



सत्यमेव जयते

Validity expires on 16.08.2024

## ***Proceedings of the State Environment Impact Assessment Authority Kerala***

*Present: Prof. (Dr.) K.P. Joy, Chairman; Dr. J. Subhashini, Member and  
Sri. James Varghese, I.A.S., Member Secretary.*

**Sub: SEIAA-** Environmental clearance for the proposed Residential Project in Survey nos. 392/30, 392/31, 395/7-3, 395/7-4, 392/28, 392/29, 395/1-5, 395/1-6 in Block 36 at Kunnathunadu Village, Puthencruz Panchayath, Kunnathunadu Taluk, Ernakulam District, Kerala application of Mr. P.V.S. Vinod Tharakan, Managing Director, M/s Claysys lifestyle Pvt. Ltd. - EC Granted-Orders issued

### **STATE ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY, KERALA**

**No. 867/SEIAA/ EC3/3098/2015**

***dated, Thiruvananthapuram 17.08.2017***

- Ref:**
1. Application dated 05-08-2015 from Sri.P.V.S. Vinod Tharakan, Managing Director, M/s Claysys Lifestyle Pvt. Ltd.
  2. Minutes of the 55<sup>th</sup> meeting of SEAC held on 10<sup>th</sup>, 11<sup>th</sup> & 20<sup>th</sup> May, 2016
  3. Minutes of the 59<sup>th</sup> meeting of SEAC held on 11<sup>th</sup> & 12<sup>th</sup> July 2016
  4. Minutes of the 60<sup>th</sup> meeting of SEAC held on 28<sup>th</sup> & 29<sup>th</sup> July 2016
  5. Minutes of the 59<sup>th</sup> meeting of SEIAA held on 27<sup>th</sup> September, 2016
  6. Minutes of the 67<sup>th</sup> meeting of SEAC held on 27<sup>th</sup> January 2017
  7. Minutes of the 65<sup>th</sup> Meeting of SEIAA held on 23<sup>rd</sup> March 2017
  8. Minutes of the 67<sup>th</sup> Meeting of SEIAA held on 28<sup>th</sup> April 2017
  9. Affidavit dated 16.05.2017 from Sri.P.V.S. Vinod Tharakan

### **ENVIRONMENTAL CLEARANCE NO. 53 /2017**

Sri.P.V.S. Vinod Tharakan, Managing Director, M/s Claysys Lifestyle Pvt. Ltd., Milagres Villa, Parayil, Edavanthala, Olavaipu P.O., Poochakal, Cherthala, Alappuzha, Kerala-688526, vide his application received on 05-08-2015 has sought environmental clearance under the EIA Notification, 2006 for the proposed Residential Project by M/s Claysys lifestyle Pvt. Ltd. in Survey nos. 392/30, 392/31, 395/7-3, 395/7-4, 392/28, 392/29, 395/1-5, 395/1-6 in Block 36 at Kunnathunadu Village, Puthencruz Panchayath, Kunnathunadu Taluk, Ernakulam District. It is inter alia, noted that the project comes under the Category B, 8(a) of Schedule of EIA Notification 2006.

The total plot area of the proposed project is 0.6792 Ha and the built up area is 22,603.7 Sq.m. The maximum numbers of apartments are 103 and 12 individual houses (6 Villa + 3 duplex). The parking proposed is for 131 cars and 50 two wheelers. No forest land is involved in the present project. The total power requirement is 1,130 kVA and the sources are Kerala State Electricity Board and D.G. Sets (standby). The total cost of the project is 55.94 Crores.

Details of the project as furnished by the applicant is as follows:

### **BASIC INFORMATION**

Name of project		Environmental Clearance for the Proposed Residential Project by M/s Claysys Lifestyle Pvt. Ltd.	
Brief description of the project		Proposed Construction of Residential project with total plot area 0.6792 ha. (6,792.50 sq. m.) and total built-up area 22,603.7 sq. m.	
Category/Subcategory & Schedule		Category 'B', Schedule 8 (a)	
Location Sy no/ district, Taluk/ village etc.		Survey Nos. 392/30, 392/31, 395/7-3, 395/7-4, 392/28, 392/29, 395/1-5, 395/1-6, in Block 36, Kunnathunadu Village, Puthencruz Panchayat, Kunnathunadu Taluk, Ernakulam District, Kerala	
GPS co-ordinates		Latitude (N)	10° 0'17.01" to 10° 0'14.94"
		Longitude (E)	76°23'10.02" to 76°23'7.62"
for Construction projects	Built up area (in m <sup>2</sup> )	22,603.7 sq.m.	
	No. of floors	Parking floor level 1, 2 + Gr. + 12 floors	
	Maximum height from ground level	40 m.	
	Facilities proposed	103 Apartments and 12 Individual Houses with supporting infrastructure facilities.	
	Details of project cost	About Rs. 55.94 Crores	
	Financial statement including funding source and details of insurance	Source :- Own source & bank loan Insurance :- Insurance to the workers and machinery during construction phase.	
	Activity schedule of the project	About 48 months	
CRZ recommendations		Not applicable	
Forest clearances			
Does it attract violation proceedings		Not applicable	

Envt Mgmt plan/ Eco restoration plan (brief details)		<b><u>MANAGEMENT PLAN:</u></b>
	<b>Air pollution</b>	Provision will be made for D.G. sets with noise control measures and stack for flue gas.
	<b>Water pollution</b>	Provision of STP for treatment of sewage and it's partially recycling for meeting the water requirement for flushing & horticulture water requirement within the site.
	<b>Noise</b>	Provision will be made for D.G. sets with noise control measures.
	<b>Solid Waste Management</b>	Provision of bio-gas generation plant within the project site for disposal of the bio-degradable solid waste.
	<b>Eco restoration</b>	As part of the eco restoration, large number of saplings of native species would be planted.

#### **ABOUT THE PROJECT**

<b>Environmental parameters considered</b>	<b>Description</b>
<b>WATER</b>	
Water requirement & sources	The total domestic water requirement of about 88 KLD (which includes daily fresh water requirement of about 58 KL). Treated water from STP to be used for flushing of toilets (about 30 KLD), Horticulture requirement (about 8 KLD). Source :- Stored Rain water (Tanks), Wells, KWA water supply and treated water from STP.
RWH units proposed	Yes, The project has provision for rain water storage tanks which will be used as source of water during rainy days & non-rainy days.
Facilities for liquid waste treatment	Yes, Sewage Treatment Plant for domestic sewage.
Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	Yes, There is a drain (2 m. wide) passing through the project site which is dividing the land in two parcels. Appropriate arrangement (bridge) will be made for crossing this drain. Also appropriate arrangements will be made for protection

	& conservation of this drain during construction & operation phase.
Water quality meeting requirements	Water quality meets requirements after the treatment of water (filtration & disinfection).
Does it have provisions for use of recycled water	Yes, Treated water from STP to be used for flushing & horticulture purposes.
<b>LAND</b>	
Proximity to forest lands	None within the study area
Access road to the site –Width & Condition	The access road to the project site is from 6 m. wide (Pinarmunda-Padathikara) and other road 7 m. wide (Brahmapuram-Padathikkara).
Storage of explosives /hazardous substances	Yes, all precautionary measures in the storage & handling of HSD will be followed.
Facility for solid waste mgmt	Collection & segregation within the site (bio-degradable waste (green bins) & non-biodegradable waste (blue bins). The recyclable waste like packaging material, paper etc. would be sold through vendors. Bio-degradable waste would be disposed through the bio-gas generation plant within the site.
Topographic features/ slope	For the development of the proposed project, existing trees, different varieties of shrubs, herbs, grass & climbers will be cleared. There is a level difference of about 16 m. and the slope is toward north west side.
Proneness of the area for landslides	No
Significant land disturbance resulting in erosion, subsidence & instability	No
Top soil, overburden etc.	Excavation of earthwork will be carried out at site. The top soil which is fertile will be kept at site for landscaping work, back filling & internal road construction purposes.
<b>AIR</b>	
Air quality meeting requirements	Yes
Noise level meeting requirements	Yes
Likely emissions affecting environment	Emissions from D.G. sets and from the vehicles only.
<b>ENERGY</b>	
Energy requirement	1,130 kVA
Energy sources	KSEB & D. G. Sets (1,000 KVA x 2 Nos. as back-up)

Extent of usage of alternative energy resources	Solar water heating system for the hot water generation and solar power operated street lights.		
<b>BIODIVERSITY</b>			
Presence of any endangered species or red listed category	No		
Loss of native species and genetic diversity	Yes. There are some native tree species and different varieties of shrubs, herbs, grass, climbers existing at site. For the development of the proposed project, most of the existing species are cleared.		
Likely displacement of fauna	No		
Any introduction of alien / invasive species	No		
<b>SOCIAL ASPECTS</b>			
Proximity to nearest habitation	The project site is within the Panchayat limits and several houses located within the 500 m. radius.		
CSR related to the project/ allocation/ time frame (details mandatory)	<b>Common CSR ACTIVITIES already carried out</b>		
	Sl. No	Particulars	Rs in lakhs
		New unit	
	<b>Proposed common CSR Budget</b>		
	Sl. No.	Particulars	Amount Rs. In lakhs
	1.	Financial support to the school	Rs. 3.95 lakhs
	2.	Help to helpless	Rs. 8.35 lakhs
	A detailed study on social status of the project site surroundings & need base study on proposed CSR activities were carried out. The summary of the report is given above.		
	<b>GENERAL</b>		
Does it propose environment management plan	Yes		
Does it have eco restoration programmes	Yes Provision for the green area development which includes native species such as medicinal trees, flowering trees, deciduous & evergreen trees, fruit trees, medicinal trees, shrubs & grass coverage.		
Biomedical waste management	Not applicable		
E-waste management	Not applicable		
Sufficiency of parking spaces/ traffic management	Yes, 131 Cars + 50 Two wheelers		
Litigation/court cases, if any, against the project (provide	No		

details)	
Right & nature of ownership of land	Private land
Is the property forest land/govt. land/own land	Own land
Details of Authorised Signatory	Mr. P.V.S. Vinod Tharakan, Managing Director M/s Claysys Lifestyle Pvt. Ltd. Milagres Villa, Parayil, Edavanthala, Olavaipu P.O., Poochakal, Cherthala, Alappuzha, Kerala -- 688 526

2. The proposal was placed in the 55<sup>th</sup> meeting of SEAC held on 10<sup>th</sup>, 11<sup>th</sup> & 20<sup>th</sup> May, 2016. The proponent and Engineer attended the meeting and engineer made a power point presentation about the salient features of the project briefly. The Committee appraised the proposal based on Form 1, Form I A and conceptual plan. The Committee decided to defer the item for field visit by a sub-committee consisting of Sri. Ajayakumar and Sri. John Mathai.

*Field visit to the above project site was carried out on 22.06.2016 by the Sub-committee members of SEAC, Kerala, comprising Sri. Ajayakumar and Sri. John Mathai. The proponent and his associates were present at the site. Approach road, influence on the irrigation canal, storm water management, component of RWH, cutting and levelling, parking provisions etc were examined. Work has been initiated in the first part for which necessary permits have been obtained.*

*Following points may be considered before recommending the project.*

- 1. The approach road is from an elevated part opening to the public road on the eastern side. Another entry/ exit is also provided on the western side to another public road with limited width.*
- 2. The entry road level is 14 m above lower basement. Excavation is not planned at the lower level but planned at the central part. The details of excavation with quantity should be provided with section and plan.*
- 3. RWH facility to be enhanced to at least 15 days daily requirement to ease the dependence on public water supply.*
- 4. Mechanism for waste treatment and disposal was explained. Treated water should not be let into the canal.*
- 5. Use of solar energy for the building is planned. The detailed plan with quantity to be given.*
- 6. One of the sources of water is reported as borewell in the site. Dependable yield with yield test to be provided.*
- 7. The mechanism for insulating the walls and floors of the building was explained. This would reduce the energy consumption.*

3. The proposal was placed in the 59<sup>th</sup> meeting of SEAC held on 11<sup>th</sup> & 12<sup>th</sup> July, 2016. The Committee after examining the mining plan, prefeasibility report, field inspection report and all other documents submitted, advised that, for further consideration of the proposal, the proponent may be asked to submit the details as per the field visit report, so the Committee deferred the item for submission of clarifications sought in the field visit report.

Accordingly, the proponent was addressed by issuing a detailed letter for the submission of documents/clarifications Vide letter No.867/SEIAA/EC3/3098/2015 dated 12/07/2016. Subsequently, the proponent has been submitted the documents/clarifications based on the subcommittee report in the 59<sup>th</sup> meeting of SEAC.

4. The proposal was again placed in the 60<sup>th</sup> meeting of SEAC held on 28<sup>th</sup> & 29<sup>th</sup> July, 2016. The proposal was appraised by the committee considering Form I, Form IA, Conceptual plan, field visit report and all other documents and details provided by the proponent as sought by SEAC during the appraisal process. Details of excavation i.e. 2730 m<sup>3</sup> cutting and 2780 m<sup>3</sup> filling has been provided with the sectional drawing.

The proposal is **Recommended for issuance of Environmental Clearance** with general conditions in addition to specific conditions as follows.

1. The proponent shall provide rainwater storage tank capacity of 870 KL equal to 15 days daily requirement as agreed.
2. Proponent shall install 100 KW solar panel in each apartment tower ie. 5 KW solar panel in each villa as agreed.

5. The Authority considered the proposal in its 59<sup>th</sup> meeting held on held on 27<sup>th</sup> September 2016. Field visit to the project site was carried out on 22.06.2016 by a Subcommittee members of SEAC report on which states that; *'Work has been initiated in the first part for which necessary permits have been obtained'*. Authority wanted to get it clarified as to what are the works started and the extent. Field inspection report may also be furnished.

6. The proposal was considered in the 67<sup>th</sup> Meeting of SEAC held on 27<sup>th</sup> January 2017. The proponent has started the construction of the building having an area below 20,000m<sup>2</sup> after getting necessary permission from local bodies, the work of which have already commenced. Later on he has modified the plan having an area above 20,000m<sup>2</sup> and therefore he applied for the EC and the above application was processed and recommended by SEAC after a field visit by Sub Committee. The field visit report of the Sub Committee is annexed. This fact is informed to SEIAA for further necessary action.

7. SEIAA in its 65<sup>th</sup> meeting held on 22<sup>nd</sup> March 2017 decided to enquire the extent of construction, particularly that of the vertical structure, the built up area of apartments alone,

and whether it is really below 20,000 sq.m in order to ascertain whether there is violation. The Authority decided to consider the case in the next meeting after collecting the above mentioned details.

Now the proponent has clarified by his letter dated.27.03.2017 that the proposed project is a construction of two multi-storied residential towers and 11 individual villas and that have started construction only for two villas of a total built-up area of 162.3 sq.m. The construction for the multi-storied residential towers and 9 individual villas are not started yet (i.e. all further constructions are horizontal expansion). Hence it does not comes under the scope of violation.

8. The proposal was placed in the 67<sup>th</sup> meeting of SEIAA held on 28<sup>th</sup> April, 2017. The Authority decided to issue Environmental Clearance with specific conditions in addition to the general conditions as recommended by SEAC in its 60<sup>th</sup> meeting held on 28<sup>th</sup> & 29<sup>th</sup> July 2016 and the conditions mentioned in the inspection report. An affidavit to this effect should be submitted before the issuance of Environmental Clearance.

9. The proponent has submitted the affidavit dated on 16.05.2017 and stating that all the specific and general conditions shall be strictly implemented. Environmental Clearance as per the EIA notification 2006 is therefore granted to the Residential Project by Sri.P.V.S. Vinod Tharakan, Managing Director, M/s Claysys lifestyle Pvt. Ltd. in Survey nos. 392/30, 392/31, 395/7-3, 395/7-4, 392/28, 392/29, 395/1-5, 395/1-6 in Block 36 at Kunnathunadu Village, Puthencruz Panchayath, Kunnathunadu Taluk, Ernakulam District, Kerala subject to the specific conditions mentioned in para 4 above, the usual general conditions for projects other than mining appended hereto and the following green conditions should be strictly adhered to.

#### **Green Conditions.**

1. Adequate rain water harvesting facilities shall be arranged for.
2. Technology and capacity of the STP to be indicated with discharge point (if any) of the treated effluent.
3. Effluent water not conforming to specifications shall not be let out to water bodies.
4. Maximum reuse of grey water for toilet flushing and gardening and construction work shall be ensured.
5. Dual plumbing for flushing shall be done.
6. Provisions for disposal of e-wastes, solid wastes, non-biodegradables and separate parking facility for the buildings shall be provided.
7. Generation of solar energy to be mandatory for own use and/or to be provided to the grid.
8. There shall be no compromise on safety conditions and facilities to be provided by the project proponent, which shall be ensured for occupation, regularisation or consent to operate.



10. The clearance will also be subject to full and effective implementation of all the undertakings given in the application form, all the environmental impact mitigation and management measures undertaken by the project proponent in the documents submitted to SEIAA, and the mitigation measures and waste management proposal as assured in the Form - 1 and Form-1A, Environment Management Plan as submitted. The assurances and clarifications given by the proponent in the application and related documents will be deemed to be part of these proceedings as conditions as undertaken by the proponent, as if incorporated herein.

11. Validity of the Environmental Clearance will be seven years from the date of issuance of E.C, subject to inspection by SEIAA on annual basis and compliance of the conditions, subject to earlier review of E.C in case of violation or non-compliance of any of the conditions stipulated herein or genuine complaints from residents within the scrutiny area of the project.

12. Compliance of the conditions herein will be monitored by the State Environment Impact Assessment Authority or its agencies and also by the Regional Office of the Ministry of Environment and Forests, Govt. of India, Bangalore.

- i. Necessary assistance for entry and inspection by the concerned officials and staff should be provided by the project proponents.
- ii. Instances of violation if any shall be reported to the District Collector, Ernakulam to take legal action under the Environment (Protection) Act 1986.
- iii. The given address for correspondence with the authorized signatory of the project is, Sri.P.V.S. Vinod Tharakan, Managing Director, M/s Claysys Lifestyle Pvt. Ltd., Milagres Villa, Parayil, Edavanthala, Olavaipu P.O., Poochakal, Cherthala, Alappuzha, Kerala-688526.

Sd/-

**JAMES VARGHESE.I.A.S.,**  
**Member Secretary (SEIAA)**

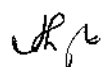
To,

Sri.P.V.S. Vinod Tharakan,  
Managing Director,  
M/s Claysys Lifestyle Pvt. Ltd.  
Milagres Villa, Parayil,  
Edavanthala, Olavaipu P.O.,  
Poochakal, Cherthala,  
Alappuzha, Kerala-688526

Copy to:

1. MoEF Regional Office, Southern Zone, Kendriya Sadan, 4<sup>th</sup> Floor, E&F Wing, II Block, Koramangala, Bangalore-560034
2. The Additional Chief Secretary to Government, Environment Department
3. The District Collector, Ernakulam
4. The District Town Planner, Ernakulam
5. The Tahsildhar, Ernakulam Taluk
6. The Member Secretary, Kerala State Pollution Control Board
7. The Director, Dept. of Environment and Climate Change, Govt. of Kerala, Tvm-24
8. The Secretary, Puthencruz Grama Panchayat, 9/410 E, Panchayat Office Complex, Puthencruz P.O, Cochin-682308
- ✓ 9. Website
10. Stock file
11. O/c

Forwarded/By Order

  
Administrator, SEIAA

**GENERAL CONDITIONS** *(for projects other than mining)*

- (i) Rain Water Harvesting capacity should be installed as per the prevailing provisions of KMBR / KPBR, unless otherwise specified elsewhere.
- (ii) Environment Monitoring Cell as agreed under the affidavit filed by the proponent should be formed and made functional.
- (iii) Suitable avenue trees should be planted along either side of the tarred road and open parking areas, if any, inclusive of approach road and internal roads.
- (iv) The project shall incorporate devices for solar energy generation and utilization to the maximum possible extent with the possibility of contributing the same to the national grid in future.
- (v) Safety measures should be implemented as per the Fire and Safety Regulations.
- (vi) STP should be installed and made functional as per KSPCB guidelines including that for solid waste management.
- (vii) The conditions specified in the Companies Act, 2013 should be observed for Corporate Social Responsibility.
- (viii) The proponent should plant trees at least 5 times of the loss that has been occurred while clearing the land for the project.
- (ix) Consent from Kerala State Pollution Control Board under Water and Air Act(s) should be obtained before initiating activity.
- (x) All other statutory clearances should be obtained, as applicable, by project proponents from the respective competent authorities including that for blasting and storage of explosives.
- (xi) In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by this Authority.
- (xii) The Authority reserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the environment clearance under the provisions of the Environment (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.
- (xiii) The stipulations by Statutory Authorities under different Acts and Notifications should be complied with, including the provisions of Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and control of Pollution) act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification, 2006.
- (xiv) The environmental safeguards contained in the EIA Report should be implemented in letter and spirit.
- (xv) Provision should be made for supply of kerosene or cooking gas and pressure cooker to the labourers during construction phase.
- (xvi) Officials from the Regional of MOEF, Bangalore who would be monitoring the implementation of environmental safeguards should be given full co-operation, facilities and documents/data by the project proponents during their inspection. A complete set of all the documents submitted to MoEF should be forwarded to the CCF, Regional Office of MOEF, Bangalore.
- (xvii) These stipulations would be enforces among others under the provisions of Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control Pollution) at 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification, 2006.

- (xviii) Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.
- (xix) Any appeal against this Environmental Clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under section 11 of the National Environment Appellate Act, 1997.
- (xx) The project proponent should advertise in at least two local newspapers widely circulated in the region, one of which (both the advertisement and the newspaper) shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the Department of Environment and Climate Change, Govt. of Kerala and may also be seen on the website of the Authority at [www.seiaakerala.org](http://www.seiaakerala.org). The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same signed in all pages should be forwarded to the office of this Authority as confirmation.
- (xxi) A copy of the clearance letter shall be sent by the proponent to concerned GramaPanchayat/ District Panchayat/ Municipality/Corporation/Urban Local Body and also to the Local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. The Environmental Clearance shall also be put on the website of the company by the proponent.
- (xxii) The proponent shall submit half yearly reports on the status of compliance of the stipulated EC conditions including results of monitored data **(both in hard copies as well as by e-mail)** and upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the respective Regional Office of MoEF, Govt. of India and also to the Directorate of Environment and Climate Change, Govt. of Kerala.
- (xxiii) The details of Environmental Clearance should be prominently displayed in a metallic board of 3 ft x 3 ft with green background and yellow letters of Times New Roman font of size of not less than 40.
- (xxiv) The proponent should provide notarized affidavit (*indicating the number and date of Environmental Clearance proceedings*) that all the conditions stipulated in the EC shall be scrupulously followed.

## **SPECIFIC CONDITIONS**

### **I.Construction Phase**

- i. "Consent for Establishment" shall be obtained from Kerala State Pollution Control Board under Air and Water Act and a copy shall be submitted to the Ministry before start of any construction work at the site.
- ii. All required sanitary and hygienic measures should be in place before starting construction activities and to be maintained throughout the construction phase.
- iii. A First Aid Room will be provided in the project both during construction and operation of the project.
- iv. Adequate drinking water and sanitary facilities should be provided for construction workers at the site, Provision should be made for mobile toilets. The safe disposal of wastewater and solid wastes generated during the construction phase should be ensured.
- v. All the topsoil excavated during construction activities should be stored for use in horticulture/landscape development within the project site.

- vi. Disposal of muck during construction phase should not create any adverse effect on the neighbouring communities and be disposed taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent authority.
- vii. Soil and ground water samples will be tested to ascertain that there is no threat to ground water quality by leaching of heavy metals and other toxic contaminants.
- viii. Construction spoils, including bituminous material and other hazardous materials, must not be allowed to contaminate watercourses and the dump sites for such material must be secured so that they should not leach into the ground water.
- ix. Any hazardous waste generated during construction phase, should be disposed off as per applicable rules and norms with necessary approval of the Kerala State Pollution Control Board.
- x. The diesel generator sets to be during construction phase should be low sulphur diesel type and should conform to Environment (Protection) Rules prescribed for air and noise emission standards.
- xi. The diesel required for operating DG sets shall be stored in underground tanks and if required, clearance from Chief Controller of Explosives shall be taken.
- xii. Vehicles hired for bringing construction material to the site should be in good condition and should have a pollution check certificate and should conform to the applicable air and noise emission standards and should be operated only during non-peak hours.
- xiii. Ambient noise levels should conform to residential standards both during day and night. Incremental pollution loads on the ambient air and noise quality should be closely monitored during construction phase. Adequate measures should be made to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by CPCB/KSPCB.
- xiv. Fly ash should be used as building material in construction as per the provisions of Fly Ash Notification of September, 1999 and amended as on 27<sup>th</sup> August 2003. (The above condition is applicable Power Stations).
- xv. Ready mixed concrete must be used in building construction.
- xvi. Storm water control and its re-use per CGWB and BIS standards for various applications.
- xvii. Water demand during construction should be reduced by use of pre-mixed concrete, curing agents and other best practices referred.
- xviii. Permission to draw ground shall be obtained from the Computer Authority prior to construction/operation of the project.
- xix. Separation of grey and black water should be done by the use of dual plumbing line for separation of grey and black water.
- xx. Fixtures for showers, toilet flushing and drinking should be of low flow either by use of aerators or pressure reducing devices or sensor based control.
- xxi. Use of glass may be reduced by upto 40% to reduce the electricity consumption and load on airconditioning. If necessary, use high quality double glass with special reflective coating in windows.
- xxii. Roof should meet prespective requirement as per Energy Conservation Building Code by using appropriate thermal insulation material to fulfil requirement.
- xxiii. Opaque wall should meet perspective requirement as per energy Conservation Building Code which is proposed to be mandatory for all airconditioned spaces while it is aspirational for non-airconditioned spaces by use of appropriate thermal insulation material to fulfil requirement.

- xxiv. The approval of the competent authority shall be obtained for structural safety of the buildings due to earthquake, adequacy of fire fighting equipments, etc. as per National, Building Code including protection measures from lightening etc.
- xxv. Regular supervision of the above and other measures for monitoring should be in place all through the construction phase, so as to avoid disturbance to the surroundings.
- xxvi. Under the provisions of Environment (Protection) Act, 1986, legal action shall be initiated against the project proponent if it was found that construction of the project has been started without obtaining environmental clearance.

## **II. Operation Phase**

- i. The installation of the Sewage Treatment Plant (STP) should be certified by an independent expert and a report in this regard should be submitted to the Ministry before the project is commissioned for operation. Treated effluent emanating from STP shall be recycled / reused to the maximum extent possible. Treatment of 100% grey water by decentralised treatment should be done. Discharge of unused treated effluent shall conform to the norms and standards of the Kerala State Pollution Control Board. Necessary measures should be made to mitigate the odour problem from STP.
- ii. The solid waste generated should be properly collected and segregated. Wet garbage should be composted and dry/inert solid waste should be disposed off to the approved sites for land filling after recovering recyclable material.
- iii. Diesel power generating sets proposed as source of back up power for elevators and common area illumination during operation phase should be of enclosed type and conform to rules made under the Environment (Protection) Act, 1986. The height of stack of DG sets should be equal to the height needed for the combined capacity of all proposed DG sets. Use low sulphur diesel. The location of the DG sets may be decided with in consultation with Kerala State pollution Control Board.
- iv. Noise should be controlled to ensure that it does not exceed the prescribed standards. During night time the noise levels measured at the boundary of the building shall be restricted to the permissible levels to comply with the prevalent regulations.
- v. The green belt of the adequate width and density preferably with local species along the periphery of the plot shall be raised so as to provide protection against particulates and noise.
- vi. Weep holes in the compound walls shall be provided to ensure natural drainage of rain water in the catchment area during the monsoon period.
- vii. Rain water harvesting for roof run-off and surface run-off, as plan submitted should be implemented. Before recharging the surface run off, pre-treatment must be done to remove suspended matter, oil and grease. The borewell for rainwater recharging should be kept at least 5 mts.above the highest ground water table.
- viii. The ground water level and its quality should be monitored regularly in consultation with Central Ground Water Authority.
- ix. Traffic congestion near the entry and exit points from the roads adjoining the purposed project site must be avoided. Parking should be fully internalized and no public space should be utilized.
- x. A Report on the energy conservation measures conforming to energy conservation norms finalise by Bureau of Energy Efficiency should be prepared incorporating details about building materials & technology, R & U Factors etc and submit to the Ministry in three months time.

- xi. Energy conservation measures like installation of CFLs/TFLs for the lighting the areas outside the building should be integral part of the project design and should be in place before project commissioning. Use CFLs and TFLs should be properly collected and disposed off/sent for recycling as per the prevailing guidelines/rules of the regulatory authority to avoid mercury contamination. Use of solar panels may be done to the extent possible.
- xii. Adequate measures should be taken to prevent odour problem from solid waste processing plant and STP.
- xiii. The building should have adequate distance between them to allow movement of fresh air and passage of natural light, air and ventilation.

### **III Post Operational Phase**

Environmental Monitoring Committee with defined functions and responsibility should foresee post operational environmental problems e.g. development of slums near the site, increase in traffic congestion, power failure, increase in noise level, natural calamities, and increase in suspended particulate matter etc. solve the problem immediately with mitigation measures

  
For Member Secretary, SEIAA



