ ವ್ಯಾಪ್ತಿಯ ಫಲ್ಗುಣಿ (ಗುರುಪುರ) ನದಿಯ ಮಾಲಿನ್ಯವನ್ನು ತಗ್ಗಿಸುವ ನಿಟ್ಟಿನಲ್ಲಿ ಸೂಕ್ತ ಕ್ರಮ ಕೈಗೊಳ್ಳಲು ನಿರ್ದೇಶಿಸಲಾಗಿರುತ್ತದೆ. ಸದರಿ ಪ್ರಕರಣದಲ್ಲಿ ಫಲ್ಗುಣಿ ನದಿಗೆ ಮಹಾನಗರಪಾಲಿಕೆಯಿಂದ ಘನತ್ಯಾಜ್ಯ ಹಾಗೂ ದ್ರವ ತ್ಯಾಜ್ಯ ನಿರ್ವಹಣೆಯನ್ನು ಅಸಮರ್ಪಕವಾಗಿ ಹಾಗೂ ಅವೈಜ್ಞಾನಿಕವಾಗಿ ನಿರ್ವಹಿಸುತ್ತಿರುವುದರಿಂದ ಹಾಗೂ ನದಿಯು ಕಲುಷಿತಗೊಂಡಿರುವುದಾಗಿ , ನಗರಗಳ ಕೆಲವು ಪ್ರದೇಶಗಳಲ್ಲಿ ಸಂಸ್ಕರಿಸದೆ ಇರುವ ಮಲತ್ಯಾಜ್ಯವನ್ನು ಮಳೆನೀರು ಚರಂಡಿಯಲ್ಲಿ ಹರಿದುಬಿಡುತ್ತಿರುವುದಾಗಿ ನಿರ್ದೇಶದನ್ವಯ ಪ್ರಕರಣದ ಅದೇಶದಲ್ಲಿ ತಿಳಿಸಲಾಗಿರುತ್ತದೆ. ಘನತ್ಯಾಜ್ಯ ಹಾಗೂ ದ್ರವ ತ್ಯಾಜ್ಯವನ್ನು ವೈಜ್ಞಾನಿಕವಾಗಿ ನಿರ್ವಹಣೆ ಮಾಡುವ ನಿಟ್ಟಿನಲ್ಲಿ ಅಂಶಗಳನ್ನು ನಿಯಮಾನುಸಾರ ಪರಿಶೀಲಿಸಿ , ರಾಷ್ಟ್ರೀಯ ಹಸಿರು ನ್ಯಾಯ ಮಂಡಳಿಯ ನಿರ್ದೇಶದನ್ವಯ ಕ್ರಿಯಾಯೋಜನೆಯನ್ನು ತಯಾರಿಸಿ ಈ ಪತ್ರದೊಂದಿಗೆ ಲಗತ್ತಿಸಿಕರಿಸಿ ಮುಂದಿನ ಸೂಕ್ತ ಕ್ರಮಕ್ಕೆ ಸಲ್ಲಿಸಿದೆ.

ತಮ್ಮ ವಿಶ್ವಾಸಿ

ಆಯುಕ್ತರು
ಮಹಾನಗರ ಪಾಲಿಕೆ, ಮಂಗಳೂರು

Action Plan to Check **illegal discharging of sewage through tankers dumping/discharging indirectly in to rivers**

Sl.No	Action plan	Time Limit
	Installation of GPS tracking to all cess pool vehicles	6 months
3	Geo co-ordinations of route	6 months
4	Implementing the manifest system to track the collection and transportation of sewage from generation o disposal point	1 year
5	And Bar code system will be developed to all those tankers involved in the sewage collection	1 year

Note: All cess poll vehicles will be informed to implement the tracking system as mentioned above within 6 months and for bar code system 1 year time line.

631
24.5.2023

ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ಸಣ್ಣ ನೀರಾವರಿ ಮತ್ತು ಅಂತರ್ಜಲ ಅಭಿವೃದ್ಧಿ ಇಲಾಖೆ

ಕಾರ್ಯನಿರ್ವಾಹಕ ಇಂಜಿನಿಯರವರ ಕಛೇರಿ, ದೂರವಾಣಿ ಸಂ: 0824-2440720
ಸಣ್ಣ ನೀರಾವರಿ ಮತ್ತು ಅಂತರ್ಜಲ ಅಭಿವೃದ್ಧಿ ವಿಭಾಗ, ಇ-ಮೇಲ್:eemimangalore@rediffmail.com
ಪಿ.ಎಂ.ರಾವ್ ರಸ್ತೆ, ಮಂಗಳೂರು-01.

ಸಂ: ಕಾಸಮಂ/ತಾ.ಶಾ./ಸ.ಇ/ಪ್ರ.ಸಂ: 307/2022/2023/2134 ದಿ: 18.05.2023

ರಿಗೆ:

ಪರಿಸರ ಅಧಿಕಾರಿ,
ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ,
ಮಂಗಳೂರು.

ಮಾನ್ಯರೇ,

ವಿಷಯ: ಮಾನ್ಯ ಹಸಿರು ನ್ಯಾಯ ಪೀಠದ ಪ್ರಕರಣ ಸಂ: 307/2022ಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ದಿ: 21.11.2022ರ ಆದೇಶದ ಅನುಪಾಲನಾ ವರದಿ ಸಲ್ಲಿಸುವ ಕುರಿತು.

ಉಲ್ಲೇಖ: 1. ಮಾನ್ಯ ಹಸಿರು ನ್ಯಾಯ ಪೀಠದ ಪ್ರಕರಣ ಸಂ: 307/2022ಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ನ್ಯಾಯಾಧೀಕರಣವು ದಿ: 21.11.2022ರಂದು ನೀಡಿದ ಆದೇಶ.
2. ನಿಮ್ಮ ಕಛೇರಿ ಪತ್ರ ಸಂ: ಮಾನಿಮಂ/ಪಆ(ಮಂಗಳ)/ಜಿ.ಪಂ/ಗುರುಪುರ/2023-24/260 ದಿ: 15.05.2023.
3. ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್, ಸಣ್ಣ ನೀರಾವರಿ ಮತ್ತು ಅಂತರ್ಜಲ ಅಭಿವೃದ್ಧಿ ಉಪವಿಭಾಗ, ಮಂಗಳೂರು ಇವರ ಪತ್ರ ಸಂ: 2023-24/495 ದಿ: 18.05.2023

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ಮೇಲ್ಕಂಡ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಮಾನ್ಯ ಹಸಿರು ನ್ಯಾಯ ಪೀಠದ ಪ್ರಕರಣ ಸಂ: 307/2022ಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ಮಾನ್ಯ ನ್ಯಾಯಾಧೀಕರಣವು ರಚಿಸಿದ ಸಮಿತಿಯು ಈ ಕೆಳಗಿನಂತೆ ವರದಿ ನೀಡಿರುತ್ತದೆ.

" The Committee suggests that the Minor Irrigation Department which is in charge of protecting the river boundaries, initiate steps to conduct a comprehensive survey on river encroachment along with other line departments such as Revenue, CRZ, MCC and corresponding Town/ Grama Panchayaths and take appropriate action on the encroachers"

ಜಂಟಿ ಸಮಿತಿಯು ನೀಡಿದ ವರದಿಯ ಆಧಾರದ ಮೇಲೆ ಮಾನ್ಯ ನ್ಯಾಯಾಧೀಕರಣವು ಅನುಪಾಲನಾ ವರದಿ/ಸಮಯ ನಿರ್ಧಾರಿತ ಕ್ರಿಯಾ ಯೋಜನೆ (Time bound action plan) ಯನ್ನು ರೂಪಿಸಿ ಸಲ್ಲಿಸಲು ಸೂಚಿಸಿರುತ್ತದೆ. ಸದರಿ ವಿವರಗಳನ್ನು ಮಾನ್ಯ ಹಸಿರು ನ್ಯಾಯಾಧೀಕರಣದ ಆದೇಶದ ಅನುಪಾಲನಾ ವರದಿಯಲ್ಲಿ ಸಲ್ಲಿಸಬೇಕಾಗಿರುವುದರಿಂದ ವಿಷಯವನ್ನು ಜರೂರಾಗಿ ಪರಿಗಣಿಸಿ ಅನುಪಾಲನಾ ವರದಿ/ಕ್ರಿಯಾ ಯೋಜನೆ ನೀಡಲು ನಿಮ್ಮ ಕಛೇರಿ ಉಲ್ಲೇಖಿತ ಪತ್ರ (2)ರನ್ವಯ ಕೋರಿರುತ್ತೀರಿ.

ಅದರಂತೆ, ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್, ಸಣ್ಣ ನೀರಾವರಿ ಮತ್ತು ಅಂತರ್ಜಲ ಅಭಿವೃದ್ಧಿ ಉಪ ವಿಭಾಗ, ಮಂಗಳೂರು ಇವರು ಉಲ್ಲೇಖಿತ ಪತ್ರ (3)ರನ್ವಯ ಅನುಪಾಲನಾ ವರದಿಯನ್ನು ಈ ಕೆಳಗಿನಂತೆ ಸಲ್ಲಿಸಿರುತ್ತಾರೆ.

ಕ್ರ.ಸಂ	ವರದಿ	ಪಾಲನಾ ವರದಿ
1.	The Committee suggests that the Minor Irrigation Department which is in charge of protecting the river boundaries, initiate step to conduct a comprehensive survey on river encroachment along with other line departments such as, Revenue, CRZ, MCC and corresponding Town/Grama	In the order to conduct the comprehensive survey on river encroachment, the assessment is assigned to the survey team of National Institute of Technology, Karnataka, In which following process is involved. Historical Analysis of River Boundary – Gurupura river

	Panchayats and take appropriate action on the encroachers	The historical analysis of river boundaries using Geographic Information Systems (GIS) involves examining and interpreting changes in river boundaries over time. GIS technology provides a valuable tool set for capturing, managing, analyzing, and visualizing spatial data related to rivers. Here is a brief description of the process involved in historical analysis of river boundaries using GIS: Data Acquisition: Satellite images, aerial photographs and other relevant historical documents are collected. These sources provide essential information about past river boundaries and their changes. Georeferencing: The historical maps or images are georeferenced to align them with the coordinate system used in GIS. Georeferencing involves identifying common control points on the historical maps and corresponding locations on modern maps or satellite imagery. Data Digitization: Once georeferenced, the historical maps or images are digitized. This process involves manually tracing the river boundaries and capturing their spatial information as vector data in the GIS software. Change Detection: By comparing the digitized river boundaries from different time periods, changes in the river's course, width, or location can be identified. GIS tools can be used to detect and quantify these changes, providing a visual representation of historical river boundary dynamics. Analysis and Interpretation: The historical river boundary data can be analyzed using various GIS techniques and spatial analysis tools. This analysis may involve measuring changes in river length, calculating rates of erosion or deposition, identifying patterns of channel migration, and assessing the impact of human activities on river boundaries. Visualization: GIS allows for the creation of informative visualizations, such as maps and charts, to communicate the findings of the historical analysis. These visualizations can help decision-makers, and the general public better understand the historical evolution of river boundaries. The historical analysis of river boundaries using GIS enables researchers to gain insights into the

		natural processes and human interventions that have shaped rivers over time. It can contribute to studies on river morphology, hydrology, land-use planning, environmental impact assessment, and historical geography. This process will be completed by 45 days and after finding the exact quantum of river encroachment, the concerned competent authority will be initiated to take appropriate action on the encroachers.

ಸದರಿ ಅನುಪಾಲನಾ ವರದಿಯನ್ನು ತಮ್ಮ ಮುಂದಿನ ಕ್ರಮಕ್ಕಾಗಿ ಸಲ್ಲಿಸಿದೆ.

ತಮ್ಮ ವಿಶ್ವಾಸಿ,

ಕಾರ್ಯನಿವಾಹಕ ಇಂಜಿನಿಯರ್(ಪ್ರ),
ಕಿಸಣ್ಣ ನೀರಾವರಿ ಮತ್ತು ಅಂತರ್ಜಲ ಅಭಿವೃದ್ಧಿ ವಿಭಾಗ,
ಮಂಗಳೂರು.

ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ಕಾರ್ಯನಿರ್ವಾಹಕ ಇಂಜಿನಿಯರ್‌ರವರ ಕಚೇರಿ

ಗ್ರಾಮೀಣ ಕುಡಿಯುವ ನೀರು ಮತ್ತು ನೈರ್ಮಲ್ಯ ವಿಭಾಗ, 2ನೇ ಮಹಡಿ, ಜಿಲ್ಲಾ ಪಂಚಾಯತ್ ಕಟ್ಟಡ, ಕೊಟ್ಟಾರ,

ಮಂಗಳೂರು-575006 ಫೋನ್: 0824-2951583 ಇ-ಮೇಲ್: eerdwsd.dk@gmail.com

ನಂ:ಕಾನಿಇಂ/ಗ್ರಾಕುನೀಮನೈಇ/ದಕ/ಮಂ/AE-1/2023-24/38 ದಿನಾಂಕ:- 17.04.2023

ರಿಗೆ,

ಪರಿಸರ ಅಧಿಕಾರಿಗಳು,
ಕರ್ನಾಟಕ ರಾಜ್ಯ ಪರಿಸರ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
ಪ್ರಾದೇಶಿಕ ಕಛೇರಿ
ಮಂಗಳೂರು.

ಮಾನ್ಯರೇ,

ವಿಷಯ: ಗುರುಪುರ ನದಿಗೆ ಮರವೂರು ಗ್ರಾಮದಲ್ಲಿ ಅಡ್ಡಲಾಗಿ ನಿರ್ಮಿಸಿರುವ ಕಿಂಡಿ ಅಣೆಕಟ್ಟೆಯ ವಿವರಗಳನ್ನು ಸಲ್ಲಿಸುವ ಕುರಿತು.

ಉಲ್ಲೇಖ: ತಮ್ಮ ಕಛೇರಿ ಪತ್ರ ಸಂಖ್ಯೆ:ಮಾನಿಮಂ/ಪಾ(ಮಂಗಳ)/ಜಿ.ಪಂ/ಗುರುಪುರ/2023-24/57 ದಿನಾಂಕ 11-04-2023

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ಉಲ್ಲೇಖಿತದ ತಮ್ಮ ಕಛೇರಿ ಪತ್ರದಲ್ಲಿ ಮಾನ್ಯ ಹಸಿರು ನ್ಯಾಯ ಪೀಠದ ಪ್ರಕರಣ ಸಂಖ್ಯೆ 307/2022ಕ್ಕೆ ನ್ಯಾಯಾಧೀಕರಣವು ನೀಡಿದ ಆದೇಶದ ಪಾಲನೆಗೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಗುರುಪುರ ನದಿಗೆ ಮರವೂರು ಗ್ರಾಮದಲ್ಲಿ ಅಡ್ಡಲಾಗಿ ನಿರ್ಮಿಸಿರುವ ಕಿಂಡಿ ಅಣೆಕಟ್ಟಿಗೆ ಸಂಬಂಧಿಸಿದ ವಿವರಗಳನ್ನು ಸಲ್ಲಿಸಲು ಕೋರಿರುತ್ತೀರಿ. ಅದರಂತೆ ಸದ್ರಿ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದ ವಿವರಗಳು ಈ ಕೆಳಗಿನಂತಿರುತ್ತದೆ

ಕ್ರ.ಸಂ.	ವಿವರಗಳು	ಮಾಹಿತಿ
1	ಕಿಂಡಿ ಅಣೆಕಟ್ಟು ನಿರ್ಮಾಣಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ಈ ಇಲಾಖೆಯಿಂದ ಗುತ್ತಿಗೆದಾರರಿಗೆ ನೀಡಿರುವ Clearance (Work Order with Conditions) ಮತ್ತು ಅದರಲ್ಲಿ ಅಳವಡಿಸಿದ ನಿಬಂಧನೆಗಳು	ಲಗತ್ತಿಸಿದೆ
2	ಕರಾವಳಿ ನಿಯಂತ್ರಣ ಪ್ರಾಧಿಕಾರದಿಂದ ವಿಮೋಚನಾ ಪತ್ರ ಪಡೆದಿದ್ದಲ್ಲಿ ಅದರ ಪ್ರತಿ ಮತ್ತು ಅದರಲ್ಲಿ ಅಳವಡಿಸಿದ ನಿಬಂಧನೆಗಳ ವಿವರ	ಪಡೆದಿರುವುದಿಲ್ಲ

ತಮ್ಮ ವಿಶ್ವಾಸಿ,

ಕಾರ್ಯನಿರ್ವಾಹಕ ಇಂಜಿನಿಯರ್
ಗ್ರಾಮೀಣ ಕುಡಿಯುವ ನೀರು ಮತ್ತು ನೈರ್ಮಲ್ಯ ವಿಭಾಗ,
ದಕ್ಷಿಣ ಕನ್ನಡ, ಮಂಗಳೂರು.

COMPLINCE REPORT TO THE HON'BLE NGT ORDER WITH RESPECT TO THE ORIGINAL APPLICATION 307/2022

Hon'ble NGT, Principal Bench, New Delhi has passed an order OA No:307 of 2022 dated: 29.04.2022 based on the **"News item published in The Hindu dated 26.04.2022 titled "Flow of industrial effluents into Phalguni results in fish kill"** Also the Tribunal Constituted the Joint Committee to look into the matter.

The committee submitted the report on 11.10.2022 to Hon'ble NGT and same was considered during the hearing on 21-11-2022. In the Order with respect to the discharge of Industrial effluent in to the storm water drain leading to the Phalguni River following directions were given to the State pollution Control Board.

- Ensuring Zero Liquid Discharge in all the industries and establishment of ETP in all small-scale industries irrespective of effluent quantity
- Initiation of action against the non-complying industries which are habituated to discharge into storm water drains
- KSPCB to take up strengthening of its laboratory at Mangaluru, adequate manpower to be deployed and upgrade the laboratory with advanced equipments."

In view of above following are the compliance status to the NGT directions;

1. **Ensuring Zero Liquid Discharge in all the industriesand establishment of ETP in all small-scale industries irrespective of effluent quantity**

There are 11 major effluent generating industries are operating in the Baikampady Industrial area and as per the Board directions all industries are provided the ETP for treating the effluent generating the industrial process with Reverse Osmosis (RO) unit as tertiary treatment. The treated water is being utilized/recycled within the premises completely and achieving the Zero Liquid Discharge status.

The details are as below;

Sl.No	Name of the industry	Sector	ETP status	Status ZLD
1	M/s Adani Wilmar Limited	Edible oil refinery	ETP with RO system	Complied
2	M/s Total Oil India Pvt. Ltd(ELF Gas	LPG Gas filling unit	ETP	Complied

	India Pvt.Ltd)			
3	M/s United Breweries Limited	Distillery	ETP with RO system	Complied
4	M/s Sequent Scientific Limited	Pharmaceutical	ETP with RO system	Complied
5	M/s Anagha Refineries (P) Limited.	Edible oil refinaries	ETP with RO system	Complied
6	M/s Everest Sea Food	Fish processing	ETP with RO system	Complied
7	M/s Baby Marine Sarus	Fish processing	ETP with complete utilization for gardening within the industry premises.	Complied
8	M/s Patanjali Foods Limited (Formerly known as Ruchi Soya Industries), Plot 2P, 3P & 4P Baikampady Industrial Area, Mangalore, D.K District.	Edible oil refinery	ETP with RO system	Installed the ZLD system, but the action was initiated against the industry under the provisions of the Water (Prevention and Control of Pollution) Act, 1974 for violating the consent conditions and discharging the waste water into the storm water nala.
9	M/s Ocean Protein Pvt Limited	Fish processing	ETP with RO system	Not Complied Closure directions was issued to the industry vide letter No.KSPCB/SEO/ENF-CMP/1485/CLOSUREORDER/WPC/2022-23/135,Dated:07.10.22 under the provision of the Water (Prevention and Control of Pollution Act, 1974
10	M/s Viceroy India Export Pvt. Limited	Fish processing	-----	• Not Complied • Consent was withdrawn by the Board vide letterref.No.KSPCB/SEO-MNG/CWL/ 2023-

				24 /407,Date: 01.03.2023. • Closure Directions was issued by the Board vide letter No.KSPCB/SEO/NEIA-OB-1538/Closure Order/2022-23/01 Dated:21.04.2023.
11	M/s Marine Food Packers	Fish processing	ETP with RO system	• Not Complied • Notice of Proposed Direction under the provision of the Water Act vide letter NoPCB/SEO/(MNG)/NPD/2022-23/14, Dated:10.04.2023.

2. **Initiation of action against the non-complying industries which are habituated to discharge into storm water drains**

Joint Committee report has stated that, 08 industries are found to be discharging the effluent into the drain which ultimately joins the Phalguni River. The State Pollution Control Board has initiated the action against these industries and the details are submitted as follows;

Sl No.	Name and address of theindustries	Activity	Action initiated by theKSPCB
1	M/s Ocean Proteins, Plot No. 281/282, Baikampady Industrial Area, Mangaluru, D K District-575011.	Fish processing(Surimi)	• Closure directions was issued to the industry vide letter No.KSPCB/SEO/ENF-CMP/1485/CLOSUREORDER/WPC/2022-23/135,Dated:07.10.22 under the provision of the Water (Prevention and Control of Pollution Act, 1974. • Recommended to levy the Environmental a Compensation of Rs. 59,25,000 to the Board. • Recommended to issue the authorization for filing the Criminal Complaint under the provision of the Water Act..
2.	M/s Shree Gurudev Service Station, PlotNo. 102, Near Canara Steel Industry, Industrial Area, Baikampady, Mangaluru, Dakshina Kannada	Tanker wa shing /vehicular Service station	• Recommended to issue the closure direction under the provision of the Water (Prevention and Control of Pollution Act, 1974. • Recommended to levy the Environmental Compensation of Rs. 27,00,000 to the Board. • Recommended to issue the authorization for filing the Criminal Complaint under the

			provision of the Water Act for past violation.
3	M/s Stems and Leaves International, Plot No.162-C, Baikampady Industrial Area, Mangalore, D.K District-575011	Granite cutting andpolishing	•Recommended to issue the closure direction under the provision of the Water (Prevention and Control of Pollution Act, 1974 vide letter No KSPCB/EO(MNG)/Stems and Leaves/SO/2023-24/95, Dated:19.04.2023. • Recommended to levy the Environmental a Compensation of Rs. 23,37,500 to the Board. • Recommended to issue the authorization for filing the Criminal Complaint under the provision of the Water Act for past violation.
4	M/s Viceroy Exports India Pvt. Ltd., PlotNo.55,Baikampady Industrial Area, Mangalore, D.K District-575011.	Fish Processing (Freezing and Export)	• Consent was withdrawn by the Board vide letter ref.No.KSPCB/SEO-MNG/CWL/ 2023-24 /407,Date: 01.03.2023. • Recommended the Board to levy the Environmental Compensation of Rs. Rs. 30,87,500. • Recommended the Board to issue the authorization for filing the Criminal Complaint under the provision of the Water Act. • Closure Order has been issued by the Board under the provision of the Water (Prevention and Control of Pollution Act, 1974 vide letter No.KSPCB/SEO/NEIA-OB-1538/Closure Order/2022-23/01 Dated:21.04.2023.
5	M/s Sunrise Mats, Plot No. 6-16, Baikampady Industrial Estate Area, Mangalore, D.K., District- 575011	Plastic waste reprocessing and mat making	• Closure Order has been issued by the Board under the provision of the Water (Prevention and Control of Pollution Act, 1974 vide letter No.KSPCB/SEO/ENF-CNP/1485/Closure Order/WPC/2022-23/167, Dated:18.03.2023. • Recommended the Board to levy the Environmental a Compensation of Rs. 53,37,500 to the Board.
6	M/s A. K. Veneers Pvt. Ltd., Plot No.449,Industrial Area, Baikampady, Mangaluru, D. K. District	Plywood and Veneers manufacturing	• Recommended to levy the Environmental a Compensation of Rs. 1,93,75,000 to the Board.

7	M/s Marine Food Packers	Fish processing	• Notice of Proposed Direction under the provision of the Water Act vide letter NoPCB/SEO/(MNG)/NPD/2022-23/14, Dated:10.04.2023.

Further, in addition to the NGT directions, the Board is carrying out the regular inspection in Baikampady Industrial area and wherever there are incidences of non-compliances by respective industries the State Pollution Control Board has initiated the action against these industries and the details are submitted as follows;

Sl No.	Name and address of theindustries	Activity	Action initiated by theKSPCB
1	M/s Bright Packaging Pvt Ltd Plot No 162-B, Baikampady Industrial Area, Mangalore, D.K District	Plastic Package Manufacturing	• Recommended to issue the authorization for filing the Criminal Complaint under the provision of the Water Act for for discharge of effluent into the storm water drain.
2.	M/S. Everest Sea Foods Pvt Ltd Plot No. 414 & 413 Part (S No 16 Portion) Baikampady Industrial Area, Mangalore, D.K District	Fish Processing (Freezing and Export)	• Recommended to issue the authorization for filing the Criminal Complaint under the provision of the Water Act for discharge of effluent into the storm water drain.
3	M/s Mangala Bleaching & Dyeing Industries Plot No 288, Baikampady Industrial Area, Mangalore, D.K District	Laundry activities	• Recommended to issue the closure direction under the provision of the Water (Prevention and Control of Pollution Act, 1974 vide letter No.KSPCB/EO(MNG)/Mangala Bleaching/LO/2023-24/443, Date:03.06.2023. • Recommended to issue the authorization for filing the Criminal Complaint under the provision of the Water Act for past violation.
4	M/s Patanjali Foods Limited (Formerly known as Ruchi Soya Industries), Plot 2P, 3P & 4P Baikampady Industrial Area, Mangalore, D.K District	Edible Oil Refinery	• Consent was withdrawn under provisions of Water (P&CP) Act, 1974 and Air(P&CP),1981 vide order No. PCB/RSEO(MNG)/LO/REFUSALORDER/ 2023 - 24/122, Dated:07.06.2023. • Recommended to issue the closure direction and the authorization for filing the Criminal Complaint under the provision of the Water (Prevention and Control of Pollution Act, 1974 vide letter No.KSPCB/EO(MNG)/Patanjali Foods / LO / 2022-23/386, Date:31.05.2023.

Environmental Officer
KSPCB, Mangaluru

Regional Office :
Karnataka State Pollution Control Board
Parisara Bhavana, 10B, Baikampady Industrial Area,
Mangaluru - 575 011
Tel.: 0824-2408239
e-mail: manglore@kspcb.gov.in website: http:kspcb.gov.in

ಪ್ರಾದೇಶಿಕ ಕಛೇರಿ :
ಪರಿಸರ ಭವನ, 10ಬಿ
ಬೈಕಂಪಾಡಿ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ
ಮಂಗಳೂರು - 575 011

ಕರ್ನಾಟಕ ರಾಜ್ಯ
ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ

towards a cleaner Karnataka

No. KSPCB/EO(MNG)/OA NO 307/2022/202-24/62 DaTE:15-04-20

To,

The Member Secretary
KSPCB, #49, Parisara Bhavan
Bengaluru-01

Kind Attn: SEO WASTE MANAGEMENT CELL-1

Respected Sir,

Sub: Calculating the Environmental Compensation for the discharge of untreated sewage into the river as per the NGT Order 593/2017-reg

Ref: 1. NGT order in the matter of OA No. 593/2017.
2.This office Notice issued vide letter No.KSPCB/EO(MNG)/Notice/2022-23/396, Dated:14.06.2022.
2. NGT order in the matter of OA No. 307/2022 issued on 21.11.2022.

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With respect to above subject, it is to be submitted that, Hon'ble National Green Tribunal in the matter of OA No. 307/2022 has constituted the Joint Committee to look into the matter of pollution of River Phalguni and the committee in its report observed that,

1. *Committee has observed entry of domestic sewage all along the river through Storm Water Drains; this needs an urgent attention by Mangaluru City Corporation (MCC).*

2. *There is no Underground drainage (UGD) facility with terminal Sewage Treatment Plant (STP) in Baikampady industrial area to take care of sewage/sullage discharge from Godown,* commercial establishments, hotels and some small industries, Labour quarter's/sheds. etc. Responsible organizations like KIADB and Mangaluru City Corporation (MCC) are required to initiate action to construct a proper UGD system with terminalsewage treatment plant

3. *Mangaluru City Corporation also has to initiate action for treatment and disposal of sewage generated from the area around the Baggundi lake such as, MSEZ RR colony, Angaragundi, Kudumbur Villages so as to prevent joining of untreated sewage into Baggundilake thereby to Gurupura river*

The Hon'ble Tribunal in its order dated 2.11.2023 has directed the State pollution Control Board.

- Ensuring Zero Liquid Discharge in all the industries and establishment of ETP in all small-scale industries irrespective of

effluent quantity

- Initiation of action against the non-complying industries which are habituated to discharge into storm water drains

- KSPCB to take up strengthening of its laboratory at Mangaluru, adequate manpower to be deployed and upgrade the laboratory with advanced equipments."

Further, the NGT in the matter of OA NO 593/2017 issued the following direction;

All the Local Bodies and or the concerned Departments of the State Government have to ensure 100% treatment of the generated sewage and in default to pay compensation which is to be recovered by the States/UTs, with effect from 01.04.2020. In default of such collection, the States/UTs are liable to pay such compensation. The CPCB is to collect the same and utilize for restoration of the environment.

In view of above, the **Environmental Compensation on Mangaluru City Corporation for discharging sewage into the Gurupura River** considering the compliance status by the authorities as on 31.12.2022 (as per the NGT Ordre dated 21.11.2022) is calculated as follows

Compliance status:

- Mangaluru City Corporation authorities has not established the Sewage Treatment Plant and the untreated sewage is being discharged into the Gurupura River.
- Also not submitted the Concrete action plan with time line and Cost estimation as per the NGT Ordre dated 21.11.2022.

CALCULATION OF ENVIRONMNETL COMPONESATION

1. Sewage Treatment Gap

Following are the Sewage treatment gap estimated as per the report submitted by the MCC Mangaluru

Area	Population	Estimation of Sewage generation	Treatment capacity	Gap
Phalguni river catchment area comes under Zone-1 to 5 & zone 9 in terms of Drainage area and East & west District in terms of sewage district.	2,71,490	52.25 MLD	35 MLD	17.25 MLD
North bank of	27687	5 MLD	2 MLD	3 MLD

the Phalguni River Area around the Baggundi lake such as, MSEZ RR colony (Ward No 8 & 9), Angaragundi, Kudumbur Villages (Ward No 10)				
Total	299177	57.25 MLD	37 MLD	20.25 MLD

2. **CALCULATION**

EC= 17.5 [Total Sewage generation- Installed Treatment capacity] + 55.5 [Total Sewage generation - Operational capacity)] + 0.2 [Sewage Generation - Operational capacity] X N + Marginal Cost Environmental Externality X Total Sewage Generation- Operational Capacity] X N

N= Number of days from the date of direction of CPCB/SPCB/PCC: After receipt of complaint regarding the fish kill and pollution in Gurupura river and subsequent NGT case OA No.307/2022 The Regional Office, KSPCB, Mangaluru issued a notice on 14th June, 2022(Copy attached) hence number of days calculated from 10th June, 2020 for estimation of environmental compensation till compliance status by the authorities as on 31.12.2022 (as per the NGT Ordre dated 21.11.2022.) Hence up to 31st December 2022 number days are – 201 days

Hence,

Environmental Compensation (in Lacs) =17.5 (57.25-37) + 55.5(57.25-37)+0.2(57.25-37) X 201 + 0.05X (57.25-37) X201
=354.375 + 1123.875 +814.05 + 203.5125
= Rs. 2495.81/- Lakhs

In view of above it is to be submitted to verify the Environmental Compensation as calculated above and levy the EC in compliance to the Hon'ble NGT directions issued vide ref(1) and (2).

Yours faithfully

15/12.

Environmental Officer
KSPCB, Mangaluru

Regional Office :
Karnataka State Pollution Control Board
Parisara Bhavana, 10B, Baikampady Industrial Area,
Mangaluru - 575 011
Tel.: 0824-2408239
e-mail: manglore@kspcb.gov.in website: http:kspcb.gov.in

ಪ್ರಾದೇಶಿಕ ಕಛೇರಿ :
ಪರಿಸರ ಭವನ, 10ಬಿ
ಬೈಕಂಪಾಡಿ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶ
ಮಂಗಳೂರು - 575 011

ಕರ್ನಾಟಕ ರಾಜ್ಯ
ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ

towards a cleaner Karnataka

No. KSPCB/EO(MNG)/OA NO 307/2022/202-24/63

DaTE:15-04-2

To,

The Member Secretary
KSPCB, #49, Parisara Bhavan
Bengaluru-01

Kind Attn: SEO WASTE MANAGEMENT CELL-1

Respected Sir,

Sub: Calculating the Environmental Compensation for the discharge of untreated sewage into the river as per the NGT Order 593/2017-reg

Ref: 1. NGT order in the matter of OA No. 593/2017.
2.This office Notice issued vide letter No.KSPCB/EO(MNG)/Notice/2022-23/397, Dated:14.06.2022.
2. NGT order in the matter of OA No. 307/2022 issued on 21.11.2022.

*****

With respect to above subject, it is to be submitted that, Hon'ble National Green Tribunal in the matter of OA No. 307/2022 has constituted the Joint Committee to look into the matter of pollution of River Phalguni and the committee in its report observed that,

1. *Committee has observed entry of domestic sewage all along the river through Storm Water Drains; this needs an urgent attention by Mangaluru City Corporation (MCC).*

2. *There is no Underground drainage (UGD) facility with terminal Sewage Treatment Plant (STP) in Baikampady industrial area to take care of sewage/sullage discharge from Godown,* commercial establishments, hotels and some small industries, Labour quarter's/sheds. etc. Responsible organizations like KIADB and Mangaluru City Corporation (MCC) are required to initiate action to construct a proper UGD system with terminalsewage treatment plant

3. *Mangaluru City Corporation also has to initiate action for treatment and disposal of sewage generated from the area around the Baggundi lake such as, MSEZ RR colony, Angaragundi, Kudumbur Villages so as to prevent joining of untreated sewage into Baggundilake thereby to Gurupura river*

The Hon'ble Tribunal in its order dated 2.11.2023 has directed the State pollution Control Board.

- Ensuring Zero Liquid Discharge in all the industries and establishment of ETP in all small-scale industries irrespective of

effluent quantity

- Initiation of action against the non-complying industries which are habituated to discharge into storm water drains

- KSPCB to take up strengthening of its laboratory at Mangaluru, adequate manpower to be deployed and upgrade the laboratory with advanced equipments."

Further, the NGT in the matter of OA NO 593/2017 issued the following direction;

All the Local Bodies and or the concerned Departments of the State Government have to ensure 100% treatment of the generated sewage and in default to pay compensation which is to be recovered by the States/UTs, with effect from 01.04.2020. In default of such collection, the States/UTs are liable to pay such compensation. The CPCB is to collect the same and utilize for restoration of the environment.

The Karnataka Industrial Developmental Authority being the authority to develop the industrial area and facilitator to the industries operating the industrial area has the onus to provide common Sewage/trade effluent Treatment Plant(CSTP/CETP) for the treatment of Sewage generated in the industrial area.

In view of above, the **Environmental Compensation on the authorities of Karnataka Industrial Developmental Board for discharging sewage into the Gurupura River generated in the Baikampady Industrial area** considering the compliance status by the authorities as on 31.12.2022 (as per the NGT Ordre dated 21.11.2022) is calculated as follows

Compliance status:

- Mangaluru City Corporation authorities has not established the Sewage Treatment Plant and the untreated sewage is being discharged into the Gurupura River.
- Also not submitted the Concrete action plan with time line and Cost estimation as per the NGT Ordre dated 21.11.2022.

CALCULATION OF ENVIRONMNETL COMPONESATION

1. **Sewage Treatment Gap**

Following are the Sewage treatment gap estimated as per the report submitted by the MCC Mangaluru

Area	Population	Estimation of Sewage generation	Treatment capacity	Gap
Baikampady industrial area	15400	6 MLD	0	6 MLD
Total	3,14,577	63.25 MLD	37 MLD	26.25 MLD

2. **CALCULATION**

EC= 17.5 [Total Sewage generation- Installed Traement capacity] + 55.5 [Total Sewage generation - Operational capacity)] + 0.2 [Sewage Generation - Operational capacity] X N + Marginal Cost Environmental Externality X Total Sewage Generation- Operational Capacity] X N

N= Number of days from the date of direction of CPCB/SPCB/PCC: After receipt of complaint regarding the fish kill and pollution in Gurupura river and subsequent NGT case OA No.307/2022 The Regional Office, KSPCB, Mangaluru issued a notice on 14th June, 2022(Copy attached) hence number of days calculated from 10th June, 2020 for estimation of environmental compensation till compliance status by the authorities as on 31.12.2022 (as per the NGT Ordre dated 21.11.2022.) Hence up to 31st December 2022 number days are – 201 days

Hence,

Environmental Compensation (in Lacs) =17.5 (6-0) + 55.5(6-0)+0.2(6-0) X 201 + 0.05X (6-0) X201

=105 + 333 +241.2 + 60.3

= Rs.739.5/- Lakhs

In view of above it is to be submitted to verify the Environmental Compensation as calculated above and levy the EC in compliance to the Hon'ble NGT directions issued vide ref(1) and (2).

Yours faithfully

15/12

Environmental Officer

KSPCB, Mangaluru

COMPLINCE REPORT TO THE HON'BLE NGT ORDER WITH RESPECT TO THE ORIGINAL APPLICATION 207/2022 WITH RESPECT TO THE STRENGTHINING OF THE KSPCB LABORATORY.

Hon'ble NGT, Principal Bench, New Delhi has passed an order in the matter of OA No:307 of 2022 dated: 21.11.2022 where following direction was given with respect to the strengthening of the KSPCB Laboratory.

"KSPCB to take up strengthening of its laboratory at Mangaluru, adequate manpower to be deployed and upgrade the laboratory with advanced equipments."

KSPCB has taken up strengthening the Regional Laboratory located at Mangaluru by procuring the additional Equipments to upgrade the existing laboratory with total budget cost of Rs. 58,15,731, The details of the equipment purchased with quantity and cost is given below;

INSTRUMENTS LIST						
SL NO.	**Instrument**	**Make**	**Inst. Srial No.**	**Quantity**	**Value**	**Date Of Installation**
1	UV Spectro Photo Meter	SYSTRONICS	453	1	102133	29.06.2022
2	Digital turbidity meter	SYSTRONICS	7757	1	29618	29.06.2022
3	Digital pH meter	LAQUA HORIBA	JG1L0035	1	98825	28.02.2022
4	Portable Conductivity Meter	LAQUA HORIBA	SD2A0005	1	158120	10.03.2022
5	BOD Incubator.	ESCO Isotherm	2022-T08912 & 2022-T08913	2	712740	29.08.2022
6	Specific ion meter	Thermo scientific	V18815	1	1008721	10.08.2022
7	Portable DO,Conductivity & pH Equipment Kit	LAQUA HORIBA	SF1J0002	1	363440	28.02.2022
8	Baceriological Incubator	NUVE	4.2511 & 4.2504	2	517774	19.08.2022
9	Cold Storage	Bluestar	—	1	495100	28.07.2022
10	Refrigerator	Samsung	04PY	1	36500	04.01.2023
11	Hot Water Bath	Labquest Borosil	1009888777 & 1009746791	2	154108	13.01.2023
12	Ultrasonic Cleaner	Labquest Borosil	(620032215013 Sl.No)	1	140007	13.01.2023
13	Analytical Balance	Sartorius Quintix	(Sl No.0043106496)& (Sl No.0042004382)	2	281886	17.01.2023

14	Bottle Top Dispensor	Microlit	2230005 & 22216111	2	46610	17.01.2023
15	Hot Air Oven	ROTEK	23418	1	86022	31.01.2023
16	Muffle Furnace	ROTEK	2303	1	178062	31.01.2023
17	Constant Temperature Water Bath	ROTEK	23W19	1	97940	31.01.2023
18	Autoclave	Rotek	2311 & 2314	2	495600	31.01.2023
19	TKN Digestion Unit	Gehradt	7060220067	1	1646100	02.02.2023
20	COD Digestion Unit	Labquest Borosil	1011791892	1	67653	14.02.2023
21	TCLP Rotary Agitator	Thermoenvironmental	TCLPT 131A 23	1	193284	20.02.2023
22	Flash Point Apparatus	Acute Instruments	MF 93-X009	1	174109	20.02.2023
23	Rotary Evaporator	IKA	6259421	1	530379	20.02.2023
24	Bio Safety Cabinet	Imset	6055	1	531000	02.03.2023
25	Nano Pure Water Purification System	EVOQUA	W3T324491	1	370000	4.032023
26	Gas Chromatography	SUPPLY IS PENDING				
27	Microwave Digester					
28	Bomb Colorimeter	INSTALLATION PENDING				

14/6

Environmental Officer
KSPCB, Mangaluru

ಮಂಗಳೂರು
ಆಯುಕ್ತರು
ಮಹಾನಗರಪಾಲಿಕೆ, ಮಂಗಳೂರು.

ಮಹಾನಗರಪಾಲಿಕೆ
ಅಂಚೆ ಪೆಟ್ಟಿಗೆ ನಂಬ್ರ :756,
ಲಾಲ್ ಬಾಗ್, ಮಂಗಳೂರು –575003
ದೂರವಾಣಿ :ಕಛೇರಿ :2220313–318
ಫ್ಯಾಕ್ಸ್ ನಂಬ್ರ: 0824–2220309

ಮ.ನ.ಪಾ/ಸ ಇಂ.ವಿ–2 ಸಿ.ಆರ್– /2022–23 ದಿನಾಂಕ 02–05–2023

ಮಂ. ಮಾ. ನಿ. ಮಂಡಲ, ಸಂಖ್ಯೆ 444, ದಿನಾಂಕ 6.5.2023, ಮಂಗಳೂರು-575011

To,

Environmental Officer
KSPCB
Parisara Bhavana,10B, Baikampady Industrial Area,
Mangalore 575011

Dear Sir/Madam

Sub: Compliance of the proceedings of the meeting dated 01/04/2023
Ref:No. KSPCB/EO9MNG0/GURUPURA/2023-24/46 DATED 11/04/2023

SL.NO	Complaint	Action Taken
2	Dumping/ disposing of sewage in to the storm water drains through Cess pool tankers is not permitted. Individual industries/establishments will be held responsible under the Water Act and action will be initiated in case of default. The industries shall ensure that the sewage disposed through cess pool is through MCC authorized vendors and it shall be further disposed and treated in STP of MCC only. Dumping in to the wet wells is not permitted. MCC shall direct the authorised vendors to dispose the sewage in to the STPs only .	MCC has directed all its vendors to dispose the sewage into STPs only. Private vendors who haven't obtained permission from MCC are dumping sewage to the storm water drains. KIADB should take action against these vehicles that illegally dump sewage within their limits.
8	KIADB/MCC shall look in to this and taken action to set up UGD facility with terminal treatment plant in Baikampady Industrial Area. The work of common STP and UGD in Baikampady industrial area shall be taken on priority and as on date progress with action taken report shall be submitted by KIADB/ MCC to KSPCB.	KIADB to prepare the DPR and action plan for common STP

9	As per the report submitted to the Hon'ble NGT in the matter of OA No 307/2022 CCTV Cameras have to be arranged at strategic locations by MCC/KIADB. Industries which have CCTV Cameras in their premises, can review and inform KSPCB / MCC/KIADB regarding suspicious vehicles carrying waste water/solid waste, so that immediate action can be taken.	As per the KSPCB Norms and SWM Rules, 2016, Mangaluru City Corporation collects only domestic waste from the industrial units and the hazardous waste is to be handled by the industry itself to a TSDF. MCC deploys two Door to Door Waste collection tippers of capacity 1.5 ton and 1 ton respectively (Vehicle Nos. KA 19 AB 5623 and KA 19 AA 7690) for collection of domestic waste from Baikampady Industrial Area. These vehicles make 2 trips a day and cover the entire industrial area. Additional vehicles are being deployed on requirement. A field inspection was conducted jointly by KSPCB officials and MCC officials on 17.04.2023 in this regard. It was instructed to the nearby industries such as, M/s Adani Wilmar and other nearby industries, to monitor any such instances of illegal dumping of any kind of waste using their CCTV cameras and share the copy of recordings with KSPCB and MCC to take necessary action. Also, MCC has installed CCTV camera at two locations in the Baikampady industrial area and is willing to increase the number of CCTV camera installations if required.
10	MCC has to take action for treatment and disposal of sewage generated from the un sewered areas around the Baggundi lake and MSEZ ,RR, colony, Angaragundi, Kudumbur village and surrounding area as sewage from these areas enter in to the open drains in Bykampady industrial area ultimately joining the water bodies .In sewered areas too, the missing links and gaps shall be identified and connected immediately to UGD leading to terminal STP and report compliance to KSPCB.	i)As per the request of the Commissioner,MCC to MD, KUIDFC to appoint the same consultant who are working with MCC since 2014 for the Preparation of DPR and Execution of UGD works of Mangalore,M/S Tractebel Engineer has been appointed as consultant for the preparation of DPR by KUIDFC ii) MSEZ, RR, Colony up gradation of Sewage System in RR Colony with Construction of 1.5 MLD SBR type STP awarded on 16-02-2023 work under progress through KUIDFC. iii) Angaragundi and Kudumbur DPR is being prepared and under finalization. For the construction of 2 wet wells, land has to be reserved. At Angaragundi KIADB

		land has been identified and for Kudumbur layout land has been identified. Same lands to be reserved in the name of MCC for the construction of wet well. iv) Around Baggundi lake in Kulai area already there is existing sewage system. One wetwell which was not functioning properly earlier has been made functional by replacing pumps. Now Sewage is not bypassed to storm water drain.

Yours faithfully

Commissioner
Mangaluru City Corporation

KARNATAKA INDUSTRIAL AREAS DEVELOPMENT BOARD

(A Government of Karnataka Undertaking)
Zonal Office, Baikampady Industrial Area, Mangaluru - 575 011
Phone : 0824-2409869, 2407779, 2408879 Telefax : 0824-2407779, 2408879
Website : www.kiadb.in email: domangaluru@kiadb.in / asmlr@kiadb.in

No: KIADB/MNG/Tech/EE/MUDA/ 1394 /2022-23 Date: 08-12-2022

The Commissioner,
Mangalore City Corporation,
M.G. Road, Lalgagu,
Mangalore.

Dear Sir,

Sub : Meeting of Joint Committee along with other members in the matter of OA No. 307/2022 for preparation of Action Plan – reg.

Ref: This Office letter No. KIADB/MNG/Tech/EE/Bai/KSPCB/1397/ 2021-22 Dated 30-03-2022.

****

With reference to the above subject, Hon'ble The National Green Tribunal, Principal Bench, New Delhi in its order on 21-11-2022 has mentioned conclusions and recommendational. In the above it has been recommended in Sl.No. (5) & (6) that as there is no UGD & STP in Baikampady Industrial Area to take care of sewage / sullage discharge from various establishments. Action has to be initiate to provide a proper UGD system with terminal sewage treatment plant. As per the NGT Court sanction proper estimate should be prepared by MCC & KIADB and funds has to be released by Urban Development Department, Government of Karnataka & CEO, KIADB.

In out leter vide reference no this office requested to submit proposal for UGD & STP for Baikampady Industrial Area. Once again we request your kindself to submit detail estimate for UGD & STP for Baikampady Industrial Area.

Yours faithfully

8/12/22

Executive Engineer(I/c)
KIADB, Mangaluru

Copy to :

1) The Environmental Officer, K.S.P.C.B., Regional Office, Mangaluru – for information
2) Office copy.

KARNATAKA INDUSTRIAL AREAS DEVELOPMENT BOAR
(A Government of Karnataka Undertaking)
Zonal Office, Baikampady Industrial Area, Mangaluru - 575 011
Phone : 0824-2409869, 2407779, 2408879 Telefax : 0824-2407779, 2408879
Website : www.kiadb.in email: domangaluru@kiadb.in / asmlr@kiadb.in

No. KIADB/MNG/Tech/EE/MUDA/ 1615 /2022-23 Date: 14-02-2023

The Commissioner,
Mangalore City Corporation,
M.G. Road, Lalgagu,
Mangalore.

Dear Sir,

Sub: Meeting of Joint Committee along with other members in the matter of OA No. 307/2022 for preparation of Action Plan – reg.

Ref: 1) This Office letter No. KIADB/MNG/Tech/EE/Bai/KSPCB/1397/2021-22 Dated 30-03-2022.
2) This Office letter No. KIADB/MNG/Tech/EE/MUDA/1394/2022-23 Date: 08-12-2022.

****

With reference to the above subject, Hon'ble The National Green Tribunal, Principal Bench, New Delhi in its order on 21-11-2022 has mentioned conclusions and recommendational. In the above it has been recommended in Sl.No. (5) & (6) that as there is no UGD & STP in Baikampady Industrial Area to take care of sewage / sullage discharge from various establishments. Action has to be initiate to provide a proper UGD system with terminal sewage treatment plant. As per the NGT Court direction proper estimate should be prepared by MCC & KIADB and funds has to be released by Urban Development Department, Government of Karnataka & CEO, KIADB.

In our letter vide reference (1) & (2) this office requested to submit proposal for UGD & STP for Baikampady Industrial Area. Once again we request your kindself to submit detail estimate for UGD & STP for Baikampady Industrial Area.

18/2/2023 4371
DEO 3 15.2.2023

Yours faithfully

13/2/23
Executive Engineer(I/c)
KIADB, Mangaluru

Copy to :

1) The Environmental Officer, K.S.P.C.B., Regional Office, Mangaluru – for information
2) Office copy

ಫ್ಯಾಕ್ಸ್ / Fax : 080-25586321
ಈಮೇಲ್ / E-mail : ho@kspcb.gov.in
ವೆಬ್‌ಸೈಟ್ / Website : http://kspcb.gov.in

365

☎ 25581383, 2558911
25588151, 25588270
25588142, 25586520

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
Karnataka State Pollution Control Board

"ಪರಿಸರಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ.49, ಚರ್ಚ್‌ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ, ಭಾರತ
"Parisara Bhavana", 1st to 5th Floor, # 49, Church Street, Bengaluru - 560 001, Karnataka, INDIA

NO.KSPCB/ CNP/KIADB-CETPS/TO2MS/2019-20/ 3255

27 AUG 2019

ಕರ್ನಾಟಕ ಕೈಗಾರಿಕಾ ಪ್ರದೇಶಾಭಿವೃದ್ಧಿ ಮಂಡಳಿ
ಸಂಖ್ಯೆ: 9282
28 AUG 2019
17053
ಕಂದಾಯ ಕಛೇರಿ, ಬೆಂಗಳೂರು

To

The Chief Executive Officer,
KIADB, Khanija Bhavana,
Race Course Road,
Bangalore 560 001.

Sir,

Sub: Setting up of CETP and other Environmental facilities at the KIADB Industrial Estates – Reg.

Ref:1) Writ Petition filed in the Honourable Supreme Court No. 375/2012
2) Proceedings of the meeting held on 2.7.2018 under the chairmanship of Principal Secretary to Govt., C&I Department.
2) The Board Office letter No. 4533 dated 05.12.2018.

With reference to the above it is to be informed that it was decided in the meeting held on 2.7.2018 under the chairmanship of Principal Secretary to Govt., C&I Department, where in it was directed to KIADB to comply with the directions of the Honourable Supreme Court and to set up the CETPs at all the estates developed by KIADB. It was also informed to KSPCB to identify the Estates where the CETPs are required. Accordingly a letter was sent by KSPCB on 5th December, 2018 as show vide reference 2. The copy of the same is attached herewith.

You are hereby requested to send the compliance and planning on the above matter at the earliest.

Yours faithfully,

Member Secretary

JDTP KIADB
Inward No. 1026 Dt. 30.8.19

Proceedings of the Meeting held on 02.05.2023 at 11.30 PM, at Meeting Hall, Zilla Panchayat Dakshina Kanndad District to discuss the action plan submitted by the Urban Local Authorities in the matter of Hon'bel NGT direction with respect to the NGT matter of OA No. 307/2022.

Officers present at the meeting

Dr. Kumar , IAS	Chief Execuive Officer(CEO) Zilla Panchayth, Dakhina Kannadd district
Sri. Channabasappa K., KAS	Commissioner, Mangaluru City Corporation.
Dr Ravi D.R	Environmnetal Officer, KSPCB
Sri Dattatreya	Development Officer, KIADB
Sri D Manjunathayya	DPD, KUIDFC
Smt Sushmitha	Deputy Director, CRZ
Sri Chandrashekar,	Executive Engineer, KWSSB
Sri Narendra Babu	Executive Engineer, Water Supply (Engineering Division), Zilla Panchayth.
Sri Vivek C G	DEO,KSPCB
Smt Deepthi N	AEE (Env), MCC
Sri. Sharth Gowda	Executive Engineer (Engineering Division), MCC
Sri Karthik Shetty	Assistant Executive Engineer (Engineering Division), MCC
Sri Jayaprakash	Consultant, KUDCEMP

Preamble: The Hon'ble National Green Tribunal, Principal Bench, New Delhi has passed an Order in the matter of OA No.307/2022 on 21.11.2022 where the Tribunal has directed the concerned Departments to submit the action plan for preventing entry of sewage into the Gurupura River and also for proper solid waste management system to the Mangaluru City Corporation (MCC), Baikampady industrial area, and area around the Baggundi lake such as, MSEZ RR colony, Angaragundi and Kudumbur villages.

1. In view of above, to discuss the compliance status to the NGT order dated 21.11.2022, a meeting was held with all concerned inline Departments at Meeting Hall Zilla Panchayat Dakshina Kannndad on 02.05.2023 at 11.30 AM under the Chairmanship of the Chief Execuive Officer(CEO),Zilla Panchayth, Dakhina Kannadd District

2. During the meeting, CEO, Zilla Panchayat has sought the present status of compliance report submitted by ULB/Grama Panchayth which needs to be submitted to NGT in the matter of OA No. 307/2022 through Joint Committee.

3. The Environmental Officer, KSPCB has informed that, the Mangluru City Corporation, Town Panchayat, Bajpe and Jokatte Grama panchayath have prepared the action plan in compliance to the NGT order. The action plan included providing UGD net work along with STP, quantity of sewage generation, solid waste management etc.

4. The compliance report to be submitted by KSPCB was also discussed and it was informed that the KSPCB has already initiated action against the indsutries which are habitual violators.

5. The action plan submitted by each of the local body and KSPCB was sent to all the joint committee members through email for necessary comments/suggestions/observations and is pending for signature of the Joint Committee members constituted by the NGT in the matter of OA No. 307/2022.

6. He further added that, members of the joint committee have suggested to include the time frame for the completion of all proposed project, indicated in the action plans submitted by each ULB by specifying the date of inception and completion of the project. One of the joint Committee member (CPCB representative) also suggested to have field visit before finalizing/signing the report by the joint Committee members.

7. The CEO, Zillla Panchayat has expressed their apprehension regarding giving time frame in the report to be submitted to the joint committee member, as it requires preparation of DPR, finalization of total project cost, obtaining approval from the Governmnet (UDD/DMA) for the project Cost etc and involves the financial approval and told that exact time frame with date of inception of the project can only be given, once the fund is released from the Government /concerned Department.

8. The Commissioner, MCC, has informed that, for all the projects mentioned in the Action plan, the DPR will be completed by May 30th , 2023 and the same shall be submitted immediately to the Government for obtaining necessary approval and for financial support.

9. Further, for the treatment of Sewage generated from the areas of Angaragundy, MSEZ RR Colony and Kudumburu Village, the MCC has submitted the action plan for the establishment of the STP in coordination with KUIDFC. The KUIDFC officials who were present during the meeting have informed that there is proposal of-establishing 1.5 MLD STP at RR Colony and the sewage generated from the area of Angargundy and Kudumburu village will be pumped into the STP, through a wet well proposed at Angaragundy.

10. However, the Environmental Officer has expressed apprehension on the proposed location identified by KUIDFC Officials, for establishment of wet well by the KUIDFC as the total area is a marshy land and any construction activity in that location will damage the ecosystem and also the area is not suitable for any construction activities, as location is sensitive from enviornmnetal perspective. He also informed that there is a land at KIADB Industrial area, as identified by the KIADB Officials, near M/s. Ruch Soya industry and Part of KIOCL land, where the construction of Proposed STP can be taken up and suggested to identify some other place for wet well construction.

11. With respect to providing sewage Treatment Plant in KIADB industrial area Baikampady, KIADB has not submitted any proposal, as directed by the NGT.

12. The issue of illegal dumping of solid waste is discussed by the Enviiornmnetal Officer, KSPCB and it was informed that there is a regular dumping of Municipal solid waste and C& D waste in the ODC road and Jokattte road and needs to be checked by MCC and Jokatte Gram Panchayat. There is also an observation of regular burning of solid waste in the illegal dumped area, where plastic is fired, which causes serious enviornemnetal problem.

13. In Reply, the Commissioner, MCC has informed that, MCC has already installed two CCTV cameras at ODC Road of Baikampady Industrial area to monitor the illegal dumping. Further lot of black spots are there on these roads and also the workers coming to industrial area are littering the solid waste on road side regularly, the Commissioner, MCC has directed the KIADB officials to provide the facility to segregate the solid waste by providing proper bins in the area, with the help of industrial association for ensuring proper segregation of solid waste before handing over to MCC

14. For the issue of establishing C&D processing facility by MCC, the Commissioner, MCC has informed that, as of now there are no designated C&D waste processing facility in Mangaluru and this is also one of the reasons for this illegal dumping of waste on the road side. About 10 Acre land was identified in the Pacchanady MSW site for handling the C&D waste and the DPR of the proposed project is under preparation.

15. The Environmental Officer informed that, in Industrial area many plots are illegally used for the accommodating industrial workers from where there is generation of huge quantity of sewage and solid waste, which is creating pollution of the surrounding area, which needs action from KIADB authorities.

16. Further, the Environmental Officer, KSPCB has informed about the action taken against the violating industries, which are habitual violators. He informed that, the Board has already issued the closure directions to three industries and recommended for issue of Closure Order for two industries and issued the Notice of Proposed Directions to four industries. Apart for issue of Closure Direction, it was also recommended to impose Environmental Compensation to seven industries and to file Criminal case against Seven Industries.

17. During the discussion, the issue of maintaining minimum water flow in the river was also discussed to achive dilution and to ensure health of aquatic life. The Executive Enginer has informed that the water level in the dam is 1.5 ft below the crest gate.

18. For the issue of pollution at downstream of Marvooru vented dam, the CEO, ZP has expressed that, as the river water level at upstream of the dam has decreased and is below sea level hence, the release of fresh water to the downstream of river is not possible, but he asked the KSPCB officials to come with a proper technical report by the subject expert with respect to enhance the Dissolved Oxygen level in the Downstream of the Gurupura river by adding Chemicals or providng aerators with all its feasibility in terms of method, quantity, cost and implications.

19. When enquired about the construction of proposed pipeline to discharge the STP treated water at Pacchandy, into the downstream of the vented dam, the MCC

officials who were present during the meeting have informed that 70% of pipeline laying work has been completed. The balance will be completed within one month.

20. The Executive Engineer PRDE has expressed his apprehension of worsening of pollution of river water at downstream of the vented dam due to release of untreated sewage. But the Commissioner, MCC has clarified that, at any given point of time, only secondary treated water from the STP located at Pacchandy will be released into the down stream of the dam and not direct sewage.

21. On the action plan submitted by the Jokattte Grama Panchayat, the CEO, ZP has informed that, as of now individual septic tank were provided by individual house holds and once these pits are filled, the waste sludge is being taken to FSM plant through the cess pool tankers for the treatment and diposal. Only management of Grey water is the matter of concern and needs to be addressed.

22. To this PDO Jokatte has informed that, action plan was prepared and submitted for the construction of community Septic tank and Soak pit for the cluster of house holds for the treatment of Grey water. But informed that the land is yet to be identified for the project.

23. The CEO ZP has directed the EO, Taluk Panchayat and PDO Joktatte to immediately identify the land (Government or Private) for the proposed project and assured to release required fund for the project through the Swachh Bharath Mission.

24. The KUWSSB officials have informed that, for Bajpe Town Panchayat action plan for providing UGD with Terminal STP was prepared ad submitted in compliance to the NGT directions but the TP Bajpe has to pay Rs. 10 Lakh for the preparation of DPR. Once the fund is released action will be initated for the preparation of DPR.

25. The Environmental Officer, KSPC, has raised the issue of dumping of soil embarkment at Kuluru Bridge by the NHIA Authorities for ongoing Bridge construction project and said that almost 60% of the river was blocked which will adversely influence the river water dynamics along with change in the water quality.

After detailed discussion following directions were given to the concerned Department by the Chairman of the meeting;

- Installation of CCTV cameras at Jokatte Road to monitor the illegal dumping of solid waste (MSW & C&D) **(EO, Taluk Panchayat & PDO Jokatte).**
- Filing case against the vehicle owner who are involved in the illegal dumping of the solid waste. **(Action:EO, Taluk Panchayat & PDO Jokatte).**
- Identifying the land (either Government or Private) for proposed project of Community septic tank and Soak Pits, as submitted in the Action Plan for Jokatte area for treatment and disposal of grey water**(EO, Taluk Panchayat, PDO, Jokatte).**
- Clearing of legacy waste with proper segregation in the Jokatte area and handing over the plastic waste to MRF **(Action:EO Taluk Panchayat & PDO Jokatte).**
- Constitution of joint monitoring team to monitor the illegal dumping of Solid waste at ODC road and Jokatte area.**(Action:MCC & Jokatte GP).**

- Action against the illegal accommodation in the designated industrial plots and also violation of the agreement by the Industrial plot owners for using the plot for different purpose, other than the purpose for which it is specified in the agreement **(Action:KIADB).**
- Communicate the Chief Officer, Bape TP with respect to the release Rs 10 Lakh amount to KUWSSB for the preparation of DPR fro providing UGD with terminal STP fro the Bajpe town Panchayat.**(KUWSSB)**
- Write letter to NHAI official regarding the construction of soil embarkment and obstruction for river flow **(Action:KSPCB).**
- To conduct one time drive to clear the solid wastes dumped in the Baikampady industrial area, ODC road and Jokatte area with Industrial association**(Action : KIADB, Jokatte GP and MCC).**
- Finalising the location for establishment of wet well and Sewage Treatment Plant for the treatment of sewage generated from Angaragundy village, Kudumburu Village and RR Colony (**Action: KUIDFC and MCC).**
- Finalising the location for establishment of wet well and Sewage Treatment Plant for the treatment of sewage generated from Baikmapdy Indsutrial area in with KSPCB officials**(Action:KIADB, KUIDFC).**
- To carryout Survey and identification of encroachment of CRZ area in the Baikampady Industrial area and near AJ Institution and action against the encroachment **(Action:RD CRZ).**
- Providing facility in the industrial area for proper segregation of solid waste (Wet and Dry) with the help of Industrial Association, before handing over to MCC.**(Action:KIADB).**

Commissioner
Mangaluru City Corporation

CEO, Zilla Panchayat
Dakshina Kannada District