



**Validity expires on 28.03.2024**

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

*Present: Prof. (Dr.) K.P. Joy, Chairman, Dr. J. Subhashini, Member &  
Sri. V.S.Senthil I.A.S Member Secretary.*

**Sub:** SEIAA - Environmental clearance for the proposed Residential cum Commercial Building Project (Artech Metropolis) in Sy. No. 103/4 at Ulloor Village, Thiruvananthapuram Taluk, Thiruvananthapuram District, Kerala of Sri. Viju Varghese, M/s. Artech Realtors Pvt. Ltd.- EC Granted-Orders issued

### **State Environment Impact Assessment Authority, Kerala**

**No. 980/SEIAA/EC1/4572/2015**

**dated, Thiruvananthapuram 29.03.2017**

- Ref:**
1. Application dated 06-11-2015 from Sri. Viju Varghese, Deputy General Manager (MEP) M/s Artech Realtors Pvt Ltd
  2. Minutes of the 60<sup>th</sup> Meeting of SEAC held on 28<sup>th</sup> & 29<sup>th</sup> July 2016.
  3. Minutes of the 64<sup>th</sup> Meeting of SEAC held on 16<sup>th</sup> & 17<sup>th</sup> November 2016
  4. Minutes of the 62<sup>nd</sup> meeting of SEIAA held on 23<sup>rd</sup> December 2016

### **ENVIRONMENTAL CLEARANCE NO.26/2017**

Sri. Viju Varghese, Deputy General Manager (MEP) & Authorised Signatory, M/s Artech Realtors Pvt Ltd, Artech House, TC/24/2014(1), Thycaud, Thiruvananthapuram, Kerala- 695014, vide his application received on 06-11-2015 has sought environmental clearance under the EIA Notification, 2006 for the Residential cum Commercial Building Project (Artech Metropolis) in Sy. No. 103/4 at Ulloor Village, Thiruvananthapuram Taluk, Thiruvananthapuram District, Kerala. It is interalia, noted that the project comes under the Category B, 8(a) of Schedule of EIA Notification 2006. No forest land is involved in the present project. Other details of the project are as follows:

<b>File No.</b>	980/SEIAA/EC2616/2015
<b>Name of project</b>	ARTECH METROPOLIS
<b>Brief description of the project</b>	Proposed New Residential Apartment cum Commercial building project by M/s Artech Realtors Pvt Ltd with the following salient features. Total plot area: 12,146.28 m <sup>2</sup> FSI: 3.297 Built up area as per FSI: 57,341 m <sup>2</sup>

		Built up areas as per Non FSI: 421m <sup>2</sup> Total construction built-up area: 57,763m <sup>2</sup> No. of floors: 19, No. of flats: 318 Retail area : 488 m <sup>2</sup> Height of the building: 59.9 m (up to terrace level) Total carpet area: 15632.49 m <sup>2</sup> Coverage: 31.96 %
<i>Category/Subcategory &amp; Schedule</i>		8 (B2)
<i>Location Sy no/ district, Taluk/ village etc.</i>		Survey No 103/4 Mukkola, Ulooor Village Thiruvananthapuram
<i>GPS co-ordinates</i>		Latitude of the project site: 8°33'49.72" Longitude of the project site: 76°57'07.66"
<i>for Construction projects</i>	<i>Built up area (in m<sup>2</sup>)</i>	57,763m <sup>2</sup>
	<i>No. of floors</i>	19 floors
	<i>Maximum height from ground level</i>	59.9 m up to the terrace level
	<i>Facilities proposed</i>	318 dwelling units with facilities such as swimming pool, kids pool, yoga/meditation room, health club, AV room, super market, recreation space, amphitheatre, triple height court, game room, club room, Crèche, Indoor game area, spa and sauna
	<i>Details of Project Cost</i>	The total cost of the project is Rs 102.3 crores. The details are given in Annexure A appended to this document
	<i>Financial Statement including funding source and details of insurance</i>	Source of Fund <ul style="list-style-type: none"> <li>❖ Investment from bank (Through bank loan in future and as when required.)</li> <li>❖ Phased manner collection of funds from prospective clients</li> <li>❖ Working capital from the promoter for the gap</li> <li>❖ Outright sale</li> </ul> Insurance <ul style="list-style-type: none"> <li>❖ During the construction phase, insurance of the employees will be taken by the contractor</li> <li>❖ Building insurance as and when completed shall be taken</li> </ul>
	<i>Activity schedule of the project</i>	Construction will be completed in 3 years. The activity schedule is attached as Annexure H.
	<i>CRZ recommendations</i>	Not Applicable
	<i>Forest clearances</i>	Not Applicable

	<i>Does it attract violation proceedings Env't. Mgmt plan / Eco restoration plan (brief details)</i>	No, it does not attract violation. It is urban agricultural land. There will not be any modification to ecology since it is urban ecology. Existing end of life coconut plantation will be removed and replaced with landscaping with indigenous species
<b>ABOUT THE PROJECT</b>		
	<b><i>Environmental parameters considered</i></b>	<b><i>Description</i></b>
<b>WATER</b>		
	Water requirement & sources	The total water requirement for the project during monsoon season is 220 kLD and during non monsoon season is 237 kLD. The source of water will be the existing well bore well and harvested rainwater. The details of water requirement and the sources are given in Annexure B appended to this document.
	RWH units proposed	The rainwater harvesting tank proposed has a capacity of 153 m <sup>3</sup> . The details of the rainwater harvesting tank are given in Annexure C appended to this document.
	Facilities for liquid waste treatment	For liquid waste treatment, a STP of capacity 190 KLD with MBBR technology is proposed. The details of the STP are given in Annexure D appended to this document.
	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	There will not be any impoundment, damming, culverting, realignment or other changes to the hydrology of water courses or aquifers.
	Water quality meeting requirements	The raw water available meets physical and chemical standards prescribed for by BIS 10500 for drinking water
	Does it have provisions for use of recycled water	Yes, it has provisions for use of recycled water. The STP treated water is used for flushing and gardening.
<b>LAND</b>		
	Proximity to forest lands	There are no forests within 15 km radius of the site.
	Is the land assigned for any other special purpose; Give details	No, the land is not assigned for any other special purpose. It is an urban agricultural land which has end of life coconut plantation which is at the stage of replanting.
	Access road to the site -Width &	The access road to the site is 10.00 m

	Condition	wide. The existing road has the capacity to cater for the additional traffic due to the proposed project.
	Storage of explosives /hazardous substances	The only hazardous materials used during construction will be fuels and engine oils. Proper management of these materials will leave no significant impact on the environment.
	Facility for solid waste management.	<p>The total quantity of solid waste is expected at 998 kg/day. Out of which 320 kg/day will be non-biodegradable and 678 kg/day will be biodegradable.</p> <p>The project proponents have proposed provision for segregation and collection of biodegradable &amp; non-biodegradable waste within the premises.</p> <p>Biodegradable waste will be treated in Biogas Plant and the non-biodegradable waste will be handed over to recyclers. Dried sludge from STP will be used as manure within the premises for plants.</p> <p>Any e-waste generated during the operation phase of the project will be handed over to authorized e-waste collection centers.</p>
	Topographic features/ slope	The site is a mild slope on the side of a hillock, which was terraced long back for raising coconut plantation.
	Proneness of the area for landslides	The site is a stable land form with less than 1 m top soil followed by laterite followed by bed rock. Hence the site is not prone to landslide or subsidence.
	Significant land disturbance resulting in erosion, subsidence & instability	During excavation for foundation and construction, the slope of the site will be leveled to create large terraces. This will cause erosion during rain events. So as to avoid erosion, excavation and leveling will be done during the dry season.
	Top soil, overburden etc.	The layer of topsoil is very thin and less than one metre.
<b>AIR</b>		
	Air quality meeting requirements	Yes, the ambient air quality is well below the NAAQ standards. The details of ambient air quality monitoring are given in Annexure E
	Noise level meeting requirements	Yes, the noise levels are well below the CPCB standards. The details of ambient

		air quality monitoring are given in Annexure E	
	Likely emissions affecting environment	<p>The project may cause rise in dust levels during construction phase. Precautions would be taken to reduce dust generation during construction phase by the following management practices.</p> <ul style="list-style-type: none"><li>❖ Use of RMC will eliminate the handling of cement, sand and concrete thus dust emission will be minimized</li><li>❖ Water sprinkling will be done at regular intervals to reduce control of dust generation</li></ul>	
ENERGY			
	Energy requirement	The energy requirement during operation phase for the residential units is 3160 kW and for the office space is 80 kW. The details are given in Annexure F.	
	Energy Sources	The source of electricity is KSEB. DG sets will be used in case of power failure. Solar energy lighting will be used for common space lighting	
	Extent of usage of alternative energy resources	The energy consumption is proposed to be reduced by the use of solar energy lighting devices in the driveways and the garden. A PV plant with 10 kVA capacity will be installed to meet common space lighting. This will save 10 kW/month.	
BIODIVERSITY			
	Presence of any endangered species or red listed category	No endangered species or red listed category species in or near the site.	
	Loss of native species and genetic diversity	At present the site is a coconut plantation with end of life coconut trees and weedy bushes. There will not be any loss of native species or genetic diversity.	
	Likely displacement of fauna	No displacement of fauna envisaged.	
	Any introduction of alien / invasive species	There will not be any introduction of alien species. Only indigenous plants will be raised in the green belt.	
SOCIAL ASPECTS			
	Proximity to nearest habitation	The area is residential in nature.	
CSR components suggested			
Sr. No	Description	Approx. Amount proposed (INR), (Annually)	Remarks

1.	Promotion of Health Care	1,50,000 (Recurring)	Hence a total of 4,20,000 INR will be spend in 2017 for CSR activities and 4,00,00 INR will be spend annually for CSR activities.
2.	Promotion of Education including Special Education	2,70,000 (Non recurring) 1,50,000 (Recurring)	
3.	Contribution to PM's National Relief Fund	1,00,000 (recurring)	
4.	Ensuring Environmental Sustainability	1,50,000 (Non recurring)	

#### GENERAL

Does it propose environment management plan	Yes, Environment Management Plan is prepared and will be implemented.
Does it have eco restoration programmes	Yes, it has eco restoration programme. A green belt with indigenous plants/trees will be developed in the site.
Biomedical waste management	Not Applicable
E-waste management	E-waste generated will be sold to authorized vendors.
Sufficiency of parking spaces/ traffic management	Sufficient parking space will be provided in the project site. The details of parking are given in Annexure G.
Litigation/court cases, if any, against the project (provide details)	No litigation/court case against the project.

#### SEAC meetings/ ADDITIONAL CLARIFICATIONS

Details of Authorised Signatory	Sri. Viju Varghese, Deputy General Manager (MEP) & Authorised Signatory, M/s Artech Realtors Pvt Ltd, Artech House, TC/24/2014(1), Thycaud, Thiruvananthapuram, Kerala- 695014
Details of NABET approved EIA consultant organization	Name of consultant organization: ULTRA-TECH Environmental Consultancy and Laboratory NABET Certificate No: NABET/EIA/1417/RA010

2. The proposal was first considered by 60<sup>th</sup> Meeting of SEAC held on 28<sup>th</sup> & 29<sup>th</sup> July, 2016 and to deferred the item for field visit. The following things have to be noticed during field visit.

1. RWH with 10mx10mx3m tank shall provide.
2. Section showing all the 4 basements and cutting and filling plan.
3. Evacuation and emergency plan should submit.
4. Overall site plan should submit.
5. Width of the access road
6. Details of CSR should be submitted.

The subcommittee consisting of Sri. S. Ajayakumar, Sri. John Mathai and Sri. Sreekumaran Nair conducted the site inspection of the project of Sri. Viju Varghese, Artech Realtors Pvt Ltd, Artech House on 30.9.2016. The report is as follows:

*The proponents are directed to submit a sectional elevation along the corner near the road, of the bottom most basement. They are also requested to provide drawings of the retaining walls. Mechanism to drain out seepage of water from the steep cutting shall be provided. They shall also submit drawings for the rear side drain construction its connectivity and its ultimate disposal into a drain. Creation of a pond for harvesting water may be considered. Other proposals pertaining to the project are satisfactory. The potential of terrain as a water Savings Bank shall be tapped fully by maintaining the wet land nature on rear side earmarked for Bio farming, Toilet linked Biogas plant also be visualised to achieve green energy concept in the premise.*

3. The proposal was considered in the 64<sup>th</sup> Meeting of SEAC held on 16<sup>th</sup> and 17<sup>th</sup> November 2016. The committee verified the field inspection report of the Sub Committee and the clarifications submitted by the proponent. Based on the Conceptual plan, Form.1, all other documents submitted with the proposal and the field visit report and recommend the item subject to the following specific condition in addition to the general conditions.

1. Sufficient space for Material Recovery Facility for storing non-biodegradable waste is to be provided.
2. The quantity of solar energy to be produced to be indicated. The area earmarked for keeping solar energy battery to be clearly earmarked.
3. Adequate mechanism should be provided to drain out the seepage water from the steep cutting.
4. The flow of natural water course shall not be obstructed.

4. The Authority considered the proposal in the 62<sup>nd</sup> meeting held on 23<sup>rd</sup> December 2016. The Authority decided to issue EC subject to the above specific conditions in addition to general conditions. The proponent should give an affidavit stating that all the specific and general conditions shall be strictly implemented and the earmarked CSR activity shall be fully undertaken.

5. The proponent has submitted an affidavit stating that he will follow the above conditions. Environmental Clearance as per the EIA notification 2006 is therefore granted to Sri. Viju Varghese, M/s. Artech Realtors Pvt. Ltd, for the proposed Residential cum Commercial Building Project (Artech Metropolis) in Sy. No. 103/4 at Ulloor Village, Thiruvananthapuram Taluk, Thiruvananthapuram District, Kerala subject to the specific conditions mentioned in para 3 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.
7. 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.
8. 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.
9. 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, Thiruvananthapuram 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. Viju Varghese, Deputy General Manager (MEP) & Authorised



Signatory, M/s Artech Realtors Pvt Ltd, Artech House, TC/24/2014(1),  
Thycaud, Thiruvananthapuram, Kerala- 695014.

Sd/-

**V.S.SENTHIL.I.A.S,**  
**Member Secretary (SEIAA)**

To,

Sri. Viju Varghese,  
Deputy General Manager (MEP) &  
Authorised Signatory,  
M/s Artech Realtors Pvt Ltd,  
Artech House, TC/24/2014(1),  
Thycaud, Thiruvananthapuram,  
Kerala- 695014

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, Thiruvananthapuram
4. The District Town Planner, Thiruvananthapuram
5. The Tahsildhar, Thiruvananthapuram Taluk
6. The Member Secretary, Kerala State Pollution Control Board
7. The Director, Dept. of Environment and Climate Change, Govt. of Kerala, Tyn-24
8. Chairman, SEIAA, Kerala
9. Website
10. Stock file
11. O/c

Forwarded/By Order

*Rajendras*

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.

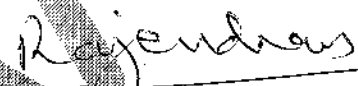
## **II. Operation Phase**

- 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 affluent 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 affluent 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 confirming 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



