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BY EMAIL AND SPEED POST

A. N. Yellappa Reddy, Chairman

DATE : 11-02-2020

To,

1. The Chief Secretary, Government of Karnataka,
Room No. 320, 3rd floor,
Vidhana Soudha, Bangalore-560001
2. Additional Chief Secretary, Government of Karnataka,
Room No. 331, 3rd Floor,
Vidhana Soudha, Bangalore-560001
3. The Development Commissioner, Government of Karnataka,
Room No. 306, 3rd Floor,
Vidhana Soudha, Bangalore-560001
4. The Additional Chief Secretary, Urban Development Department,
Room No: 436, 3rd floor,
Vidhana Soudha, Bangalore-560001
5. The Commissioner, Bengaluru Development Authority,
BDA HO, Kumara Park West,
T Chowdaiah Road , Bangalore-560001
6. The Commissioner, Bruhat Bengaluru Mahanagara Palike,
BBMP Head Office,
Hudson Circle, Bangalore - 560002
7. The Chairman, Bangalore Water Supply and Sewerage Board,
Cauvery Bhavan, Ambedkar Veedhi,
Sampangi Rama Nagar, Bengaluru - 560009

8. The Chairman, Karnataka State Pollution Control Board,
Nisarga Bhavan, No 33,
Church Street Bengaluru - 560001
9. The Member Secretary, Karnataka State Pollution Control Board,
Nisarga Bhavan, No 33,
Church Street Bengaluru - 560001
10. The Chairman, Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar
Shahdara, Delhi - 110032
11. The Member Secretary, Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar
Shahdara, Delhi - 110032
12. Regional Directorate (South), Central Pollution Control Board,
Nisarga Bhavan, Thimmaiah Road 7th D Main Road
Shivnagar, Bengaluru - 560079
13. Director General of Forests, MOEFCC Indira Paryavaran Bhawan,
#166, Jor Bagh
Block 17, Lodi Colony, New Delhi - 110003
14. Deputy Director General of Forests, MOEFCC,
Regional Office (South Zone), Kendriya Sadan
4th Floor, E & F Wings, 17th Main Road
Koramangala II Block, Bengaluru - 560034
15. Regional Office (Mahadevpura zone), Karnataka State Pollution Control Board,
Nisarga Bhavan, Thimmaiah Road 7th D Main Road
Shivnagar, Bengaluru - 560079
16. Justice N Santosh Hedge, NGT appointed expert committee Chairman,
Flat# B-34, 2nd Floor, Embassy Palace Apartments,
No. 1/16, Cunningham Road, Bangalore - 560052
17. Engineering Member, Bangalore Development Authority,
BDA HO, Kumara Park West,
T Chowdaiah Road , Bangalore-560001

Sub: BET and Citizens experts' feedback on rejuvenation of Bellandur and Varthur lake

Dear Sir/Madam,

We are very glad that Karnataka Government is working hard under the ambit of NGT to rejuvenate Bellandur and Varthur Lake. While we wholeheartedly thank you, for all your efforts to save the lake, we would also like to join hands with you.

We are putting forth some feedback on the process of rejuvenation. By doing that, we sincerely hope that the government will pause to assess the effectiveness of the actions taken so far and adjust future actions, in collaboration with citizens.

Our Feedback:

1. Translocating toxic pollution to downstream waterbodies:

1.1 The rejuvenation approach of diverting approx. 500 Million Litres of toxic wastewaters entering Bellandur Lake, to Varthur Lake and subsequently to Dakshina Pinakini river, seems to us that the polluting matter is being pushed downstream, thus translocating pollution.

1.2 If the objective is pollution abatement, then diversion work is in contradiction to that objective, as it allows the toxic wastewater to travel long distances and thus increase the pollution load of the waterbodies downstream. *Rejuvenation of one waterbody should not spell a death knell to other water bodies.* This activity is in contravention to Section 24 of Water Act. According to our constitution, people downstream of Bellandur Tank also have the right to clean and healthy environment.

1.3 Bellandur Tank wastewater has already been diverted to Varthur Lake. Varthur Lake diversion is in the works. We request the government to pause, validate the approach via an EIA and make the necessary course correction.

2. The case of Desilting:

2.1 For the past 50 years, both Bellandur and Varthur lakes have been the recipient of municipal solid waste, industrial solid waste, construction and demolition, hospital waste, plastics, raw sewage, toxic industrial effluents and silt - a toxic cocktail. Hence based on precautionary principle, one can deduce that 19.4 million tonnes of Silt+Slush (SS) cocktail on Bellandur lakebed and 7.8 million tonnes of SS cocktail on Varthur lakebed is hazardous in nature, both biologically and chemically. (Refer Annexure - 2 for further details)

2.2 *The expert committee, in its submission to NGT, recommended that the lakes be de-silted to the original lakebed.* That is to remove 19.4+7.8 million tonnes. De-silting this humongous quantity is a daunting task.

- The quantum of SS cocktail accumulated on the Bellandur lakebed is equivalent to the quantum of garbage Bangalore *would take 10.5 years to generate.* (@ the rate of 5000 tonnes/day that Bengaluru generates today).
- The quantum of SS cocktail accumulated on the Varthur lakebed is equivalent to the quantum of garbage Bangalore *would take 4 years to generate.*
- Mavallipuram landfill had close to 4 million tonnes of garbage before it was closed. The quantity of toxic cocktail in Bellandur lakebed is *4.8 times more* than what is in Mavallipuram and for Varthur lake it *is 1.8 times more.* In this context, de-silting seems like translocating a landfill or a lakefill, in this case.

2.3 To practically de-silt, such huge quantities will take a long time. Even if we can remove *1000 tonnes per day, it will still take 53 years to completely de-silt Bellandur lakebed.* It will *take 20 years to de-silt Varthur lakebed.* What about traffic, road wear and tear and air pollution and the related health hazards as the heavy trucks move in and out of these congested roads?

2.4 If the de-silting were to be carried out for a year, then only 1.8% of the total toxic cocktail on Bellandur lakebed and 4.9% on Varthur lakebed would have been removed. This is at a huge cost of hundreds of crores of rupees. *Currently, 300 crores is allocated for de-silting Bellandur lake alone. Compare that with 9.23 crores allotted to Bellanduru ward.* What measurable benefits are obtained from this expensive activity? Can the cost justify the benefits? Does the economics work out?

2.5 Where will the toxic cocktail go? Is it safe to be given to the farmers? Have the farmers been informed of the risk and the precautions they need to take? Our constitution provides the same right to clean and healthy environment to farmers as well. *The produce they grow with such toxic inputs will come back on our food plate.* Then comes the question of food safety and risk to public health.

2.6 Can the toxic cocktail be sent to quarries? We in Bengaluru have no place to put our garbage and suffer from a perennial garbage crisis. In that context, is there enough space to dump this toxic cocktail elsewhere?

3. Environmental Impact Assessment:

The current measures of Diversion and De-silting are in-fact translocating polluting matter with significant and irreversible environmental impact. *Such changes require an Environmental Impact Assessment (EIA) including cost-benefit analysis.* EIA has a special place in environmentally sound management of lake ecosystems. This will ensure a level playing field and remove arbitrariness in decision making process.

4. Stop Pollution at Source:

Lakes are by no means independent of the surrounding land systems. The pollution of the lake ecosystem is directly related to the activity in the catchment area upstream. The lake is just the receiving waterbody. Any interventions to overcome pollution must be targeted upstream where the wastewater is generated. The thumb rule of pollution prevention is “*stop pollution at source*”. Enforcement programs for pollution prevention is a continuous activity and is cheaper than clean-up afterwards.

5. Develop Lake Ecosystem Management Program:

5.1 A one-time capital-intensive engineering and infrastructure activity like diversion, de-silting and building sewage treatment plants, is NOT the panacea for mitigating complex pollution problems.

5.2 To restore and maintain the chemical, physical, and biological integrity of the Lake ecosystem, a **Lake Ecosystem Management Program** must be developed. This program must be rooted in science with quality water data, clearly defined goals and measurable objectives aligned with financial resources.

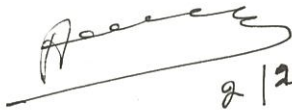
5.3 This can be notified and operationalized by the state government under section 3.(3) of Environment Protection Act of 1986, as recommended by government's own report, “Expert Committee Report on Rejuvenation of Bellandur Lake” under the Chairmanship of Additional Chief Secretary, Sri Mahendra Jain, IAS.

Improving the health of the lake ecosystem is a gradual and continuous process. We the citizens are with the government in restoring the waterbody. *In the light of ecological fairness and justice, we request you to pause the current activities, carry out an EIA, develop a multi-disciplinary comprehensive action plan for the lake ecosystem and make the necessary course corrections.* We kindly request you to give due consideration to our comments.

Thanking you in anticipation,

Yours Sincerely,

For **Bangalore Environment Trust**



2/2/2020

(A.N. Yellappa Reddy)

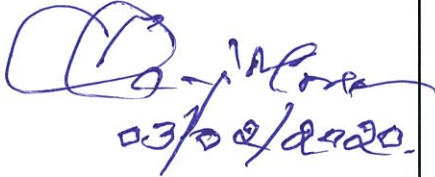


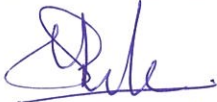
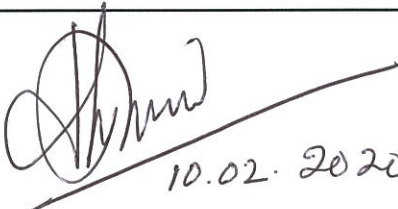
Chairman

Enclosed:

Annexure 1: Signatures of Citizen Experts & Profile of Signatories.

Annexure 2: Fact Sheets

Annexure 1: Signature of Citizen Experts

S.No	Name	Signature
1.	S. Jantane Reddy. Prof. of Fisheries (Retd.) Former Acting Director, NAAC	S. Jantane Reddy. 03.02.2020
2.	DR. H. R. Raj Mohan (Retd.) Scientist. Sr. RPH(S) - NIMH - ICRA	 03/02/2020
3.	PROF. HARINI NAGENDRA PROF. (SUSTAINABILITY) AZIM PREMJI UNIVERSITY	 04/02/2020
4.	Ms Nirmala Gowda M.Sc., Environment Management, University of San Francisco Organic farmer, farmer software engineer	 04/02/2020
5.	DR. SHARACHCHANDRA LELE DISTINGUISHED FELLOW ATREE	 07/02/2020
6.	CAPTAIN S. PRABHALA TRUSTEE, BANGALORE ENV TRUST	S Prabhala 08.02.2020
7.	Dr. RAJAH VIJAY KUMAR Director and Chief Scientist Office Scalex Energy Research Institute, Bangalore, India	 10.02.2020

Profile of Signatories:

Dr. Yellappa Reddy	Member of Indian Forest Services, Dr Reddy has served for four decades as an Administrator of Forests. He knows every inch of Western Ghats and its ecology. He retired as the Secretary of Department of Ecology and Environment, Government of Karnataka. He served as the member of Karnataka High Court Lok-Adalat. He is the member of the Technical Committee formed by BDA under the directions of Suo Moto NGT case on Bellandur Lake.
Dr. S. Ravichandra Reddy	Limnologist and a former professor of Fisheries, Bangalore University. Internationally recognized limnologist who has done extensive research on wetland ecosystems including Bellandur lake since 1960's. He is currently working on Lake Bala in Wales and is the expert member of NGT appointed committee for Challakere Projects.
Dr. Rajmohan	He retired as the Regional Director of Indian Council of Medical Research (ICMR). In his official capacity he has worked on Bhopal Gas Tragedy, Endo-sulfan tragedy, Coca Cola issue in Plachimada, Kerala. He has been part of several committess and written numerous reports for high court. He was member of State Environmental Impact Assessment. Authority.
Dr. Harini Nagendra	An ecologist, with a Phd in Ecological sciences from IISC. She currently works as a Professor of Sustainability at Azim Premji University. She was a visiting researcher at the university of San Diego, California. Has written several books on Urban Ecology of Bengaluru. She is the Lead Author on the 5 th International Panel for Climate Change (IPCC) Report, Working group III. She has received various prestigious awards internationally.

<p>Ms. Nirmala Gowda</p>	<p>Citizen Scientist working on Watershed Ecosystem Management, Pollution, Livelihood and Safe Drinking Water issues in the Cauvery Watershed. Former Software Engineering with an MSc in Environmental Management from the University of San Francisco. She returned to India after spending more than a decade working for Novartis.</p> <p>Invited by Dr Yellappa Reddy to participate in the Technical Committee meetings under the chairmanship of Engineering Member of BDA.</p>
<p>Dr. Sharadchandra Lele</p>	<p>A distinguished fellow in environmental policy and governance at ATREE. He has an MS from IISc and PHD in Energy and Resource from University of California, Berkley. Since then, he has worked at the Pacific Institute, Harvard University, and Centre for Interdisciplinary Studies in Environment & Development. He has served on the MoEF-MoTA Forest Rights Act committee, the Karnataka High Court's Elephant Task Force, and the Bellandur Lake Expert Committee.</p> <p>He is the member of the Technical Committee formed by BDA under the directions of Suo Moto NGT case on Bellandur Lake.</p>
<p>Captain Subbarao Prabhala</p>	<p>Retired as Chairman and Managing Director of Bharat Electronics Ltd, he is the Founder Trustee of Bangalore Environment Trust (BET). With more than 25 years of experience in the electronics industry – he was the Chief Executive Officer of Spectrum Infotech, a leading avionics development company addressing the Indian defence industry.</p>
<p>Dr. Rajah Vijay Kumar</p>	<p>A Doctor of Science in Medical Engineering. A pioneering researcher and an opinion leader in the field of Biophysics, Nanotechnology, Sustainable Energy, and Water resources management and Recovery. He is an Inventor with more than 32 original Inventions to his credit. His recent invention has been approved by United states Food and Drug Administration.</p> <p>He is the member of the Technical Committee formed by BDA under the directions of Suo Moto NGT case on Bellandur Lake.</p>

Annexure 2:

1. For Bellandur Lake

Indian Institute of Science, summary of 2017 Bathymetric Results ,as captured in the “Report of commission appointed by the hon’ble national green tribunal” submitted to the NGT on 31 may 2018 for Bellandur Lake.

SUMMARY OF BATHYMETRIC RESULTS

Sl No.	Description	Quantity
1.	Surface area of Lake (hectares)	367.3
2.	Storage Volume (Million cubic meters)	18.67
3.	Current Storage Volume of Water (Million cubic meters)	5.50
4.	Volume of Slush deposit (Million cubic meters)	6.56
5.	Volume of Sediment deposit (Million cubic meters)	6.60
6.	Bulk Density of Sediment (Kilogram per cubic meter)	1700
7.	Weight of sediments present in the lake (Million Tonne)	11.2

Silt: $6.60 \text{ MCM} * 1700 \text{ kg} = 11.2 \text{ Million Tonnes}$ (Density of 1700kg as mentioned IISC study)

Slush: $6.56 \text{ MCM} * 1.25 \text{ tonne} = 8.2 \text{ Million tonnes}$

(There is no bulk density given by IISc study. Due to lack of data, we considered the landfill density as given by CPHEEO manual for landfill : 1.25tonnes/cubic meter. Point to note here is that: slush and silt are mixed on the lakebed and thus the density can be more than estimated.)

Total quantity of silt/slush: $11.2 \text{ million tonnes} + 8.2 \text{ million tonnes} = 19.4 \text{ million tonnes}$

Magnitude of the quantum of silt/slush: Today Bengaluru generates 5000 tonnes/day. Based on that rate, it will take Bengaluru 10.5 years to generate 19.4 million tonnes

Time needed to de-silt: With 50 tippers/day, each carrying 20 tonnes of sludge from Bellandur Tank. To completely de-sludge and desilt 19.4 million tonnes will take 53 years.

2. For Vathur Lake:

Indian Institute of Science, summary of 2017 Bathymetric Results ,as captured in the "Report of commission appointed by the hon'ble national green tribunal" submitted to the NGT on 31 may 2018 for Varthur lake.

Sl. No	Description	Quantity
1.	Surface Area of Lake (hectares)	180
2.	Storage Volume (Million Cubic Meters)	6.10
3.	Current Storage Volume of Water (Million Cubic Meters)	1.61
4.	Volume of Slush deposit (Million Cubic Meters)	0.62



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5.	Volume of Sediment deposits (Million Cubic Meters)	3.87
6.	Bulk Density of Sediment (Kilograms per Cubic Meter)	1700
7.	Weight of Sediment present in the lake (Million Ton)	6.58

Silt: $3.87 \text{ MCM} * 1700 \text{ kg} = 6.58 \text{ Million Tonnes}$ (Density of 1700kg as mentioned IISC study)

Slush: $0.62 \text{ MCM} * 1.25 \text{ tonne} = 0.8 \text{ Million tonnes}$

(There is no bulk density given by IISc study. Due to lack of data, we considered the landfill density as given by CPHEEO manual for landfill : 1.25tonnes/cubic meter. Point to note here is that: slush and silt are mixed on the lakebed and thus the density can be more than estimated.)

Total quantity of silt/slush: $6.58 \text{ million tonnes} + 0.8 \text{ million tonnes} = 7.38 \text{ million tonnes}$

Magnitude of the quantum of silt/slush: Today Bengaluru generates 5000 tonnes/day. Based on that rate, it will take Bengaluru 4 years to generate 7.38 million tonnes

Time needed to Desilt: With 50 tippers/day, each carrying 20 tonnes of silt+slush mixture from Varthur Tank. To completely desilt 7.38 million tonnes will take 20 years.