

**LOCAL AREA ENVIRONMENTAL COMMITTEE For ELOOR – EDAYAR AREA (LAEC)**

(CONSTITUTED AS PER THE ORDER No PCB/HO/HWM/SCMC/503/2004 DATED 15.10.2004)

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**REPORT**

Witnessing the alarming situation created by generation of hazardous waste, its dumping and serious irreversible damage as a result thereof to the environment, flora and fauna, health of animals and human beings, the Research Foundation for Science and Technology approached the Hon'ble Supreme Court under Article 32 of the Constitution of India complaining violation of fundamental rights under Articles 14 and 21.

Considering the magnitude of the problem and the volume of hazardous wastes generated, the Hon'ble Supreme Court issued notices to all the State Governments, Central Pollution Control Board and the State Pollution Control Boards to identify the problems caused by the hazardous wastes and allied matters including aspects relevant to minimize its generation with a view to protect the environment.

In view of the magnitude of the problem and its impact, the State Governments were directed to show cause why an order be not made directing closure of units generating hazardous wastes where provision is not made for requisite safe disposal. It was further ordered to show cause as to why immediate order is not made for closure of all unauthorized hazardous wastes handling units.

The Hon'ble Supreme Court in its Order dated 4th August 1997 observed that the State Governments have not taken steps required under the applicable law and have failed to place before the Court all material facts in spite of considerable time being given to them.

It is in this background, the Hon'ble Supreme Court found appropriate to constitute a committee to arrest the growth of the problem caused by Hazardous wastes and oversee the improvement in the quality of environment. The Hon'ble Supreme Court constituted a High Power Committee (HPC) under the Chairmanship of Prof. MGK Menon to examine all matters in depth relating to hazardous waste. The committee filed its report on 20<sup>th</sup> April 1998, on consideration whereof; the Hon'ble Supreme Court on 10/10/1999 issued certain directions.

The Hon'ble Supreme Court appointed a Monitoring Committee to ensure that the generation of hazardous wastes is brought to minimum and it is properly handled in every state. The committee has been entrusted with the duty to oversee the compliance of law, rules and regulations and directions of the Hon'ble Supreme Court. The committee constituted by the Hon'ble Supreme Court consists of the following members:

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|----|---|----------|
| 1. | Dr. G. Thayagrajan, Senior Secretary<br>COSTED, Chennai | Chairman |
| 2. | Mr. V. Rajagopalan, Chairman, CPCB                      | Member   |
| 3. | Director, NEERI, Nagpur                                 | Member   |
| 4. | Director, NML   | Member   |

5.	Director, IIP, Dehradun	Member
6.	Director, NCL, Pune	Member
7.	Dr. Claude Alvares, NGO	Member
8.	Dr. D.B. Boratkar	Member
9.	Dr. N.H. Hosabettu Director, HSM Div., MOEF	Member-Secretary
10.	Director, IICT	Co-opted Member

### Visit of SCMC in Kerala

The Supreme Court Monitoring Committee (SCMC) visited Kerala on 14-8-2004. The committee visited several units generating Hazardous waste. The committee found to its shock that the authorities in Kerala have allowed widespread disregard of the Court order dated 14-10-2003. It found several units operating without authorization as required by Hazardous Waste (Management and Handling) Rules 1989 and in defiance of the order dated 14-10-2003. In addition SCMC found the provisions of Air (Prevention and Control of Pollution) Act and Water (Prevention and Control of Pollution) Act being openly flouted. The committee was particularly alarmed and distressed at the state of Periyar River which is the lifeline of Kerala. The committee found the river itself has been converted into a vast illegal treatment storage and disposal facility (TSDF) for receiving large quantity of hazardous waste. The Supreme Court Monitoring Committee issued the following directions among others;

1. The KSPCB is directed to close forthwith all units that have no authorization to operate under the Hazardous Waste (Management and Handling) Rules 1989. These units will not be allowed to reopen until they have the proper facilities to dispose of their hazardous wastes as required under the Rules.
2. The committee directed the Kerala State Pollution Control Board to set up a Local Area Environmental Committee with the following terms of reference to assist the Supreme Court Monitoring Committee.
  - a) It will commence an environmental audit of all the 247 industries located in the area and that are affecting the ecology and environment and the local health of the population along the Periyar River and in the Udyogamandal industrial estate. This environmental audit will be completed in six months.
  - b) The LAEC will visit each of the industrial units and ensure that the units are complying with environment laws including the provisions of the Hazardous Waste (Management and Handling) Rules 1989. **It will ensure that there are no illegal discharges into the Periyar River either in the form of solid waste or liquid effluent containing hazardous wastes.**
  - c) It will ensure that proper material balance is maintained of the various chemicals and wastes used and generated in the premises of each unit.

- d) It will also ensure that all industrial units covered by the order dated 14-10-2003 will have display boards in Malayalam and English at the main gate accessible to all members of the public in the vicinity.

The Supreme Court Monitoring committee directed the Kerala State Pollution Control Board to notify the formation of LAEC to all industrial units. The Board was directed to handover to the LAEC copies of all consents granted to the various units under Air (Prevention and Control of Pollution) Act and Water (Prevention and Control of Pollution) Act and authorization granted under the Hazardous Waste (Management and Handling) Rules 1989, if any and other environment information related to the protection of the Periyar River if requested by LAEC **as if it were being requested by the SCMC.**

The Supreme Court Monitoring Committee warned all concerned that should the SCMC find that these actions do not turn the situation around and reverse the pollution of the Periyar river within the stipulated period of six months, it will have no hesitation in directing the closure of the entire Udyogamandal industrial estate and that units will be allowed to re-open one by one thereafter only if they are able to convince that all measures have been installed to discharge as per EPA standards and HW Rules.

The Kerala State Pollution Control Board reconstituted the present Local Area Environmental Committee for Eloor –Edayar Industrial belt on 15-10-2004 with the following terms of reference.

1. Carry out an environmental audit of all the 247 industries located in the area and that are affecting the ecology and environment and the local health of populations along the Periyar and in Udyogamandal Industrial Estate. The environmental audit should cover the study of raw materials, products, production process, waste generation, compliance with environmental laws, unauthorized disposal of wastes, present status etc.
2. Environment audit shall be completed in six months.
3. The LAEC is to visit each of the industrial units and ensure that the units are complying with environment laws including the provisions of the Hazardous Waste Rules.
4. Ensure that there are no illegal discharges of hazardous wastes into Periyar either in the form of solid waste or liquid effluent containing hazardous wastes.
5. Ensure that a proper material balance is maintained of the various chemicals and waste used and generated in the premises of each unit.
6. Identification and sealing unauthorized outlets.
7. Identification of site in Eloor for a common TSDF.

8. Ensure that all industrial unit covered by the order dated 14-10-2003 will have display boards in Malayalam and English at the main gate visible to all member of the public in the vicinity.

The committee started its inspections of the industries in Eloor –Edayar belt on 2<sup>nd</sup> November 2004. The Committee during its inspection associated one Environmental Engineer, one Asst. Environmental Engineer and one Scientist deputed from the Kerala State Pollution Control Board to assist in environmental audit. The committee initially conducted inspections with notice to the units and subsequently realizing the clandestine manner in which the units have been discharging untreated trade effluent into the environment, it resorted to surprise visits.

The committee constituted a panel of scientists to seek advice for combating the environmental threat and related issues including steps to protect the river Periyar which is a major source of drinking water catering the needs of 47 Panchayat , 3 Municipalities and One Corporation in Ernakulam districts

LAEC asked the industries to make available copies of the statutory orders issued to them under various environmental laws such as Environmental Protection Act, Manufacture, Storage and import of Hazardous Chemical Rules, 1989, Hazardous Waste (Managing and Handling) Rules 1989; Water (Prevention and Control of Pollution) Act, The Air (Prevention and Control of Pollution) Act etc. and laboratory reports of the accredited agencies to satisfy itself that the industrial units are functioning with required consents and are complying the conditions.

The Committee also held public hearings on every first Saturday and third Saturdays in the office of the. State Pollution Control Board at Eloor and collected the complaints from the local residents as a part of identifying their problems in the industrial belt. One of the major complaints from the local residents was that the presence of the Board in the industrial belt is not felt, as there is no regular monitoring by the regulatory body notwithstanding the fact that the industries posed serious environmental problems.

LAEC therefore felt necessary, to begin with, examine the veracity of this allegation. On 2-11-04, LAEC visited the site office of Pollution Control Board at Eloor. To its shock the office was found closed. On enquiry it is found that the office has been non functional for a pretty long time. There was absolutely no infrastructure such as lab facilities, lab technicians and other competent personnel's for conducting inspections and monitoring the units at regular intervals in this industrial belt. There was no arrangement even to attend emergency situations. The complaint of the public was thus stand vindicated and the committee found the genesis of the environmental problem in the failure of the Board in maintaining a functional office at Eloor-Edayar industrial belt.

LAEC expressed its concern over the manner in which the site office at the industrial belt is maintained by the PCB .It resolved in its meeting held on 12-11-2004 to request PCB to make its site office at Eloor-Edayar functional with necessary infrastructure such as telephone, fax, lab, vehicle, lab technicians and other staffs for periodic and surprise inspections and collection of samples for analyzing for ensuring compliance of environmental laws. LAEC demanded that the office at Eloor be made functional with necessary infra- structure. LAEC noticed with pain that no steps have been taken by the

Board to ensure round the clock effective functioning of the Site office at Eloor by providing sufficient staff and infrastructure including Lab facilities and vehicle for inspection even after elapse of nine months. LAEC has passed several resolutions on the subject since 12/11/2004. The constant follow up by the committee has not yielded any result. Follow-up Resolutions of the 18<sup>th</sup> meeting held on 21/12/2004, and 14/03/2005 and the assurance by Chairman, PCB are yet to be materialized. The only action reportedly taken by the Pollution Control Board is to appoint a peon and an Asst. Engineer and a typist. There was no Telephone connection. Not even a facility of a urinal for woman staff to work. No vehicle has been provided for inspection. Considering all these aspects LAEC requested to first to relocate its office in any of staff quarters of FACT, which remains vacant. LAEC took initiative to get a quarter allotted and now PCB has a building to house a full-fledged office at Eloor. But no steps are taken to provide laboratory facilities and to collect samples. The office has no typewriter. The office remains closed after 5 PM. The posting of staffs serves no purpose except incurring additional expenditure. The recommendation of LAEC for 24 hours functional office is to monitor the industries round the clock to keep a check on the polluters. KSPCB has not been sincere to comply by this demand. **The conduct is strongly disapproved.**

The LAEC detected colour change in the river Periyar on 21-11-2004 from the portion starting from M/s CMRL to downstream up to Eloor ferry. The committee discussed the report appeared in the press on the large-scale fish kill in river Periyar. The cause for fish kill was attributable to the discharge of industrial wastes. The Industries situated in the banks of the river were suspected to be the culprits of the fish kill. LAEC has taken strong exception to such disposal of waste into Periyar River and condemned such act in strongest terms. The committee decided to take strong action against persons resorting to such disposal of waste in future causing damage to the marine life. All the industries were advised not to resort to such short cut methods of disposal of waste. The public was also requested to raise voice against such indiscriminate discharge of effluent into the river Periyar and help LAEC to capture the culprits red handed. The local people of the area handed over a sample taken by them from the final outlet of CMRL. The committee analysed the sample (green coloured effluent) and found pH 4.4, SS 1410 mg/l, Iron 12238 mg/l, Lead 4.29 mg/l, Chlorides 33500 mg/l and Manganese 11.2 mg/l. The committee decided to watch CMRL closely as the result indicated discharge of raw effluent in to Periyar.

The committee during its inspection found the parameters fixed in many consent orders falling short of important parameters. The Board while issuing consent order seems to have not considered various aspects such as the nature of the product, various chemicals used for the manufacturing the product, the composition of the effluent etc with the result the parameters fixed failed to content pollution. The Board while issuing consent has unfortunately not applied its mind with specific reference to these fundamental aspects. It is observed that the Cochin Mineral Rutilites Ltd is producing Synthetic Rutilites and by product Ferric Chloride using raw material such as Ilmenite, Coke, Hydrochloric Acid, Fuel Oil, Chlorine. The effluent generated in the manufacturing processes therefore would necessarily contain high Iron, Chlorides, Copper and TDS. The consent issued by the Pollution Control Board therefore necessarily ought to have prescribed the parameter for Iron, Chloride, Copper, TDS etc in the treated effluent. Unfortunately these important parameters are not seen included in the consent. Similarly Merchem Limited, Eloor is producing Accelerators,

Antioxidant, Sodium Sulphate by utilizing raw materials. Their effluent necessarily contain COD, Mercaptans, Sulphates, TDS, Chlorides along with other parameters. Similar is the case with Merchem Ltd., Edayar. The unit is manufacturing the products such as F, ZDC, ZDBC, ZBEC using raw materials such as Carbon disulphide, Zinc Oxide, Zinc Chloride, Di Ethyl Amine, Di n Butyl Amine, Di Benzyl Amine, Caustic Soda, Hexamine, DPG, MBTS and the effluent necessarily contain COD. Binani Zinc Limited is producing Zinc, Sulphuric Acid, and Cadmium by using raw materials such as Zinc Concentrate and Fuel. The effluent necessarily contains Iron and Nickel. Another Industry namely Minar Chemicals is manufacturing Precipitated Silica and Sodium Silicate by using raw materials Sodium Silicate, Hydrochloric Acid, electricity, Caustic Soda, Quartz Powder, Firewood. The effluent would contain Chloride and therefore parameter should be fixed for Chloride.

The consent issued by the Pollution Control Board ought to have prescribed limits for these parameters in the consent order to the aforesaid companies. However these necessary parameters have not been fixed to these units, which is a serious lapse on the Board. In the above circumstance LAEC resolved demanding PCB to undertake the exercise of revising the parameters issued to each chemical industries in Eloor – Edayar area case by case and include the parameters, which are necessary, having regard to the nature of effluent generated by the units. **This exercise is yet to begin.**

The committee also resolved to undertake river monitoring periodically and took samples from the outlets open to Periyar for discharge by the industries. It is noticed that many of the industries have direct access to Periyar and do not have compound wall. The wild bushes kept these outlets open to River Periyar invisible. The committee directed the industries situate on the bank of the River Periyar to clear bushes and other wild growth from their boundaries to the river mouth in order to make the outlets visible. LAEC conducted a river survey through Periyar in Boat and also Eloor- Edayar industrial belt with the officials of DIC to assess the damage caused to the Periyar and in the areas of the industrial belt by the indiscriminate discharge of effluent and solid waste to the river and land by the industrial units. During this joint inspection, the team found industrial waste dumped in open land behind Arjuna Natural Aromatics and illegal sand mining at different points namely Chirayamkadavu in Alangadu panchayat; Methanam in Eloor Panchayat; point near to V.R Woods; point near to Yeoman Bone Industries and Binani Zinc Ltd. The inspecting team suggested that the officials of the DIC should either block the road by fixing post across the road at four locations, viz., near Sud Chemie, Arjuna Natural Extracts, Neptune Readymix Concrete (P) Ltd; across the road between Binani Zinc and Sud Chemie or in the alternative to permit the PCB to fix the poles and block the road in order to stop transportation of sand illegally and to protect river from the discharge of trade effluent from outside. The inspecting team appraised the DIC officials of the need for having a setback of minimum 20 m from the factory building to the river bank to protect the river from dumping waste both solid and liquid effluents. **The officials have agreed to take up the matter with higher officials. But actions are yet to be taken.**

LAEC also during its inspection found an internal industrial road being blocked near to the Cochin Fertilizers. This road is the only one, which gives uninterrupted access to various industrial units. By blocking the road the regulatory agencies often face problems for inspecting industrial units and are compelled to take diversion. There is absolutely no justification in blocking public road for the exclusive use of one or two units. The space occupied by the road if allotted to any unit has to be resumed and the road should be opened forthwith for public use. If any private person for the use of their unit has blocked the road illegally that unit should be directed to remove the obstruction forthwith. It is also brought to the notice of the LAEC that similar road blocking can be seen at the road leading Merchem, Edayar. **LAEC resolved that all illegal blocking of internal roads obstructing the traffic have to be removed.**

The LAEC found it necessary to monitor the water quality in river Periyar round the clock. It noticed that the Board has no facility for monitoring the water quality of river Periyar when it has indiscriminately allowed the industrial units to discharge the effluent to river Periyar. Having regard to the complaints of polluting the river water by the discharge of untreated effluent from industries, the committee resolved to request PCB to setup a permanent lab unit to monitor water quality in river Periyar. The committee decided to take initiative in the matter and decided to approach the Dist collector Ernakulam, Pollution control board, District Industries Center and concerned local bodies for materializing the proposal. By the efforts of LAEC, an extent of 11.250 cents of land has been earmarked in Eloor Ferry and the concerned Tahsildar & Village Officer have submitted their recommendations for the assignment of this land in favour of PCB. The process is now almost in the final stage. What remains is only an order from the District Collector allotting the land accepting the recommendations of the Tahsildar & Village Officer for allotment of the said land in favour of PCB. A letter addressed to the District Collector enclosing copies of the recommendations of the Village officer & Tahsildar has been sent. **PCB should should take follow up action for getting the land allotted.**

The committee found all units in Eloor Edayar belt depending Periyar for meeting its water requirement. The water intake of these industries however has no relation with their actual requirement. Water balance of each unit will show their consumption at exceedingly high side. There seems to be no control over this consumption. The levy of water cess and its collection needs to be calibrated and effective measure to be taken to control over consumption. All the units taking water from river Periyar should be asked to install sealed water meter at the intake point and the Board officials should take meter reading bimonthly and cess should be collected on the basis of the meter reading. Each units should be given a minimum allotment and consumption in excess of that should be assessed at high tariff. The present practice of collecting cess should be revamped as that causes sever loss to public exchequer. **A strict cess collection on the basis of its consumption will be a check on over consumption.**

LAEC found to its shock that the Pollution Control Board has not carried out air monitoring for over three years. According to the Board the staffs that conducted air monitoring are now in the early period 50's and cannot climb the stacks owing to health problems. The Board admitted that it has not taken samples for last 2 years and more and that they rely on the reports furnished by the companies from the accredited labs. **LAEC disapproved this practice which to say the least is blatant breach of its statutory function.**

Eloor-Edayar area being an industrial belt with medium and large scale industries having a minimum of at least 50 stacks ranging at the height from 15 – 75 m, the air monitoring,, noise level monitoring and ambient air quality monitoring etc are necessary especially in view of serious complaint from public. The Committee being concerned about the frequent incidents of fugitive emission in Eloor, Edayar belt, requested PCB to move its Mobile Ambient Air Monitoring system to Eloor, Edayar Area. It is noted with great pain that this mobile unit has not been utilized in spite of huge investments being made for procuring the unit. The Board's plea that the unit requires calibration and that there is no Annual Maintenance Contract existing etc are not genuine to justify its non-use. The cost of Ambient Air Monitoring can be met from the factories, who have failed to make adequate arrangements for stack monitoring by the PCB and who have failed to adhere to the parameters under the consent orders. The Board also can raise necessary fund from the Units having stacks, which are found to be causing environmental pollution. In any case, PCB being a regulatory body to monitor the industries cannot be justified for their inaction on the plea of lack of funds. It is to be noted that the system is capable to monitor Sulphur dioxide (SO<sub>2</sub>) Hydrogen sulphide (H<sub>2</sub>S), Carbon monoxide (CO), Hydrocarbons, Methane, Particulate matter, Mercaptans etc. In fact these are all the common gases / substances found in the ambient air in the area, raising significant complaints from the public.

Fugitive emission from various industries in Eloor Edayar caused serious air pollution to the people living on the southern side of Pathalam Bridge.. The smoke prevalent in the air was thick even blocking the vision. The residents felt discomfort in breathing. They described the smell as those of burned hair. Some people point towards FACT and some against Merchem Edayar and some under total confusion. The smell was of combination of smokes from various factories and for that reason no one could specifically accuse any particular industry by name. But the fact is that the emission of smoke was beyond all parameters. The incidents of fugitive emissions have caused health hazard to people of the locality and many were admitted in hospital for primary treatments. The failure to Monitor Air Quality by the PCB is a serious lapse deserved to be condemned. LAEC therefore resolved to request the Board to take immediate action to bring under control the alarming Air Pollution in Eloor Edayar Belt. The practical difficulty highlighted by the Board is not a matter irresolvable. M/s Accurate Instrumentations and control engineers Pvt Ltd, Valanjambalam is a competent institution locally available that can attend to any complaints of mobile unit. **The committee request the Board to ensure this mobile unit made operational and is taken to Eloor Edayar belt.**

During the inspection of various industries it is noticed that the conditions of the employees working in various industrial units particularly industries engaged in bone meal, hoofs, tallow etc. are very pathetic. There was total lack of facility for their basic requirements including facilities for drinking water. Appreciating the pathetic state of affair of the working class LAEC decided to take up the matter with the Dist. Medical officer, inspectors and boilers and other labour officers for ensuring better working amenities. The units have now started caring the employees. **The action taken by the committee was a great relief to the working class.**

Bone meal industries in Eloor –Edayar was causing serious odour nuisance. On inspection of these units, the scene was very horrifying. The inspection team could not go near to these units due to unbearable foul smell caused by the decay of bone / flesh. The officers

of the PCB accompanying the team some how managed to enter into all these units and found accumulation of worms and flies inside the units at many places caused by decaying raw material for want of proper storage and house keeping. There is a huge backlog of raw bones, collected over a period of 15 days or more lying in these units without proper confined storage. This heap of raw bones is causing health hazards and great odour nuisance in the entire area giving rise to consistent complaints from the adjacent units / local community. The nuisance from these units has to be taken serious note of. It is being caused on account of their failure to de-grease and process the raw bones on the same day of its arrival. The de-greasing process takes place not on first come first basis. The consent conditions though stipulate that the raw bones brought to the Units should be processed on the same day itself, it has been found observed in breach. The violation of this consent condition makes the ambient air unfit for human habitation. In order to ensure the compliance of the condition in the Consent such as de-greasing and processing of the raw bones on the same day of its arrival and to avoid odour nuisance caused by these units, it is necessary to have a stringent measure requiring the units to provide a Bank Guarantee ranging from Rs. 2.00 – Rs. 5.00 lacs depending on the size / turnover of the Units for strict compliance of consent conditions imposed to control odour nuisance .The Bank Guarantee shall be forfeited, if the Unit is found violating the consent conditions. LAEC have unequivocally told these units that they cannot be allowed to function in the manner as it is now being done and that whichever unit fail to content air pollution will be closed. A meeting was convened to discuss the odour nuisance of Bone meal units in Eloor-Edayar belt. Dr.Claude Alvaris , Member ,Supreme Court Monitoring Committee was the special invitee to the said meeting.. Dr.Claude Alvaris stressed the need for modernizing the bone meal units in the context of changes taking in all fields of human activity. He promised all assistance including expert advise to the units ready for change. He stressed the need to arrest the odour nuisance within the outer limit of three months failing which he cautioned that the defaulting units would have to face closure order. The Bone meal units agreed to bear the expenses for getting the assistance from expert and requested LAEC to take initiative for arranging experts for technical advice. The industries collectively requested for time to implement certain measures to control the odour nuisance .**The bone meal industries have submitted a statement disclosing the details of the improvements made by the units and undertaking that in case of any failure to content pollution, agreeing to forfeit the bank guarantee that may be required to be furnished.**

The committee deliberated on the proposed common TSDF at Ambalamedu. Members expressed their unhappiness on furnishing Rapid EIA and DPR late to the committee by the Pollution Control Board despite being aware of the fact that TSDF matter is one of the references of the LAEC. Owing to lack of time to study the project report and its suitability, members resolved to request to PCB 15 days time to offer LAEC's comments in response to the notification. Accordingly Chairman addressed a letter to Pollution Control Board and also will appraise Supreme Court Monitoring Committee these aspects. The committee deliberated on the rapid EIA and DPR on common TSDF proposed to be established at the premises of FACT at Ambalamedu. The panel of Scientists assisting LAEC expressed that a local inspection of the site is necessary to evaluate the feasibility of the project. The committee resolved to have a local inspection of the proposed site with notice to KSIDC on 25<sup>th</sup> April 2005 at 3 pm. Accordingly the site was inspected and discussed its feasibility with the scientists panel. LAEC submitted the following comment to SCMC and PCB and KSIDC, the nodal agency of the project.

1. One major complaint against the site was regarding the population in and around the proposed site. The Committee could not find any appreciable population residing within a radius of 600 metres.
2. The proposed site comprises an area reclaimed by Gypsum dumped by FACT and adjacent laterite land.
3. Down the site there is a vast extent of wetland with no cultivation. The lake and adjacent forest in the FACT premises are not affected by the setting up of TSDF since both these are at a safe distance of 500 metres.
4. The lie of the land is in a zig-zag manner. Having regard to the nature of land, the cost of land development is likely to be very high, which may result in escalation of the project cost.
5. The test of soil conducted by the KSDIC is through taking samples from a small pit. For a project like this, the sample ought to have been taken by boring.
6. A two-tier dyke to protect the area from the impact of fugitive loss of hazardous waste is essential. This is to be constructed with earth removed from the site and selected vegetation should be raised therein.
7. The monsoon in Kerala stretches for more than half of the year. There must be temporary storage facility to store the hazardous waste before transferring to the TSDF after laboratory tests. The quantum of the hazardous waste for one year therefore, has to be initially assessed to decide the area required for temporary storage and its design.
8. The concept of covering the TSDF by tarpaulin or any such other material during rainy season seems to be very theoretical and difficult to be executed. Detailed study has to be made and more sophisticated and practical solutions have to be found out to protect the site from heavy rains.
9. Kerala State Pollution Control Board being a regulatory body empowered under various statutes to enforce law should not be a party to the project which is essentially floated by a company i.e., Kerala Enviro Infrastructure Ltd. Involvement of PCB officials with the administration / constitution of the company either as a Director or in any other capacity will erode the confidence of the general public and also would create a situation of having no regulatory body to be made accountable for implementing control measures.
10. Air and Water Risk Assessment and Management have not been made in respect of the proposed site. The flow of water is towards the down stream reaching the creek, which is affected by tidal waves. A detailed Environmental Risk Assessment (ERA) should be conducted on Water and Air pollution.
11. The project has not discussed the dust control facility. The quantity of waste to be incinerated is 3000 tonnes per month. Such a huge quantity is bound to cause serious air pollution. Wind direction, its speed etc., are therefore matters to be studied in great depth before finalizing the project.

12. The compatible hazardous waste has to be identified with transit storage.
13. The laboratory proposed should have NABL accreditation.
14. The waste being hazardous at every stage of its handling great care has to exercise.
15. To monitor the functioning of the TSDF, a committee of stakeholders like prominent non-political person from local area; non-political NGOs; representatives from local bodies; scientists & experts from reputed institutions like CUSAT etc. have to be essentially involved by way of a participatory monitoring mechanism and effective implementation.
16. The concern of the community is that in the event of any unforeseen calamities and untoward incidents, which would compensate the loss suffered on account of the operation of TSDF. A corpus fund therefore, has to be created which should be made at the disposal of the KSPCB for immediate utilization for relief and other contingent uses to cope up with all such situations. A fund of Rs. 5.00 crores to be earmarked for this purpose and it should be deposited in a nationalized bank. A portion of this fund has to be utilized to provide community facilities and awareness on disaster preparedness.
17. The Rapid EIA falls short of many important aspects such Risk Assessment & Management, Soil tests, Air and Water pollution, zigzag nature of land, temporary storage of hazardous waste, risks during transportation, laboratory requirements, laboratory waste, inventory of hazardous waste, its density, compatibility of various hazardous waste, down stream contamination, drinking water contamination, strategies for combating heavy monsoon, dust and emissions etc. Cochin University of Science and Technology (CUSAT) is one such institution, which can be entrusted to prepare a detailed Environmental Impact Assessment & Environmental Risk Management study.
18. The best practices and best available technology in other places especially the Naroda Eco Park facility should be studied in detail before finalizing the project and its design.

In the matter of providing water to the affected community in Eloor Panchayath viz., Ward nos. 1, 2, 3, 4 & 17, the Committee conducted a survey of these wards and prepared a list of affected community, for whom the drinking water is to be provided by the defaulting companies. The committee found the affected families as 2143 in ward number 1 to 4 and 17 of Eloor Panchayath. There were 1250 wells out of which 926 were contaminated by the industrial pollution. . The residents now wholly depend the public tap facility to meet their water requirement. In veiw of the fact that the people had to depend tap water owing to the contamination of their wells owing to the industrial pollution, the committee unanimously resolve to request the Board to initiate appropriate action directing the companies, namely Merchem, HIL, IRE, and FACT to provide drinking water to these families at the rate of 500 litres/day free of cost as has been done in the case

of Binani Zinc Ltd to supply water to people of ward number 15 of kadungaloor Panchayath. Each family should be provided with separate meter connections and consumption of water in excess of 500 litres should be directed to be born from the respective families. SMC has directed that the aforesaid companies should be asked to provide water to the affected families. In compliance of the said direction, LAEC has completed the survey and identified the affected families. Further action from the Board is now awaited. LAEC request the Board to call a joint meeting of the companies, LAEC and Board to finalize the modalities for providing drinking water including the estimation of the cost and raising of the fund to be contributed by the companies namely IRE, Merchem, HIL and FACT. **The survey report forwarded to the Board for further follow up actions which LAEC expects the Board to finish on war footing having regard to the urgency.**

**The committee has resolved that the Board should revise the accreditation given to labs and insist them to obtain NABL accreditation.**

The Board should also be beware of Environmental consultants who have more concern to the pockets of the industrialists than the environment. There are environmental consultants who misguide even those units who want to implement adequate pollution control measures but ill advice them with deceptive technologies pretending as their saviors. These consultants can be well identified by checking the efficiency of the pollution control measures of each units and their track record of violations with reference to seeking the details of the consultant whom the companies have engaged. **The Board should display its wisdom to expose such quakes and hoaxes, in the best interest of the public and in the interest of the innocent people in the industry from being cheated.**

The other concern of LAEC is the radiation from Indian Rare Earth. The radiation effect from this unit range between 24 to 82 msV at the points starting from Gypsum yard of FACT and along the route at FACT junction, HIL, North gate of FACT, reaching at IRE southern closed gate. The maximum reading of the radiation was recorded at the southern closed gate of IRE itself. The radiation exceeds the limit and pose great health hazard. This is matter call for immediate attention. **The committee recommends relocation of the thorium waste stored in huge quantity, which is the source of radiation.**

LAEC could only be a barking watch dog .It had no teeth to bite. But that is not the case of PCB. It has teeth and could be very effective. But alas! the Board has been a silent onlooker. The committee hope, the situation would change and PCB will come to life like a phoenix and state government will make the Board functional providing infrastructures to cope up with the growing demand for modernization to keep pace with time.

LAEC during its surprise inspections could identify major culprits in the industrial belt that caused environmental pollution detrimental to the land, water and air. The inspection reports of these units will give an insight how these industries caused damage to the environment and the efforts taken by the committee to enforce the law. The following are the reports of the companies inspected by the committee.