



Validity expires on 16/03/2025

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

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

Sub: SEIAA- Environmental Clearance for the construction of new Hospital building for Augmentation of Sree Chitra Thirunal Institute for Medical Science and Technology (SCTIMST), Trivandrum under PMSSY scheme in Survey No.44 & 42/1 Part Block No.6, Cheruvackal Village, Thiruvananthapuram Taluk & Thiruvananthapuram District, Kerala by Dr.Asha Kishore, MD, DM, Director, Sree Chitra Thirunal Institute for Medical Science - Granted - Orders issued.

**STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY, KERALA**

File No. 1164/EC/SEIAA/KL/2017

Dated, Thiruvananthapuram 17/03/2018

- Ref: 1. Application received on 14.11.2017 from Dr.Asha Kishore, Director, Sree Chitra Thirunal Institute for Medical Science and Technology (SCTIMST), Thiruvananthapuram
2. Minutes of the 83<sup>rd</sup> meeting of SEAC held on 20<sup>th</sup> & 21<sup>st</sup> December 2017.
3. Minutes of the 84<sup>th</sup> meeting of SEAC held on 22<sup>nd</sup> & 23<sup>rd</sup> January 2018
4. Minutes of the 85<sup>th</sup> SEAC meeting held on 12<sup>th</sup> February 2018
5. Received from Sree Chitra Tirunal Institute for Medical Science & Technology Letter No.CIVIL/SCTIMST/NHB dt.06.03.2018
6. Minutes of the 81<sup>st</sup> meeting of SEIAA held on 8<sup>th</sup> March 2018.
7. Affidavit dated 17<sup>th</sup> March 2018. from Dr.Asha Kishore, M.D., DM, Sree Chitra Tirunal Institute for Medical Sciences & Technology, Thiruvananthapuram

**Environmental Clearance No. 54 /2018**

Dr.Asha Kishore, MD, DM, Director, Sree Chitra Thirunal Institute for Medical Science and Technology, Medical College Campus, Medical College P.O, Thiruvananthapuram Kerala – 695 011 vide application received on 14.11.2017, has sought Environmental Clearance under EIA Notification, 2006 for the proposed construction of new Hospital building for Augmentation of Sree Chitra Thirunal Institute for Medical Science and Technology (SCTIMST), Trivandrum under PMSSY scheme in Survey No.44 & 42/1 Part Block No.6, Cheruvackal 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.

Details of project as furnished by the applicant are as follows:-

**BASIC INFORMATION OF BUILDING PROJECT**  
(To be filled in by the Project Proponent)  
**PART A**

<b>PROJECT DETAILS</b>	
File No	F.No. :1164/EC/SEIAA/KL/2017 Proposal No.: SIA/KL/NCP/70946/2017
Name /Title of the project	Construction of New Hospital Building for Augmentation of Sree Chitra Thirunal Institute for Medical Sciences and Technology (SCTIMST), Medical College Campus, Medical College PO, Thiruvananthapuram -695 011 under PMSSY scheme
Name and address of project proponent.	<b>Dr. Asha Kishore, MD,DM, Director</b> Sree Chitra Thirunal Institute for Medical Sciences and Technology, Medical College Campus, Medical College PO, Thiruvananthapuram -695 011 Thiruvananthapuram.
Owner of the land	<b>Dr. Asha Kishore, MD,DM, Director, SCTIMST</b>
Survey Nos. District/Taluk/ and Village etc.	Sy.No. 44 & 42/1 Part Block No.6, Cheruvaackal Village, Thiruvananthapuram Taluk, Thiruvananthapuram District, Kerala
Category/Sub Category and Schedule	8 (a) - Building and Construction Projects, Category-B.
Date of submission of Application	14 <sup>th</sup> November 2017 Proposal No. :SIA/KL/NCP/70946/2017
Total Built up Area & No. of Floors	The proposed Built-up area of new hospital block will be 28,478 Sqm. It will be constructed as 3 blocks, 1. Hospital Block (Basement+G+7 Floors): 20, 718 Sqm 2. Service Block (G+4 Floors):3160 Sqm 3. Multi Level Car Parking : 4600 Sqm
No of apartments	3 (Hospital Block, Service Block and Multi Level Car Parking)
Height of the building from the ground level	The height of the building will be 36.75m from Ground Level
GPS Co-ordinate	Latitude (N) : 8°31'16.00" N Longitude(E) : 76°55'37.00" E
Brief description of the project.	The project is proposed for Construction of New Hospital Building for Augmentation of Sree Chitra Thirunal Institute for Medical Sciences and Technology (SCTIMST), Thiruvananthapuram under PMSSY scheme.
Is it a new Project or expansion/modification of an existing project?	Expansion
Details of the Project Cost	The estimated cost for the proposed project is 230

	<p>crores.</p> <ol style="list-style-type: none"> <li>1. For construction of new hospital building is Rs. 150.29 crores</li> <li>2. For equipment is Rs. 79.71 crores.</li> </ol> <p>The funding agencies for the proposed projects will be</p> <ol style="list-style-type: none"> <li>1. Ministry of Health &amp; family Welfare (MoH&amp;FW) through PMSSY for Rs. 120 crores.</li> <li>2. Department of Science &amp; Technology (DST), Govt. of India for Rs. 110 Crores.</li> </ol>
If CRZ recommendation applicable?	Not Applicable
Distance from nearby habitation	The proposed project is in Thiruvananthapuram city and is within the limits of Municipal Corporation of Thiruvananthapuram.
Distance from nearby forest, if applicable	--
Distance from protected area, Wildlife Sanctuary, National Park etc.	--
Distance from nearby streams/rivers/National Highway Roads and Airport	<p>The nearest water body from the proposed project site is Akkulam Lake which is 2.5Km far from the site in western direction.</p> <p>The proposed hospital building is adjacent to 7m wide (average) KSEB road which connects Medical College – Kumarapuram Road at a distance of about 0.5Km. This road connects NH-47 (Ullor – Akkulam Road) in North and Poonthi road in South.</p> <p>Trivandrum International Airport is 3.8 Km (South) from the project site. Nearest railway station is Kochuveli RS in southwest direction about 3.4 Km and Trivandrum Central Railway station is at a distance of 4.7 Km in Southeast from the project site.</p>
Is ESA applicable? If so, distance from ESA limit	Not Applicable
<b>IMPACT ON WATER</b>	
Details of water requirement per day in KLD	The total water requirement for existing and proposed buildings will be 317 KLD. Fresh Water requirement is 211 KLD and Treated Sewage water requirement for toilet flushing and greenbelt will be 106 KLD.
Water source/sources.	Kerala Water Authority(KWA) / rain Water
Details of water requirements met from water harvesting.	Roof top water will be collected in rain water collection tanks and will be utilized for domestic purposes. Provisions will be made for effective utilization of rain water in rainy days and also for ground water recharging.
What are the impacts of the proposal on the ground water?	No proposal is made for utilization of ground water in the proposed project.
<b>WASTE MANAGEMENT</b>	
Explain the facilities for Liquid waste Management	Mobile STP/ Septic tank followed by soak pit will be utilized for treatment of sewage water in construction phase. 350 KLD STP plant is proposed for treatment

	for liquid wastes in operational phase. Treated waste water will be reused in the project site itself for flushing, gardening and HVAC system. Excess water will be drained out as per CPCB discharge standards.
Solid Waste Management	<p><b>Construction phase:</b> Construction waste/debris will be utilized in the project site for leveling and strengthening of internal roads and remaining will be disposed in identified disposal sites or will be utilized for filling of low lying areas by consulting local governing bodies. The recyclable non biodegradable waste salvaged from the debris like cement blocks, wood, iron bars, aluminum sections etc. would be re-used or sold to the vendors.</p> <p>In construction phase 120 no. of labour will be hired from local areas. The total solid waste generation is 60 Kg/day. Non biodegradable and packing material will be stored separately in the site. The biodegradable solid waste will be disposed through bio-bin system for microbial composting and domestic sewage will be treated in septic tank followed by soak pit or by using mobile STP.</p> <p><b>Operational phase:</b> In operational phase, the total solid waste generation will be 634.5 Kg/day from existing and proposed buildings. This waste will be segregated according their characteristics and disposed to municipal Corporation garbage collection centers.</p> <p>Biomedical waste of quantity 158.6 Kg/day would be given to IMAGE(Indian Medical Association) for treatment as per PCB norms.</p>
E-Waste Management	Total E- Waste generated is 650 Kg/Year, The E-Waste will be stored in earmarked place and will be sent to Authorized E-waste collection centers/ recyclers.
Facilities for Sewage Treatment Plant	It is proposed to construct 350 KLD sewage treatment plant
How much of the water requirement can be met from the recycling of treated waste water? (Facilities for liquid waste treatment)	106 KLD of recycled water will be utilized for flushing, gardening and operation of HVAC systems.
What is the incremental pollution load from waste water generated from the proposed activities?	Total availability of treated water from STP will be 241 KLD after evaporation and treatment losses. . Out of which 106 KLD will be utilized for toilet flushing, greenbelt development and operation of HVAC systems. The excess water will be drained out as per the CPCB discharge standards.
How is the storm water from within the site managed?	All along the road network and the arterial roads of the proposed project, storm water drains would be provided to collect water during rains.

	<p>They would adequately sized to prevent over flooding of the site.</p> <p>Vertical rain water pipes will be provided as per requirement and as per the site conditions which will collect the rain water through kurrahs to discharge into masonry storm water chambers with RCC covers.</p> <p>Roof top rain water will be collected in separate sumps and used for non flushing use which will minimize the water demand stress on Kerala Water Authority on fully occupancy of the project. Any over flow from the rain water sump will be connected to the storm water drain adjacent to the campus, so as to avoid flooding of the premises.</p>
Will the deployment of construction labourers particularly in the peak period lead to unsanitary conditions around the project site (Justify with proper explanation)	No labour camp is proposed for construction labour. Labour will be hired from surrounding localities. However, adequate no. of toilets will be arranged for construction labors. Mobile STP/ Septic tank followed by soak pit will be arranged for treatment of domestic waste water.
What on- site facilities are provided for the collection, treatment & safe disposal of sewage? (Give details of the quantities of wastewater generation, treatment capacities with technology & facilities for recycling and disposal)	All facilities will be provided for collection of effluent water and sewage water. Effluent water will be collected in separate collection tank and it will be neutralized before pumped into STP. It is proposed to construct 350 KLD STP based on MBBR technology.
Give details of dual plumbing system if treated waste is used for flushing of toilets or any other use.	Dual plumbing system will be arranged in the proposed project for reuse of treated waste water for domestic, gardening and operation of HVAC etc.
<b>TRAFFIC MANAGEMENT</b>	
Sufficiency of Parking Space (Explain)	Multi level car parking is proposed for 200 cars
Width of access road	7 meters
<b>ENERGY CONSERVATION</b>	
Details of power requirement and source of supply, backup source etc. What is the energy consumption assumed per square foot of built-up area? How have you tried to minimize energy consumption?	<p>Power requirement for the proposed project will be 2500 KVA. Power will be met from Kerala State Electricity Board (KSEB).</p> <p>For hot water requirement, it is proposed to install solar water heaters. Solar based street lighting system on internal roads will be planned.</p>
What type of, and capacity of power back-up to you plan to provide?	<p>For the provision of backup power supply during the power failure there is provision of 2 no. of DG sets of 1250 KVA capacity 1x 1250 KVA as standby. 2 X 500 KVA and 1 X 320 KVA DG sets were already installed for existing building.</p> <p>Two numbers of 200 KVA UPS also will be installed to supply essential load of medical equipments, lights etc.</p>
What are the characteristics of the glass you plan to use? Provide specifications of its characteristics related to both short wave and	The glass used will be low emissivity and the other specifications of the glass will comply with the norms as per ECBC.

long wave radiation?													
What passive solar architectural features are being used in the building? Illustrate the applications made in the proposed project	All the relevant features are incorporated like the orientation of the building, shading effect etc. Double glazing windows, carefully designed shading devices will be installed. The building is designed to achieve 4 star rating as per GRIHA.												
Does the layout of streets & buildings maximize the potential for solar energy devices? Have you considered the use of street lighting, emergency lighting and solar hot water systems for use in the building complex? Substantiate with details	Due consideration has been taken for maximum use of the solar energy while preparation of layout plan. The project proponent shall make provision for solar panel system (hot water purpose) in building and solar energy devices will be used for street lighting, emergency lighting in the proposed project.												
Is the shading effectively used to reduce cooling/heating loads? What principles have been used to maximize the shading of Walls on the East and the West and the Roof? How much energy saving has been effected?	All the relevant features are incorporated like the orientation of the building, shading effect etc. The building is designed to achieve 4 star rating as per GRIHA.												
Do the structure use energy-efficient space conditioning, lighting and mechanical systems? Provide technical details. Provide details of transformers and motor efficiencies, lighting intensity and air-conditioning load assumptions? Are you using CFC and HCFC free chillers? Provide specifications.	Suitable energy optimization will be adopted during the calculation of energy load of the proposed project. The space heating load will be minimized using passive solar structure and suitable buildings envelop material. Uses of incandescent lamp and halogen lamps have been avoided and energy efficient LED lamps will be used for all common area. The diesel generator sets shall be automatically controlled to optimize their usage based on the actual load requirements at any time. Variable frequency drive systems would be adopted for the lifts etc. to maximize the energy saving.												
What are the likely effects of the building activity in altering the micro-climates? Provide a self assessment on the likely impacts of the proposed construction on creation of heat island & inversion effects?	The proposed project site is devoid of any vegetation and plot area of the site is only 5,500 sqm. Because of this proposed project there will be negligible impact on micro climate of project site. However, paved areas will be covered with canopy of tree shade, open spaces will be covered with grass turf and with garden shrubs so that heat absorption by paving material will be minimized. This will mitigate the heat island effect to a large extent.												
What are the thermal characteristics of the building envelope? (a) Roof (b) external walls; and (c) fenestration? Give details of the materials used.	<p>The building materials will be selected with characteristics that limit heat ingress into the inside of the building will be minimized.</p> <table border="1" data-bbox="777 1654 1357 1853"> <thead> <tr> <th></th> <th>U value (W/m<sup>2</sup>.°C)</th> <th>R value (m<sup>2</sup>.°C/W)</th> </tr> </thead> <tbody> <tr> <td>Roof</td> <td>U-0.409</td> <td>R-2.1</td> </tr> <tr> <td>Wall</td> <td>U-0.352</td> <td>R-2.35</td> </tr> <tr> <td>Fenestration</td> <td>3.177</td> <td>0.25</td> </tr> </tbody> </table>		U value (W/m <sup>2</sup> .°C)	R value (m <sup>2</sup> .°C/W)	Roof	U-0.409	R-2.1	Wall	U-0.352	R-2.35	Fenestration	3.177	0.25
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What is the rate of air non-conventional energy technologies are utilized in the overall energy consumption? Provide details of the renewable energy technologies used.	<p>The uses of non-conventional source of energy in the proposed construction project are as follows:</p> <p><b>Solar Water Heater:</b> The proposed project</p>												

	<p>would install solar panels for hot water requirements in the project and hence the dependency on electricity for hot water generation can be minimized.</p> <p><b>Solar Street Light:</b> It is also suggested to use solar cell powered street lights within the proposed project site for conservation of electricity.</p> <p><b>Use of LED Lamps:</b> The project proponent would use LED Lamps which consumes less electricity.</p> <p><b>Lighting:</b> The orientation of the building of the proposed project are designed in such a way that natural ventilation and natural light in the non-air conditioned buildings so that the use of lights during day time can be minimized.</p>
<p>Details of renewable energy (non – conventional) used.</p>	<p>The uses of non-conventional source of energy in the proposed construction project are as follows:</p> <p><b>Solar Water Heater:</b> The proposed project would install solar panels for hot water requirements in the project and hence the dependency on electricity for hot water generation can be minimized.</p> <p><b>Solar Street Light:</b> It is also suggested to use solar cell powered street lights within the proposed project site for conservation of electricity.</p> <p><b>Use of LED Lamps:</b> The project proponent would use LED Lamps which consumes less electricity.</p> <p><b>Lighting:</b> The orientation of the building of the proposed project are designed in such a way that natural ventilation and natural light in the non-air conditioned buildings so that the use of lights during day time can be minimized.</p>
<p><b>IMPACT ON AIR ENVIRONMENT</b></p>	
<p>What are the mitigation measures on generation of dust, smoke , odors, fumes or hazardous gases</p>	<p>During construction phase, dust generation will be controlled by regular water sprinkling for dust suppression. Barricades will be installed all around the construction site to control the exposure of fugitive dust to surrounding areas. Trucks will be covered with tarpaulin covers. DG sets will be maintained as per CPCB standards and vented out through appropriate stack height.</p>
<p>Details of internal traffic management of the site.</p>	<p>The conceptual plan shows the internal traffic management with entry and exit to the proposed project site. All internal roads with proper width, pedestrian path ways etc will be provided. Further, provisions of ramps are proposed for the easy access to the building for each floor. The area allotted for internal roads/ pedestrian pathways/ footpaths in the site is 2000 Sqm.</p>

Details of noise from traffic, machines and vibrator and mitigation measures	No significant impact of noise is anticipated within and outside of the project site due to provision of wide roads for smooth flow of traffic and greenbelt. Noise, due to the traffic, within site, will result in a marginal increase in the noise levels because noise control measures is provided in vehicles & DG sets, which cause slight increase in noise level.
Air quality monitoring in detail	Regular air quality Monitoring will be carried out as per Kerala Pollution Control Board norms.
Will the proposal create shortage of parking space for vehicles? Furnish details of the present level of transport infrastructure and measures proposed for improvement including the traffic management at the entry & exit to the project site.	The proposed project would provide vehicle parking facilities within the project premises. It is proposed to install multi level parking to facilitate parking area for 200 cars and two wheeler parking will be provided in the existing campus.. At construction stage, parking facility will be provided at back side of the Achyutamenon Block. The parking plan for this project would follow KPBR/KMBR guidelines.
Provide details of the movement patterns with internal roads, bicycles tracks, Pedestrian pathways, footpaths etc., with areas under each category	The conceptual plan shows the internal traffic management with entry and exit to the proposed project site. All internal roads with proper width, pedestrian path ways etc will be provided. Further, provisions of ramps are proposed for the easy access to the building for each floor. The area allotted for internal roads/ pedestrian pathways/ footpaths in the site is 2000 Sqm.
Will there be significant increase in traffic noise & vibrations? Give details of the sources and the measures proposed for mitigation of the above.	No significant impact of noise is anticipated within and outside of the project site due to provision of wide roads for smooth flow of traffic and greenbelt. Noise, due to the traffic, within site, will result in only a marginal increase in the noise levels because noise control measures is provided in vehicles & DG sets, which cause slight increase in noise level.
What will be impact of DG sets & other equipments on noise levels & vibration in & ambient air quality around the project site? Provide details	At present vehicular movement and operation of DG sets are the major sources of noise pollution. DG set is not operational continuously and they will be enclosed with suitable enclosures, hence minimal impact is anticipated. It is envisaged that the movement of the motor vehicles is restricted to designated carriageways only.
<b>IMPACT ON BIODIVERSITY AND ECO RESTORATION PROGRAMMES</b>	
Will the project involve extensive clearing or modification of vegetation (Provide details)	No. There are no major trees available in the site.
What are the measures proposed to minimize the likely impact on vegetation (details of proposal for tree plantation/ landscaping)	During the development of the green belt within the project area, it has to be emphasized that those native plant species should be planted which are having good ornamental values and fast growing with excellent canopy cover.
Is there any displacement of fauna – both	No



terrestrial and aquatic? – If so what are the mitigation measures? Presence of any endangered species or red listed category (in detail)																												
<b>SOCIO- ECONOMIC ASPECTS</b>																												
Will the proposal result in any change to the demographic structure of local population? Provide the details.	The proposed project is an expansion of the existing hospital facility. After the proposed expansion, during operation phase on full occupancy of the project, additionally 923 employees will be deputed and the more floating population is expected and hence there will be influx of people to the project area and surrounding.																											
Give details of the existing social infrastructure around the proposed project	Infrastructure facilities such as, transportation, water supply & sanitation, communication, educational institutes, hospital, markets, banks, cultural amenities etc. already exist in area near the project site.																											
Will the project cause adverse effects on local communities, disturbances to sacred sites or other cultural values? What are the safeguards proposed?	No adverse effects are anticipated. The project has generated employment opportunity and improves health facilities in the region as well in country.																											
Out of the total plot area % of spaces provided for i)Recreational facility ii)Parking iii)Open Spaces	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">S.No.</th> <th style="width: 70%;">Purpose</th> <th style="width: 20%;">in Sqm</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Proposed Hospital Building</td> <td>2328</td> </tr> <tr> <td>2.</td> <td>Services Building</td> <td>377</td> </tr> <tr> <td>3.</td> <td>Multi Level Parking</td> <td>500</td> </tr> <tr> <td>4.</td> <td>Water Treatment Plant</td> <td>94</td> </tr> <tr> <td>5.</td> <td>Oxygen Plant</td> <td>50</td> </tr> <tr> <td>6.</td> <td>Internal Roads</td> <td>2000</td> </tr> <tr> <td>7.</td> <td>Open Area</td> <td>151</td> </tr> <tr> <td colspan="2" style="text-align: center;"><b>Total</b></td> <td><b>5500</b></td> </tr> </tbody> </table> <p>Recreational facility is already available in adjacent building.</p>	S.No.	Purpose	in Sqm	1.	Proposed Hospital Building	2328	2.	Services Building	377	3.	Multi Level Parking	500	4.	Water Treatment Plant	94	5.	Oxygen Plant	50	6.	Internal Roads	2000	7.	Open Area	151	<b>Total</b>		<b>5500</b>
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May involve the use of building materials with high –embodied energy. Are the construction materials produced with energy efficient process? (Give details of energy conservation measures in the selection of building materials and their energy efficiency)	The proposed hospital building will be designed to meet the four stars rating as per GRIHA. <ul style="list-style-type: none"> <li>• Low energy embodied materials will be given preference.</li> <li>• Energy efficient construction materials such as Gypsum Plaster Concrete, Sand, Aggregate, Fly Ash Cement, will be used to achieve the desired primary energy efficiency.</li> <li>• Ready Mix concrete will be used for construction of RCC structures. M-sand will be used as an alternative to river sand and the building blocks will be solid cement blocks that are energy efficient and work efficient compared to baked bricks.</li> </ul>																											

	<ul style="list-style-type: none"> <li>• Ensuring that the building materials and products have low energy embodied energy.</li> <li>• Minimizing the transport of temporary structures, scaffolding, formwork, consumables and building product to the construction site.</li> <li>• Minimizing overall waste and the transport of waste from site.</li> <li>• Use of energy efficient lighting.</li> <li>• Ensuring idle construction equipment is throttled down or switched off</li> </ul> <p>All the items to be used in the project are as per the National Building Code-2005.</p>
<p>Transport and handling of materials during construction may result in pollution, noise &amp; public nuisance. What measures are taken to minimize the impacts?</p>	<p>All vehicles which bring construction material to the site would possess Pollution Under Control Certificates (PUC). All vehicles would be of close body to avoid spread of dust from the loose materials, and vehicles which bring sand, stone dust, etc. would ensure that the above mentioned material are properly wetted during transportation to avoid dust generation. Pucca Road to be made in the construction site for the vehicle movement so that the dust generation due to the vehicular movement within the project site can be minimized. Stacking of construction material shall be confined to the project site only. All the D.G. Sets would have attached with acoustic enclosure for the sound pollution control and all sound generating construction activity to be minimized. Further barricading of the site with GI sheets of 10 ft height in the side abutting the public road during construction</p>
<p>Are recycled materials used in roads and structures? State the extent of savings achieved?</p>	<p>The plastic (non-biodegradable solid waste) will be used along with coal tar during the construction of internal roads. This will increase the life of roads.</p>
<p>Give details of the methods of collection, segregation &amp; disposal of the garbage generated during the operation phases of the project.</p>	<p>The municipal solid waste generated after full occupancy of the hospital is expected to be 634.5 kg/day from existing and proposed buildings. About 158.6 kg/day bio-medical waste will be generated and it will be given to IMAGE who will arrange its disposal as per PCB norms.</p> <ul style="list-style-type: none"> <li>• Hazardous wastes generated in the project site will be used oil, cotton waste and used batteries from DG Sets. These wastes will be disposed to authorized approved recyclers. The used oil will be stored in isolated covered HDPE drums. Used batteries will return back to the dealer to purchase new batteries on buy back basis. The quantities of hazardous waste will be; Used Oils- 700 LPA, o Used Batteries - 4</li> </ul>

	<p>no's/year (Average), Cotton Waste – 750 Kg/ Year</p> <ul style="list-style-type: none"> <li>• Bio-medical waste generated in operational period will be given to IMAGE who will arrange its disposal as per PCB norms.</li> <li>• incinerated by using incinerator of capacity 100kg/hour within the project site area. The incinerator ash will be stored in lined sump and disposed off to authorized recyclers/Fly ash brick manufacturers etc.</li> <li>• About 20 kg/ day of sludge will be generated from STP. The sludge will be used as manure for greenbelt development</li> <li>• E-Waste: Discarded computer parts, electronic and electrical items will be stored in an earmarked area. E-waste will be generated after 4-5 years latency period. E-waste will be disposed as per E Waste (Management &amp; Handling) Rules.</li> <li>• Radioactive Waste: No radioactive waste is generated.</li> </ul>
<b>RISK MANAGEMENT</b>	
Are there sufficient measures proposed for risk hazards in case of emergency such as accident at the site during construction & post construction phase.	Yes. Sufficient measures are proposed for risk hazards in case of emergencies during construction and operational phases.
Storage of explosives/hazardous substance in detail	Used Oil generated from the D.G. sets will be stored in HDPE drums on separate and isolated concrete floor and it will be sold to CPCB approved recyclers. HSD for DG sets will be sourced from local traders. Small quantities of HSD will be stored at the site to use during power failures.
What precautions & safety measures are proposed against fire hazards? Furnish details of emergency plans	Smoke detectors and Fire Fighting systems will be installed in the building and at all services areas. Emergency fire fighting plan and evacuation routes will be displayed at appropriate places on each floor of building.
Litigation/court cases if any	No
<b>AESTHETICS</b>	
Will the proposed constructions in any way result in the obstruction of a view, scenic amenity or landscapes? Are these considerations taken into account by the proponents?	There is no scenic beauty near the project site. Therefore, the proposed project in no way work as an obstruction of view.
Will there be any adverse impacts from new constructions on the existing structures? What are considerations taken into account?	There will be no adverse impacts due to the development of the proposed project.
Whether there are any local considerations of urban form & urban design influencing the design criteria? They may be explicitly spelt out.	The proposed project would be constructed in conformity with the Kerala Municipal Building Rules (KMBR). Project design will be based on 4 star rating as per GRIHA rating system. As per seismic classification, the project site

	falls in Zone-III. Structural design aspects as per the seismic codes – IS 1893 (2002), IS 13920 (1993) and IS 456 (2000) as applicable would be incorporated in the project.
Are there any anthropological or archaeological sites or artefacts nearby? State if any other significant features in the vicinity of the proposed site have been considered	No anthropological or archaeological sites or artifacts are found near the site area.
Details of CSR activity and the amount set apart per year	It has striven to offer services at very affordable costs, including subsidized costs for those in the lower income groups and completely free treatment to the destitute. It has set a unique model by offering the same high standard of care as well as uniform facilities to patients from all walks of life, thus holding the principle of equity high. Based on the socio economic status of the patients, in the past year, out of total in & out patients, 1% of the patients were provided with 100% free treatment and 40 % of the patients were offered concessional treatment ranging from 10% to 60%.
Details of NABET approved EIA Consultant engaged-Their name, address and accreditation details	<b>EIA Consultant</b> <b>M/s. VISON LABS</b> # 16-11-23/37/A, Flat No. 205, 2nd Floor, Opp. RTA Office, Moosarambagh, Malakpet, Hyderabad - 500 036 Phone : 040-24544320/65792001 FAX : 040-24544320 E-mail: info@visonlabs.com, vison.labs@gmail.com URL: www.visonlabs.com <b>NABET SLNo. 144, DATED 16.10.2017</b>
Details of Authorized Signatory and address for correspondence	<b>Dr. Asha Kishore,MD,DM, Director,</b> Sree Chitra Thirunal Institute for Medical Sciences and Technology, Medical College campus,Medical College PO Thiruvananthapuram -695 011 Thiruvananthapuram.
<b>SUMMARY AND CONCLUSION</b>	
Overall justification for implementation of the project.	It is evident that the project aims at maximizing the project benefits to the people around the site, the region and the state in general. Appropriate measures would be taken to mitigate negative impacts. This project will be very beneficial to the people of Kerala and country.
Explanation of how adverse impacts have been mitigated.	There are no adverse impacts the proposed project. However environmental management plan will be effectively implemented in operational phase to minimize the impacts as extent as possible

2. The proposal was placed in the 83<sup>rd</sup> meeting of SEAC held on 20<sup>th</sup> & 21<sup>st</sup> December 2017. The Committee decided to defer the item for field inspection. The Committee also directed the proponent to submit the additional documents/ clarifications.

Accordingly inspection was conducted by a sub committee consisting of Sri S Ajayakumar, Dr. Oommen V. Oommen, Sri John Mathai and Sri Sreekumaran Nair on 13.01.2018. The report states

*The proposal is for an expansion of the existing Sree Chithra Thirunal Institute of Medical Sciences and Technology with a new 170 bed Hospital building, Service block and multilevel car parking facility proposed on the south –eastern side adjacent to the Achutha Menon Centre. Proposed total built up area is 28,478 sq.m.in 5500 sq.m plot. As per Form 1 application, SCTIMS has 21,585 sq.m of existing built up area for hospital which has been completed prior to 1986. An additional 7,511 sq.m built up area is used for educational purposes. Based on the overall evaluation of the site and on the points raised in the meeting, following aspects need consideration*

- a) The layout plan of the entire Institute drawn to a larger scale indicating the foot print of the existing buildings and those proposed is to be submitted. The projection provided to the ground floor of the building on the northern side of Nurses hostel can be avoided. The high level connecting corridor between the old block and proposed building should also be indicated.*
- b) It is mentioned in the proposal that the Nurses hostel will be demolished, but at the time of site inspection it is informed that it will be retained. This need clarification.*
- c) The proposed building is planned in the existing parking space. Alternate parking space to be made available during the construction stage.*
- d) The fugitive dust barricade provided presently is of a nylon shade. Considering the presence of hospitals in the vicinity demanding a dust proof zone, adequate measures to be adopted to prevent movement of dust from the site. The height of the barricade must also be enhanced appropriately.*
- e) The entry to the building is from the main drive way of 7 m width located between the old block and proposed building. This is a common road used by the OP facility of Medical college and the Dental College necessitating widening at the entry from the main road and stream lining the traffic. Considering a higher level of traffic and movement of pedestrians, the road need to be widened to a minimum width of 10m all along including foot path of minimum 1.5 m on either side and prohibiting any kind of parking in this road. Necessary land for widening is to be surrendered from the proponent. The entry to the building and to MLCP needs suitable modification with adequate splay necessary for ambulances and bus. The connecting road to the service block should be provided with adequate slope to permit the movement of fire fighting vehicles.*

*f) The present proposal for car parking of 200 cars is inadequate for this facility. The topography permits an additional floor in the basement that can be used as dedicated parking for the staff which must be explored and reported. In addition, the MLCP facility should be planned with at least three additional floors to accommodate the increasing requirements in future.*

*g) The storm water from the campus appears to be let out through the narrow drains. The storm water lines have to be redesigned so as to dispose the water safely. This must form part of the plan.*

*h) The rainwater harvesting facility should have a minimum capacity of 1500 KL. The efforts to provide separate treatment facility for the grey and dark water are appreciated.*

*i) Considering the sloping nature of the terrain and the occurrence of laterite clay substrate, excavation should be done with adequate safety to the cut slope. Slumping and failure can affect the stability of existing structures.*

*j) The quantity of earth to be taken out of the site must be reported and if it is to be taken out it should be given for use of Govt. projects like NH*

*k) Use of solar power should be maximised and the quantity that is planned to be generated daily should be reported.*

*l) The material recovery facility (MRF) should be clearly demarcated and should have a capacity of at least a week's storage. Food waste and the like should be used for generation of biogas.*

*m) A dedicated open space should be designated and left as assembly point*

*n) The proponent shall submit a revised site plan showing the changes.*

3. The proposal was placed in the 84<sup>th</sup> SEAC meeting held on 22 & 23<sup>rd</sup> January 2018 and directed the proponent to submit the documents/clarifications as suggested by the inspection team.

The proponent has been submitted the documents sought by SEAC. A meeting was conducted on 03.02.2018 by a Subcommittee of SEAC consisting of Sri S Ajayakumar & Sri John Mathai. The Construction Engineer & Executive Engineer of Sree Chitra Thirunal Institute for Medical Sciences & Technology attended the meeting.

The proponent submitted the documents sought by the Sub Committee.

4. The proposal was placed in the 85<sup>th</sup> meeting of SEAC held on 12<sup>th</sup> February 2018. The Committee appraised the proposal based on Form 1, Form I A, Conceptual Plan, field inspection report of the Sub Committee and all other documents submitted with

the proposal. The Sub Committee which inspected the site on 13.01.2018 made few suggestions and sought clarifications on certain points. The representatives of the proponent appeared before the Subcommittee with the clarifications and details on 03.02.2018. After examining the details, the Sub Committee found that the FAR is within the limits. The proponent also submitted satisfactory explanation regarding the demolition of Nurses Hostel. The solar power proposed to be generated and the earth to be taken out are quantified. The proponent also expressed the difficulty in enhancing the capacity of the multilevel car parking, which was accepted. After deliberations, the Committee decided to recommend EC subject to the general conditions in addition to the following specific conditions:

- a) *The entry to the building is from the main drive way of 7 m width located between the old block and proposed building. This is a common road used by the OP facility of Medical college and the Dental College necessitating widening at the entry from the main road and stream lining the traffic. Considering a higher level of traffic and movement of pedestrians, the road need to be widened to a minimum width of 10m all along including foot path of minimum 1.5 m on either side and prohibiting any kind of parking in this road. Necessary land for widening is to be surrendered from the proponent.*
  - b) *The present proposal for car parking of 200 cars is inadequate for this facility. In addition, a MLCP facility should be planned with at least three additional floors to accommodate the increasing requirements in future.*
  - c) *The storm water from the campus appears to be let out through the narrow drains. The storm water lines have to be redesigned so as to dispose the water safely. This must form part of the plan.*
  - d) *The rainwater harvesting facility should have a minimum capacity of 1500 KL.*
  - e) *Considering the sloping nature of the terrain and the occurrence of laterite clay substrate, excavation should be done with adequate safety to the cut slope. Slumping and failure can affect the stability of existing structures.*
  - f) *The material recovery facility (MRF) should be clearly demarcated and should have a capacity of at least a week's storage. Food waste and the like should be used for generation of biogas.*
  - g) *A dedicated open space should be designated and left as assembly point*
5. The proponent has submitted a Letter No.CIVIL/SCTIMST/NHB dt.06.03.2018 requesting that specific mention on the quantity of earth to be removed from the site may be incorporated in the EC to be issued from SEIAA.
  6. The proposal was placed in the 81<sup>st</sup> meeting of SEIAA held on 8<sup>th</sup> March 2018. Authority accepted the recommendation of SEAC and decided to issue EC subject to general conditions in addition to the above specific condition as suggested by SEAC. Dependable source of water from Kerala Water Authority is to be ensured. Sanction is also given for excavating upto 21000 m<sup>3</sup> of earth from the project site. A notarised affidavit for the commitment of CSR activities and also agreeing all the above specific and general conditions should be submitted before the issuance of EC. The proponent has submitted the affidavit vide ref 7<sup>th</sup> cited stating that all the specific and

general conditions shall be strictly implemented.

7. Environmental Clearance as per the EIA notification 2006 is hereby accorded for the Augmentation of proposed Hospital Building of Sree Chitra Thirunal Institute for Medical Science and Technology (SCTIMST), Medical College P.O., Thiruvananthapuram in Survey No. 44 & 42/1 Part Block No.6 Cheruvaekal Village, Thiruvananthapuram by the Director Dr.Asha Kishor, MD,DM under PMSSY scheme of proposed built-up area 28,478 sqm subject to the conditions mentioned in para 4 & 6 above and the usual general conditions for projects other than mining appended hereto and the following green conditions should be strictly adhered to. Sanction is also accorded for excavation of 21,000m<sup>3</sup> of earth from the project site.

### **Green Guidelines**

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, regularization or consent to operate.
8. The clearance will be subject to all the environmental impact mitigation and management measures envisaged by the project proponent in the documents submitted to SEIAA, and the mitigation measures specified. The assurances in form 1A of the application (Appendix II) and clarifications given by the proponent will be deemed to be part of these proceedings as if incorporated herein. Also the general conditions for projects other than mining appended hereto and the following green guidelines will be applicable and have to be strictly adhered to.
9. Validity of the Environmental Clearance will be seven years from the date of issuance the subject to earlier review in the event of noncompliance or violation of any of the conditions stipulated herein.
10. 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, Dr.Asha Kishore,MD,DM, Director, Sree Chitra Institute for Medical Science and Technology, Medical College Campus, Medical College.P.O., Thiruvananthapuram – 695 011.

Sd/-  
P H.Kurian I.A.S  
Member Secretary (SEIAA),

To

Dr.Asha Kishore,MD,DM, Director,  
Sree Chitra Institute for Medical Science and Technology,  
Medical College Campus,  
Medical College.P.O.,  
Thiruvananthapuram – 695 011.

Copy to:

1. MoEF Regional Office, Southern Zone, Kendriya Sadan, 4<sup>th</sup> Floor, E&F Wing, II Block, Koramangala, Bangalore-560034
2. Additional chief Secretary to Government, Environment Department,
4. The District Collector, Thiruvananthapuram
3. The District Town Planner, Thiruvananthapuram
5. Tahsildar, Thiruvananthapuram Taluk
6. Member Secretary, Kerala State Pollution Control Board, Pattom, Thiruvananthapuram
7. Chairman, SEIAA
8. The Secretary, Thiruvananthapuram Corporation
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 enforced 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 prespective 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 protect 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

