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**KARNATAKASTATE POLLUTION CONTROL BOARD**

**PROCEEDINGS OF THE 383<sup>RD</sup> MEETING OF THE TECHNICAL ADVISORY COMMITTEE OF KSPCB HELD ON 28.04.2016 IN THE BOARD MEETING HALL, 3<sup>RD</sup> FLOOR, "PARISARA BHAVANA", CHURCH STREET, BANGALORE - 560001.**

**Members Present:****05 MAY 2016**

1.	Dr. Jai Prakash Alva, Board Member, KSPCB, No.2, 5 <sup>th</sup> Cross, 4 <sup>th</sup> Main, Pampa Extension, Kempapura, Bangalore – 560 024.	Chairman
2.	Sri. J.G.Kaveriappa, Board Member, KSPCB, No.40, Sri Krishna, 4 <sup>th</sup> 'A' Cross, I Stage, Anandanagar, R.T. Nagar Post, Bangalore – 560032.	Member
3.	Sri. Mohankumar Kondaji, Board Member, KSPCB, No.218, 15 <sup>th</sup> 'C' Cross, Mahalakshmiapuram, Bangalore – 560 086.	Member Absent with Intimation
4.	Dr. H.N.Chanakya, Chief Scientist, Centre for Sustainable Technologies, Indian Institute of Science (IISc), Bangalore – 560 012.	Member (Invitee)
5.	Dr. Sandeep Mudliar, Principal Scientist, E-II, Central Food Technological Research Institute (CFTRI), Mysore – 570 020.	Member (Invitee)
6.	Dr. B.S.Jai Prakash, Vice President, Academy of Certified Hazardous Material Managers – India Chapter, Bangalore Institute of Technology, K.R. Road, Bangalore.	Member (Invitee)
7.	Sri.S.Venkatesh, Deputy Drugs Controller, The Drugs Controller of Karnataka, Palace Road, Bangalore.	Member (Invitee) Absent with Intimation
8.	Sri.B.G.Mohankrishna, Chief Environmental Officer-2, Karnataka State Pollution Control Board, Bangalore.	Convener

**Officers of the Board present**

1.	Smt. R. Shantha Kumari, Environmental Officer, Board Office.
2.	Dr. P. Niranjana, Environmental Officer, Regional Office, Bangalore City West.
3.	Sri. Y. S. Harishankar, Environmental Officer, Board Office.
4.	Sri. Shiva Kumar, Environmental Officer, Regional Office, Hassan.
5.	Sri Diwakar, Environmental Officer, Regional Office, Gulbarga.
6.	Dr. D.R.Ravi, Deputy Environmental Officer, Board Office.
7.	Sri. Ramesha C, Deputy Environmental Officer, Board Office.


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<b>Industry Representatives</b>		
<b>Sl. No</b>	<b>Name &amp; Address of the Industry</b>	<b>Name &amp; designation of the industry representatives</b>
1	M/s. Theraindx Life sciences Private Limited, Sy.No.27, Deganhalli, Budhihal Post, Nelamangala, Bangalore – 562123	Dr. Seshagiri Gaonkar- Director J.Sundaresh Babu- Director Sri NandaKumar- Consultant
2	M/s. Kemio Solutions Private Limited, Plot No.432 & 476, 3 <sup>rd</sup> Cross, MS Ramaiah Enclave, Nagasandra, Tumkur Road, Dasanapura Hobli, Bangalore – 560 073	Sri. Narendra Kumar. R- Director
3	M/s. Surya Hard Chrome Pvt Ltd, No.24, Sompura 1 <sup>st</sup> Stage, Sompura Hobli, Nelamangala Taluk, Bangalore Rural District	Dr.Arun Kalanikal – Director.
4	M/s. Eurofins Clinical Genetics India Pvt Ltd, No. 540/1, Plot No. 18-B3, Ground floor, Doddanekundi Industrial Area, Hoodi Village, K.R Puram Hobli, Bangalore East Taluk	Dr. Ramesh Mehta-Laboratory Director Sri. Rakesh Upadhyay - DGM-Finance Dr. Krishna Mohan Singh - Lab Manager.
5	M/s. Sahara Fuels Energy, Sy. No. 39, 93, Plot. No. 71/B Nandur Kesartagi Industrial Area, KIADB, Taluk & Kalburgi District	Sri. L. Devendra- Manager Sri. Abdul Gafer Sab- Owner
6	M/s. Omnikan Earth Science Pvt Ltd, Plot No. 556, A1 & A2, Hassan Growth Centre, KIADB Industrial Area, Hassan	Sri. Karthikeyan- Senior Vice President Dr. Umashankar – Association Professor
7	M/s. Sana Industries, Sy. No. 59, Plot No. 297 & 298, Nandur Kesartagi Industrial Area, KIADB, Kalaburgi Taluk & District	Sri. Mohammed Khaja, Gulbarga – Owner Sri. D.Shilla Rao- General Manager Sri. Imtiyaz -Maintenance
8	Environmental Friendly Technology for Co-recycling Seri-Agri-Plastic Waste,	Dr. Rinku Verma- Assistant Professor, Farm Forestry & Environmental science.



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**ITEM NO. 383:01**

The proceedings of 382<sup>nd</sup> meeting was read and discussed. The committee confirms the proceedings with the following observations/additions.

**ITEM NO: 382:08**

Sewage Treatment Plants- Continuous Aerobic Multistage Soil Bio Technology by M/s. Vision Earth Care, No. 105, 4<sup>th</sup> Main Road, Amarjyothi Layout, RT Nagar, Bangalore-560032.

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It was opined that the proponent should submit data to justify the technology proposed by them & shall take complete responsibility with regard to the efficiency of treatment to be achieved with their technology. The detail shall contain:

1. How the system can be used?
2. Whether the system which is designed for specific location can be used in other location without much change.
3. What is the degree of adaptability of the system for different scenario's.

It is informed to submit the data on treatment efficiency of the system presently being operated at command hospital.

It is informed to replace the words "Under DEWAT System" to "Similar to DEWAT System".

With this addition, it was resolved to confirm the proceedings.

**ITEM NO: 382:09**

Establishment of Sewage treatment plant using vermifiltration technology by M/s. ACC Limited, Kudithini Cement Works, Kurugodu Road, Kuduthini Bellary Taluk & District.

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It was decided to call for the design criteria of the treatment system and not to claim that the Board has approved this Technology. The TAC will deliberate only after submission of pilot plant study data after incorporating the suggestions made during the last TAC meeting.

Further, the proponent shall submit data to justify the technology proposed by them & shall take complete responsibility with regard to the efficiency of treatment to be achieved with their technology. The detail shall contain:

1. How the system can be used?
2. Whether this system which is designed for specific location can be used in other location without much change.
3. What is the degree of adaptability of the system for different scenarios

Proponents may submit the data on treatment efficiency of the system presently being operated.

With this addition, it was resolved to confirm the proceedings.

  
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### **Other Issues Discussed:**

A general discussion was made about R & D laboratories which are proposed and specially carrying out synthesis biological studies, cells of human system, animal testing facilities and those carrying out BSL II & III activities in their premises. Even though earlier Board has prepared a guideline for establishing such activities, there is a need of thorough checking of these activities along with its pollution control management system proposed. Emphasis is to be given to the location of such activities among other activities in a common premises/building etc., or there is a requirement for a standalone facility in the back ground of contaminative process adopted by these R & D units.

In this regard, it was opined to constitute a sub-committee consisting of following TAC members and special invitees to prepare more stringent guideline for such R & D laboratories.

1. Dr. H.N.Chanakya, Chief Scientist, Centre for Sustainable Technologies, Indian Institute of Science (IISc), Bangalore – 560 012.
2. Dr. B.S.Jai Prakash, Vice President, Academy of Certified Hazardous Material Managers – India Chapter, Bangalore Institute of Technology, K.R. Road, Bangalore.
3. Dr. Sandeep Mudliar, Principal Scientist, E-II, Central Food Technological Research Institute (CFTRI), Mysore – 570 020.
4. Dr. Shylaja – invitee from IISc
5. A representative from National Institute of Virology

The committee shall look into all the aspects of laboratory activities including the quality of effluent, Biomedical waste, Solid waste and its management system proposed by respective industry. It was also resolved that the industry shall take the responsibility of treatment & disposal of trade effluent generated by them, in case the same is handed over to CETP. The committee has also suggested that the laboratory shall ensure that CETP has the facility and competency to treat such type of effluent.

Further, it was also resolved to direct the industry to invite Government representative of in-house institutional bio-safety committee for the TAC by the respective industry for further meeting.

### **ITEM NO:383:02**

**M/s. Theraindx Life sciences Private Limited, Sy.No.27, Deganhalli, Budhihal Post, Nelamangala, Bangalore – 562123**

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The issue was discussed in the earlier TAC meeting held on 21.03.2016 & TAC has sought certain clarifications. The project proponent has made a detailed presentation on the observations made by the TAC & the compliance by the industry. They have informed that about 2 KL of water used exclusively for cage washing will be treated with autoclave followed by equalization & neutralization. The same will be used on land for gardening within the premises. However, effluent from washings, bio-tech working cabinet is being handed over to authorized CETP for final disposal. They have also submitted SOP for spillage control of Hazardous/ toxic chemicals. After detail deliberation, the committee has sought the following details:

1. A qualified Environmental, Health & Safety Officer shall be deployed for overall management of the system.

  
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2. All the activities pertaining to BSL II & III shall be carried out in a closed chamber / cabinet with negative pressure.
3. The company shall earmark pathway for one way flow for Men & Material. The plan in this regard shall be submitted to the Board.
4. Effluents from different process area like BSL cabinet, micro-biology lab, analytical lab, cage washings etc., shall be segregated separately & handled as per the toxicity level of the effluents. The wastewater containing bio-hazards/ toxic chemicals shall be disposed for incineration.
5. The details of safety measures proposed by the industry shall be submitted including men who are allowed for specific location.
6. The industry shall indicate different chemicals/ biologicals and their treatment to the Board.
7. Train the staff for handling different materials and the details of training imparted to the personal shall be submitted.
8. Industry shall submit floor plan of the building indicating isolation points, assembly points, Men & Material in & out movement to the Board.
9. It was also advised to write a letter to get clarification by RCGN about the degree of bio-safety level activity to be carried out by the industry and also to submit the copy of the approved proceedings of IBSE to the Board regularly.
10. A commitment shall be submitted duly signed by senior official for carrying out all the above activities to the Board.
11. The unit shall collect the catalyst used separately & to hand over the same to the supplier for recycle.
12. The unit should have an in-house Institution Ethic Committee that will monitor and approve various research projects undertaken by the unit.

**The TAC has recommended to consider the project for issue of CFE on receipt of above details.**

**ITEM NO:383:03**

**M/s. Kemio Solutions Private Limited, Plot No.432 & 476, 3<sup>rd</sup> Cross, MS Ramaiah Enclave, Nagasandra, Tumkur Road, Dasanapura Hobli, Bangalore – 560 073.**

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The issue was discussed in the earlier TAC meeting held on 21.03.2016 & TAC has sought certain clarifications. The project proponent had made a detailed presentation on the observations made by the TAC & the compliance by the industry.

After deliberation, the TAC has suggested the following:

1. The detailed drawing/plan shall be submitted to the Board indicating separate pathway for one way flow for Men & Material, indicating road access, fire safety etc.,
2. The industry shall ensure that CETP has the facility and competency to treat such type of effluent.
3. The industry shall not use toxic chemicals in the process. A commitment in this regard shall be submitted.
4. Industry shall shift the activity from the existing premises to a standalone building before they take up any expansion.

**The TAC has recommended to consider the project for issue of CFE on receipt of above details.**

  
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**ITEM NO:383:04**

**Up gradation of STP & CETP at M/s. Apperal Park, Doddaballapura.**

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KIADB has proposed to modify and upgrade the CETP at apparel park, Doddaballapura. The technical report was submitted by 2 consultants M/s. Janani Engineering Services & Solutions and M/s. Envirocare, New Delhi.

In the last TAC meeting, M/s. Janani Engineering Services & Solutions had made a presentation. During this meeting M/s. Envirocare, New Delhi has presented the modifications proposed for the existing facility to improve the treatment efficiency apart from establishing Reverse Osmosis System for recovery of water and reusing back in the process. After detailed presentation, the following clarifications were sought from the KIADB:

1. Due diligent report for the existing system indicating operational parameters shall be submitted.
2. Details of any Bench scale study report conducted in arriving the up gradation proposal shall be submitted.
3. The quantification in terms of alkalinity and hardness which is hampering the present treatment efficiency and the remediation measures proposed for improving the performance of CETP.
4. Recovery of water at each stage of treatment along with reduction of different pollutant parameters.
5. Consideration of COD, BOD for modification and details of pollutants from unsegregated stream from each industry.
6. Treatment efficiency after proposed modification especially at equalization and primary clarification stage.
7. Quantity of rejects expected after treating with Multiple Effect Evaporator.
8. The technical details and the working principles of the proposed Weak Acid Cation (WAC) system shall be submitted, indicating the details of performance improvement of the CETP due to the addition of the above system.
9. Percentage of COD removal after primary and biological treatment shall be submitted along with the study report indicating the chemistry behind the process.
10. Evaluation of actual COD in textile industry along with its treatment technology available in the present scenario both at segregated stage and combined stage.
11. Advised to carry out Total Organic Carbon analysis to arrive at real COD and consideration of that value for designing the process.
12. Treatment efficiency achieved after each stage viz., primary, secondary and tertiary treatment.
13. It is informed that about 70 TPD of rejects will be generated every day after 20-30% of recovery. Hence it is advised to take up economic analysis in line with the treatment efficiency.
14. It is also suggested to take up studies as done by CPCB with different permutation & Combination including treatment with Hydrogen peroxide and Electro oxidation process, which is in operation at M/s. Scott garments.
15. It is suggested to examine the possibility of using ozonization technology in the system for the treatment process.

  
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16. The operation and maintenance of CETP with complete up gradation which shall include Standard Operation Procedure (SOP) of entire CETP shall be submitted to the Board.

After submission of the above details, the TAC has recommended to discuss the issue again.

**ITEM NO:383:05**

**M/s. Surya Hard Chrome Pvt Ltd, No.24, Sompura 1<sup>st</sup> Stage, Sompura Hobli, Nelamangala Taluk, Bangalore Rural District.**

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The issue regarding groundwater contamination caused by M/s Surya Hard Chrome Pvt Ltd., in the existing old premises at No. 168/F, III Phase, Peenya Industrial Area, Bengaluru-560058, was discussed in the previous 382<sup>nd</sup> TAC meeting held on 16.04.2016 and the TAC has advised the proponent to submit certain clarification/additions. In reply the Factory authorities have submitted vide their letter dated: 26.04.2016 stated that they have removed the contaminated soil and waiting for one time permission to dispose the contaminated soil to TSDF. In the meantime, the Regional Officer-Bangalore West has submitted his field observation with respect to action taken by the industry on remediation of the contaminated site. The regional Officer explained the action taken by the unit and expressed the dissatisfaction with respect to the action taken by the industry. The reply submitted by the industry cannot be accepted, since no prior information was given to the Regional Officer before taking up the remediation. He also informed that about 800-1000 Kgs of soil was excavated from the industry itself and stored for the disposal to TSDF. The site where soil was excavated is not properly refilled by obtaining approval from the Regional Officer. It was also informed that the chromium content at 1m depth is 49.5 mg/L and the industry has not submitted any action plan to restore the water quality in the affected bore wells.

The TAC was of the opinion that the contaminated soil with Chromium will pollute the groundwater over a period of time if the same is not removed from the soil. The TAC has also took the cognisance of the reply submitted by the industry that they are not in a position to appoint a qualified technical consultant as advised by TAC earlier and expressed dissatisfaction on the issue.

In view of the above, **the TAC has opined that the Board may consider initiating legal action through appropriate court/ NGT to penalise the industry on "Polluters Pay Principle".**

With regard to the issue of CFE of the application by the proponent for the new location at No.24, Sompura 1<sup>st</sup> Stage, Sompura Hobli, Nelamangala Taluk, Bangalore Rural District, **the Board may take suitable decision on the disposal of application.**

**ITEM NO:383:06**

**M/s. Eurofins Clinical Genetics India Pvt Ltd, No. 540/1, Plot No. 18-B3, Ground floor, Doddanekundi Industrial Area, Hoodi Village, K.R Puram Hobli, Bangalore East Taluk.**

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M/s. Eurofins Clinical Genetics India Pvt Ltd., have filed an application seeking CFE to establish a new R & D laboratory to carry out clinical & molecular diagnostic services. The trade effluent will be handed over to authorised CETP & Sewage will be treated in the STP

  
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provided by M/s. Eurofins Resources India Pvt Ltd.,

The proposed unit is being established in an existing building of M/s. Eurofins Resources India Pvt Ltd., where 3 other units are housed ( M/s. Eurofins Analytical Services India Pvt ltd, M/s. Eurofins Genomics India Pvt Ltd & Euro IT Solutions India Pvt Ltd.,).

The proponent has made a presentation of their project before the committee. The committee has discussed the proposal & pollution control measures in detail & sought the following clarification from the proponent:

1. Details of clinical research shall be submitted.
2. Segregation of hazardous / toxic chemicals and the methodology adopted for segregation.
3. Details of bio-hazards and its isolation from larger volume of general waste and a commitment to follow segregation of live samples/ pathogenic material obtained from hospitals.
4. It was advised to create a system to avoid any accidents and a commitment on not dealing with pathogenic/genetically modified micro-organisms including screening of pathogenic/non-pathogenic material.
5. Not to import blood samples/ culture samples from outside countries.
6. A Medical doctor and an ethical committee member can be incorporated to the in-house IBSE committee and proper protocol shall be followed. Proceedings of this meeting shall be submitted regularly to the Board.
7. All the approvals obtained from other statutory authorities shall be submitted to the Board.
8. It was advised to carry out this activity in the stand alone building and directed to vacate the IT premises and genomics from the present premises.
9. It was advised to establish a gene library and to have data bank of genes with which research is being carried out.
10. All the area shall be segregated separately for Men & Material movement and the people working in specific areas shall not be allowed to all the areas and restricted to their working area.
11. The details of emergency preparedness shall be submitted.
13. The unit shall collect the catalyst used separately & to hand over the same to the supplier for recycle.
14. The unit should have an in-house Institution Ethic Committee that will monitor and approve various research projects undertaken by the unit.

**The TAC has recommended to consider the project for issue of CFE on receipt of above details.**

**ITEM NO:383:07 & 383:08**

**M/s. Sahara Fuels Energy, Sy. No. 39, 93, Plot. No. 71/B Nandur Kesartagi Industrial Area, KIADB, Taluk & Kalburgi District.**

**M/s. Sana Industries, Sy. No. 59, Plot No. 297 & 298, Nandur Kesartagi Industrial Area, KIADB, Kalaburgi Taluk & District.**

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M/s. Sahara Fuels Energy & M/s. Sana Industries, have proposed to establish a waste tyre recycling pyrolysis plant for manufacturing of Pyrolysis Oil of capacity 6 TPD, Carbon Black-3.6 TPD, Steel Scarp-4TPD to Regional office, Kalburgi. Since, Board has taken a policy decision not to issue consent for pyrolysis units as there were serious complaints against

  
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operation of such units.

In this regard, Board earlier had evolved a guidelines to be followed by industries. But in most of the cases, industry has failed to comply with the Board's direction, especially in respect of emission of fine Carbon powder & its related dust nuisance.

Hence, the issue was taken again before the TAC and the proponent have presented the environmental compliance by another unit viz M/s. Prashanth Sai Engineering works, established & Operated at Hyderabad through its occupier.

After the detail presentation, committee has sought the following details:

1. Copy of the SOP approved by APPCB along with copies of CFE/CFO issued to the existing industry at Hyderabad.
2. Industry shall comply with all the technical specifications evolved by the Board for pyrolysis plant and shall submit to committee in the form of affidavit to the Board.
3. The characterization of un-condensed gas shall be submitted and a provision shall be made for recycling the un-condensed gases.
4. Proposal for collection, handling and disposal of Carbon scientifically without endangering the environment shall be submitted to the Board.

**The TAC has recommended to consider the project for issue of CFE on receipt of above details.**

**ITEM NO:383:09**

**M/s. Omnikan Earth Science Pvt Ltd, Plot No. 556, A1 & A2, Hassan Growth Centre, KIADB Industrial Area, Hassan.**

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**Preamble:** The industry had obtained consent from Board for the period upto 30.06.2017 for the manufacture of Marigold Flower Dehydrated powder of capacity 3000 MTPA. The process involves, Marigold flowers received from farmers are stored in silos for ensilaging in anaerobic conditions for few weeks helps easy extraction. After fermentation flowers are squeezed in screw press to remove water. The pressed flower are shredded and dried in a fluidized bed trailer. The dried flowers are packed and shipped.

Due to public compliant against the industry on the discharge of effluents and smell nuisance from the villagers located nearby and as per Regional Officer's recommendations and due to persistent complaint from nearby villagers on the bad odour nuisance from the said industry, Board constituted TAC subcommittee consisting of Dr. S. Manjappa, Dr. Chankya and Sri B.G. Mohan Krishna, CEO on 22.05.2015 and based on the TAC subcommittee suggestions, the industry implemented the action plan.

  
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Industry is practicing lactic acid fermentation by spraying diluted lactic acid on flowers in the silos. The industry was advised to source the lactic acid from the local supplier including KMF instead of importing from Thailand to reduce the cost in the long run. It was also suggested to increase the height of the silos and provide roof to allow air circulation instead of using tarpaulin which avoid generation of mercaptans and Hydrogen sulphide.

In mean time, Board received compliant from Sri. Channegowda of Samudravalli Village vide letter dated 24.06.2015 & based on the compliant, the Board directed RSEO, Mysuru and SEO, Enforcement Cell, Board Office to inspect the industry.

As per the Board Office direction, the industry was jointly inspected by Sri. M. Lakshman, RSEO, Mysuru Zone and Sri Udaya Kumar, SEO of Enforcement Cell, Board Office. The team visited the Samudravalli village, Nagatavalli village and surrounding industrial area and checked for any smell nuisance and found that, there is hardly any smell nuisance felt and same was measured using VOC monitoring equipment. As the industry has taken several steps to curb smell nuisance as well as control of water pollution & RO, Hassan recommend to place the inspection note in the next TAC meeting.

RO, Hassan vide letter dated 01.04.2015 has mentioned that based on the recommendation of TAC sub-committee industry has given project to University of Agricultural Science, College of Agriculture, Hassan to study on the use of organic effluent generated during the processing of marigold flowers for sustainable agriculture.

The report submitted by University of Agricultural Science, College of Agriculture, Hassan was placed before TAC to take decision on modification of consent allowing industry to dispose untreated organic effluents to the farmers for utilization in their agricultural field.

In this regard a presentation was made by Mr. Karthekeyan, Vice president of the industry on the TAC subcommittee suggestions made by them and Dr. Uma Shanker, Agriculture University, Hassan, presented on the experiment conducted on field bean (Pulse crop) to study the effect of organic waste water generated from marigold flower pressed juice by Omnikan during process of marigold flowers for sustainable agriculture.

**After the detail presentation, committee has sought the following details:**

- Characteristics of the effluent/ soil (NPK value) shall be submitted along with analysis report
- On application of effluent in the field how much fertilizer could be saved (cost benefit analysis)

TAC has recommended to adopt following procedure for treating the effluent at anaerobic digester and using it for onland irrigation. The industry shall submit:

- The industry shall have an MOU with University of Agricultural Sciences, Hassan for continuous monitoring of treated water disposal on land for irrigation.
- The industry shall submit Survey/Plot (Khasra) numbers of land for irrigation under the scheme along with their extent of area.
- Agronomic plan for effective utilization of land by crop rotation
- Effluent distribution schedule to the fields.

  
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- Infrastructural facilities available/ planned for collection and analysis of samples collected as per item 3 i.e., Monitoring protocol and;
- Full-time expert and other manpower employed for the purpose of managing the IMP
- The physic-chemical characteristics of the soil under irrigation by the effluent shall be regularly monitored for pH and Electrical Conductivity (EC).
- The records of soil and groundwater quality monitoring data so collected shall be properly maintained for verification by the State Pollution Control Board, at least once after every cropping season, for cross- verification by the State Pollution Control Board, at least once after every cropping season, for cross- verification.
- The industry should maintain pucca records and data regarding effluent land application. In case, tanker lorries are engaged for spentwash transportation to the field, they should carry a "Transit Card" with the following details
  - a. Tanker lorry number
  - b. Data/Time of loading & unloading
  - c. Field address
  - d. Receiving person
  - e. Distance travelled
- Infrastructure facilities should be arranged for collection and analysis of sample drawn from the application zones.
- The Board shall review the action taken by the industry at least once in 6 months to enable it to rectify the procedure and advice the industry for any improvement.

**The TAC has recommended continuing the anaerobic system of treatment till the studies completed and submitting the report to the Board along with the analysis report of the effluent.**

**ITEM NO:383:10**

**"Environmental Friendly Technology for Co-recycling Seri-Agri-Plastic Waste" by Dr. Rinku Verma, Department Farm Forestry & Environmental Science, College of Sericulture, Chintamani.**

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Dr. Rinku Verma has presented the salient features of proposed study which is based on pyrolysis technology to use plastics, agriculture waste, waste from sericulture to produce fuel oil, which is used for different purposes. It was also proposed that nano-catalyst like materials derived from Magnesium Oxide, Calcium Oxide etc., is used to enhance the quality of waste oil produced. It was informed that the project is supported by Department of Science & Technology under Indo-German program. The proposal is submitted to the Board for giving financial Assistant to purchase 25 Kg/Hr pyrolysis unit which may cost between 4.5 Lakh to 5.0 Lakh.

After detailed deliberation, the TAC has suggested to submit the following:

1. Characterization of acid waste catalyst used in the process
2. Pilot plant studies undertaken and its data validation in respect of production of oil, its

  
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Characterization, Waste Handling and Management, Pollution Control Measures etc.,  
A detailed report shall be submitted to the Board for further consideration.



**DR. JAI PRAKASH ALVA**

**Chairman**

**Technical Advisory Committee**

**Karnataka State Pollution Control Board**

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**B.G. MOHANKRISHNA**

**Chief Environmental Officer-2**

**Convener, Technical Advisory Committee**

**Karnataka State Pollution Control Board**