Validity expires on 04.02.2025

सत्यमेव जयते

Proceedings of the State Environment Impact Assessment Authority Kerala

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

Sub: SEIAA- Environmental clearance for the proposed Super Speciality Hospital Project in Sy. Nos.402/5-2,6,6-1,7,17-1-1, 403/1,11,12-1, 404/1-1,4-1,5-1,6-1, 405/8-1,9-1-1,11-2,13,13-1,14-1-1,14-2,15 at Mel Thonnakkal Village, Thiruvananthapuram Taluk, Thiruvananthapuram District, Kerala of Mr.Abdul Rahman Nazarudeen, Managing Director, Kerala Medicity Medical Services Pvt. Ltd. - Granted-Orders issued.

STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY, KERALA

No. 1125/EC/SEIAA/KL/2017 ***dated, Thiruvananthapuram 05.02.2018***

Ref:
1. Application received dated 01.04.2017 from Mr.Abdul Rahman Nazarudeen, Managing Director, Kerala Medicity Medical Service Pvt. Ltd.
2. Minutes of the 73rd meeting of SEAC held on 30th & 31st May, 2017.
3. Minutes of the 76th meeting SEAC held on 25th& 26th July 2017.
4. Minutes of the 74th meeting of SEIAA on 09.10.2017.
5. Minutes of the 75th meeting of SEIAA held on 28.10.2017.
6. Affidavit dated 23.01.2018 from Mr.Abdul Rahman Nazarudeen, Managing Director, Kerala Medicity Medical Service Pvt. Ltd.

ENVIRONMENTAL CLEARANCE NO. 11/2018

Mr.Abdul Rahman Nazarudeen, Managing Director, Kerala Medicity Medical Service Pvt. Ltd, KavumoolaVeedu, Mullaramcode, Manmboor P.O, Thiruvananthapuram District, Kerala-695317, vide his application received online, has sought Environmental Clearance under EIA Notification, 2006 for the proposed Super Speciality Hospital Project in survey Nos. 402/5-2,6,6-1,7,17-1-1, 403/1,11,12-1, 404/1-1,4-1,5-1,6-1, 405/8-1,9-1-1,11-2,13,13-1,14-1-1,14-2,15, of MelThonnakal 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.

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

BASIC INFORMATION OF BUILDING PROJECT
PART A

PROJECT DETAILS	
File No	1125/EC/SEIAA/KL/2017
Name /Title of the project	Environmental Clearance for the proposed Super Specialty Hospital Project at Mel Thonnakkal Village, Thiruvananthapuram taluk, Thiruvananthapuram District, Kerala
Name and address of project proponent.	Mr. Abdul Rahman Nazarudeen
Owner of the land	Mr. Abdul Rahman Nazarudeen
Survey Nos. District/Taluk/ and Village etc.	402/5-2,6,6-1,7,17-1-1, 403/1,11,12-1, 404/1-1,4-1,5-1,6-1, 405/8-1,9-1-1,11-2,13,13-1,14-1-1,14-2,15
Category/Sub Category and Schedule	Category B, 8(a) of Schedule of EIA Notification 2006
Date of submission of Application	01.04.2017
Total Built up Area& No. of Floors	38901.00 sqmt; Two Basement Floor + Ground Floor +4 Floors above ground
No of apartments	NA
Height of the building from the ground level	25.35 m
GPS Co-ordinate	Latitude (N): 8.640940°
	Longitude(E): 76.846303°
Brief description of the project.	The Kerala Medicity Medical Services Pvt. Ltd., propose to develop a Super Specialty hospital building at Thonakkal. The proposed plot is located to the eastern side of Kanyakumari-Salem highway (NH-47) at a distance of about 2 km from Pothencode- Murikkumpuzha junction. The proposed site is bounded by scattered residential cum agricultural land on the eastern and northern sides, national highway on the western side. The area has not fallen under the land use planning and categorization of Town Planning Department. The proposed project will improve medical care facilities near the project vicinity. This will increase the employment opportunity and there could be increased influx of people in the region for utilizing the treatment facilities.
Is it a new Project or expansion/modification of an existing project?	New Project

Details of the Project Cost	96.72 Crores
If CRZ recommendation applicable?	NA
Distance from nearby habitation	The nearest residential units are at a distance of about 60 m from the proposed hospital building
Distance from nearby forest, if applicable	NA
Distance from protected area, Wildlife Sanctuary, National Park etc.	NA
Distance from nearby streams/rivers/National Highway Roads and Airport	National Highway NH 66 ca 300 m Veli Railway Station ca 14.6 Km Thiruvananthapuram International Airport ca 20.9 Km.
Is ESA applicable? If so, distance from ESA limit	NA
IMPACT ON WATER	
Details of water requirement per day in KLD	During the operation phase, it is envisaged that ground floor and 4 floors above the same would be immediately occupied and for which the water requirement is estimated to 343 KLD.
Water source/sources.	The major source of water will be rainwater harvested in the proposed rainwater harvesting pond of capacity 1400 M^3 will be used to cater the daily demand and excess harvested water will be used for recharge the ground water. Apart from this dual plumbing system is proposed for the hospital, where treated water from STP will be used for flushing and gardening purposes.
Details of water requirements met from water harvesting.	As part of the project, proponent proposes four rain water harvesting tanks at each corners of the SSH. The overall capacity of the rainwater harvesting tank is 336 KLD. Apart from this, a rainwater harvesting pond is proposed in the adjacent plot owned by the proponent with bund and surface dike at the side of the plot. The storm water from the 1.64 ha area of the proposed hospital building is planned to be diverted to this pond by proper drainage network. While developing the plot, the storm water will be collected through drains of sufficient size and ground water recharging pits at regular intervals for the percolation of rainwater to the ground will be provided
What are the impacts of the proposal on the ground water?	Ground water potential within the laterite terrain over the clay horizons is limited. Clay horizons with sand intercalations also offer limited prospects of ground water, and the same can be extracted through large diameter open wells. Water table was at 9.40 m depth from surface level during the field survey in the month of May, 2016 at the higher elevation, and the water column was 16.40m thick. In an open well at a lower elevation, water table was at a depth of 5.80 m below ground level, and the water column thickness was 8.80 m. As such, the ground water situation is quite inadequate, and it cannot sustain the needs of the super speciality hospital, warranting

	surface water harnessing, water conservation measures including green water storage, water harvesting and recycling approaches. For the construction phase, main water source of the site is the existing two open wells and the additional requirements would be met from the approved suppliers. Water supply from ground water recharging and rain water harvesting tank would be sourced during operation phase. However, it is envisaged that the rain water reservoir and ground water recharging pits connected with the drain would enhance the ground water percolation and hence increase the water availability of the project area and its immediate surroundings.
WASTE MANAGEMENT	
Explain the facilities for Liquid waste Management	During the construction period adequate number of toilets will be provided for male & female with adequate water supply. Septic tank will be attached to soak pit sealed bottomwith honey comb walls and a 75 cm thick 2mm sand envelop, so that no health hazard occurs and no pollution to the air, ground, and adjacent water takes places. During the operational phase, a STP of capacity 200 KLD is proposed for the treatment of sewage generated. The entire waste water generated from the site will be treated in STP provided at site. The treated water from STP will met the inland irrigation standard and will be reused to meet the non-portable water demand mainly flushing and gardening.
Solid Waste Management	During the construction phase, the waste generated includes, construction debris, domestic waste and garbage. The construction waste from the site will be used as base course layer for laying the internal roads. Domestic and garbage waste will be treated by the contractor. During operational phase, the waste generated will be biomedical waste and municipal solid waste. Biomedical waste will be disposed in tune with Biomedical waste management Rule 2016 and Municipal Solid Waste will be disposed in tune with municipal Solid Waste management Rule 2016.
E-Waste Management	During construction period E- waste will be segregated within the construction site and stored for recycling All recycling material to be sold to authorised vendors. During operation phase E waste generated will be in very small quantity, and the same will be stored in secondary storage area and will be transferred to certified E waste disposing centers under the scope of each building operators.
Facilities for Sewag Treatment Plant	During the construction period adequate number of toilets will be provided for male & female with adequate water supply. Septic tank will be attached to soak pit sealed bottom with honey comb walls and a 75 cm thick 2mm sand envelop, so that no health hazard occurs and no pollution to the air, ground, and adjacent water takes places. During the operational phase, a STP of capacity 200 KLD is

	proposed for the treatment of sewage generated. The entire waste water generated from the site will be treated in STP provided at site. The treated water from STP will met the inland irrigation standard and will be reused to meet the non-portable water demand mainly flushing and gardening.
How much of the water requirement can be met from the recycling of treated waste water? (Facilities for liquid waste treatment)	Considering the immediate occupancy of G+4 floors, an STP of initial capacity 200 KLD is proposed for the hospital building and the STP will be operating at 150 KLD. It is envisaged that 120 KLD of water could be recycled, treated water would be utilized for flushing, gardening and to meet the other non-drinking water demand during operation Phase. The ultimate water demand for the proposed construction for hospital block is estimated to be 343 KLD out of which 120 KLD would be contributed by recycling the water for non-drinking purpose.
What is the incremental pollution load from waste water generated from the proposed activities?	The total quantity of sewage generated will be treated in proposed STP and the treated water meeting the standards as specified in IS 10500 will reused for flushing and gardening. The excess water if any will be allowed to percolate through ground after giving a polishing treatment in a constructed wetland which can be integrated with the landscaping features. Therefore this would only improve the quality and quantity of water available within the area. Hence no incremental pollution load is anticipated
How is the storm water from within the site managed?	Project proponent has proposed a rainwater harvesting pond for the collection of rainwater from the portion of their land as per the contour profile of the site. Surface run off is directed to this detention pond. Proper drains with intermediate recharge pit on intervals will be provided on either sides of internal roads along the site. When the detention pond is full, it will overflow into the gully, which is used to carry the storm water during pre-development phase.
Will the deployment of construction labourers particularly in the peak period lead to unsanitary conditions around the project site (Justify with proper explanation)	The construction workers would be accommodated inside the proposed site. Adequate number of sanitary toilets which is connected to septic tank and soak pit will be provided in the labour camp. Proper waste management will also be provided for the construction period including the management of municipal and solid waste produced from the labour camps.
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)	During the construction period adequate number of toilets will be provided for male & female with adequate water supply. Septic tank will be attached to soak pit sealed bottom with honey comb walls and a 75 cm thick 2mm sand envelop, so that no health hazard occurs and no pollution to the air, ground, and adjacent water takes places. During the operational phase, a STP of capacity 200 KLD is proposed for the treatment of sewage generated. The entire waste water generated from the site will be treated in STP provided at site. The treated water from STP will met the

	inland irrigation standard and will be reused to meet the non-portable water demand mainly flushing and gardening
Give details of dual plumbing system if treated waste is used for flushing of toilets or any other use.	Dual plumping system will be provided
TRAFFIC MANAGEMENT	
Sufficiency of Parking Space (Explain)	A parking provision for 361 No of four wheelers and 402 No of two wheelers are provided as per KMBR rules. Also circulation plan with segregation for entry and exit to the plot will be adopted.
Widthof access road	With the proposed development of Hospital building, there will be an increase in vehicular traffic volume. Sufficiently wide (10 m wide) entry and exit roads are proposed to manage the increased traffic volume with the proposed hospital. Apart from this, entry and exit roads from the proposed hospital will be directed to the old National Highway (NH-47), which is a road of sufficient width and very lean traffic volume. This will also help to manage the incremental traffic volume to a better extend.
ENERGY CONSERVATION	
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?	The source of power supply for this proposed hospital is Kerala State Electricity Board (KSEB).The following electrical facilities has been proposed: • Power during construction: 100 kWH (KSEB);temporary connection • Maximum Demand during operation: 2000 kW • Two numbers of 750 kVA DG sets are proposed for the power back up. • One number of 60kVA UPS and one number of 40kVA are proposed for the uninterruptable operation during power outages. The energy consumption has been tried to be minimized by adopting following methods • Energy-efficient light fixtures & BE 5star rated equipment are proposed. • At the places that have to be lightened 24 hours a day, high performance lamps are proposed. • Good insulation for the steam carrying pipes in the sterilization unit to avoid heat losses is proposed. • The activities which are to be operated in daytime (OPD Department, Radiology, Department and Laboratories) are aggregated in a separate area. So that the area can be switched off with minimal lighting during night time to save electrical energy. • Energy efficient T5 & T8 lamps, LED, CFL lamps are proposed for whole lighting system. • On all electric panels, the hospital should paste a request to switch off light on leaving the room

<table>
<tr><td>What type of, and capacity of power back-up to you plan to provide?</td><td colspan="4">Two numbers of 750 KVA DG sets and one number of 40kVA and one number of 60kVA UPS are considered as power backup mechanism for operation phase</td></tr>
<tr><td>What are the characteristics of the glass you plan to use? Provide specifications of its characteristics related to both short wave and long wave radiation?</td><td colspan="4">Fenestration details
<table><tr><th>Particulars</th><th>U -factor</th><th>SHGC</th><th>VLT %</th></tr><tr><td>Clear glass(Plain glass) ET 150</td><td>3.7w/sqmk</td><td>0.67</td><td>36%</td></tr><tr><td>Clear Glass ST 167</td><td>5.5w/sqmk</td><td>0.60</td><td>63%</td></tr></table></td></tr>
<tr><td>What passive solar architectural features are being used in the building? Illustrate the applications made in the proposed project</td><td colspan="4">Passive solar architectural features proposed in the buildings are listed below
Cross ventilation is ensured in whole design which will reduce the load to the artificial ventilation system.
Shading system is proposed in the design that reduces day time solar gains which create additional cooling load.
Normal plain glass with low Solar Heat Gain Coefficient (SHGC of 0.6) and high Visible Light Transmittance (VT of 0.63) is used in the construction</td></tr>
<tr><td>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</td><td colspan="4">Solar power will be utilized for lighting up the street light.
Solar hot water system is also proposed on the roof top of hospital building.</td></tr>
<tr><td>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?</td><td colspan="4">Projections, shades and louvers would be provided to reduce direct solar heating. It is estimated that the proposed shading system saves 10-15 % of total energy conception and to admit airflow.
Open area would be planted with trees so as to shade paved areas and external walls.
Roofs will be provided with a layer of material with high solar reflectance and low thermal conductivity (acrylic, silicone, and urethanes coatings) more over solar panels provided on the building top will also gave shade to roof.</td></tr>
<tr><td>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-</td><td colspan="4">Water cooled screw/centrifugal chillers are proposed which shall be totally factory assembled and shall comprise of the following major components/features.
Screw/centrifugal compressor with drive motor.
Full charge of HFC refrigerator gas and oil.
Shell and tube condenser
Flooded/DX Liquid chiller
Microprocessor control panel</td></tr>
</table>

<table>
<tr><td>conditioning load assumptions? Are you using CFC and HCFC free chillers? Provide specifications.</td><td colspan="3">• Capacity control by pre-rotation vanes/slide valves on each stage of compression to modulate unit capacity for a stable cooling operation from 15% to 100% of design load.
• Fully automatic Auto Transformer/Part winding/VFD Starter
Chillers to be constructed in accordance with ARI Standard 550/590 or EN 14511 and as modified in this specification. Minimum efficiency acceptable according to ASHREE STD 90.1 according to ARI 550/5590 test procedure. Chillers shall be guaranteed to operate at an outdoor temperature 115oF (46°C); The chiller shall be capable of stable operation to 15% percent of full load with standard ARI entering condenser water relief without the use of hot gas bypass. Acceptable refrigerant is R-134a (any other HFC refrigerant is as per Engineer approval).Acoustics: Sound pressure levels for the complete unit shall not exceed 85 dBA. If sound levels exceed85 dBA then, provide the necessary acoustic treatment to chiller as required so as to limit the sound to 85dBA.All the components shall be totally factory assembled, skid mounted and shall be ready for installation and rigging.</td></tr>
<tr><td>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?</td><td colspan="3">The F.A.R for the hospital building is 1.7. Building roof will be painted with white heat reflecting coating .The roof will be coated with material of high solar reflectance. Also, along the roof terrace solar panels are proposed. Paved areas will be freeze by trees which will provide shading these modification of land cover would reduce heat island effect considerably. The following measures would be taken up to minimize the heat island effect:
• Open area would be planted with trees to shade paved areas and external walls.
• Roofs will be provided with a layer of material with high solar reflectance and low thermal conductivity (acrylic, silicone, and urethanes coatings)</td></tr>
<tr><td rowspan="3">What are the thermal characteristics of the building envelope? (a) roof (b) external walls; and (c) fenestration? Give details of the materials used.</td><td>Item</td><td>Provided Building Material</td><td>Thermal Characteristics of Provided building Materials (U value in W/m2oC)</td></tr>
<tr><td>Roof</td><td>Use M40 grade of concrete with maximum w/c ratio of 0.4 and minimum cement content of 320 kg/m3.</td><td>0.7 W/m2,oc</td></tr>
<tr><td>External Wall</td><td>Brick Wall with cement</td><td>2.2 W/m2,oc</td></tr>
</table>

		mortar mix of 1:6 and 15mm thick plastering	
	Fenestration	Clear glass(Plain glass) ET 150	5 W/m2,oc
		Clear Glass ST 167	5.6 W/m2,oc
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.	Roof top solar panels will be provided on the hospital block for lighting of the common area and water heating.Apart from the above solar street lights are also proposed as part of the project.		
Details of renewable energy (non – conventional) used.	Roof top solar panels will be provided on the hospital block which will be used for the lighting of common area and solar water heater along with street lamps.		
IMPACT ON AIR ENVIRONMENT			
What are the mitigation measures on generation of dust, smoke , odours, fumes or hazardous gases	During construction phase, dust will be generated from the activities such as excavation and piling which will have direct impact on the nearby facilities depending on the proximity and wind direction at particular time. Nearby residential area and commercial area will be affected by the construction activities. The entire site is isolated from the surroundings by compound wall. This will reduce the issues related with the dust emissions. The dust generation during construction phase will also be suppressed by spraying water at regular interval. Vehicular movement along the site during the construction and operation phase will lead to dust and smoke emissions which will be minimized by sprinkling of water along the way and providing proper vegetative cover along parking area and circulation		
Details of internal traffic management of the site.	The movement and parking of vehicles within the hospital building will be restricted to parking zones close to the entry and exit points and the basement parkings provided in the hospital block. Pedestrian and vehicle movements are prioritized and crossings are designed accordingly		
Details of noise from traffic, machines and vibrator and mitigation measures	**Phase**	**Source**	**Mitigation Measures**
	Construction Phase	Noise would be generated from construction machineries	• Low amplitude displacement machineries would be used. • All the machines would comply with the norms set by CPCB. • Machines will be maintained periodically to meet CPCB standard • Appropriate fencing will

			be provided between construction site and existing activity area to reduce the propagation of sound
		Noise generated from vehicular movement along the site.	• Noise level of vehicles used for construction activities should meet the noise standards set by Central Pollution Control Board (maximum 80 dB(A)
	Operational Phase	Noise would be generated from DG sets	• DG sets would be incompliance for acoustics and air nquality.
		Noise would be generated from traffic	• The entry and exit points of hospital building where the traffic induced noise will predominate is away from the human settlements. As mostly the LMV will be operating for commuting purpose, traffic induced noise level is not expected to have significant impact on the ambient setting. • Multilevel vegetation cover incorporating trees and shrubs to cut off the noise propagation to activity areas will be provided.
Air quality monitoring in detail	• The ambient air quality of the proposed site was monitored at five locations • As per monitoring result it was found that the ambient air quality is well within the permissible standards laid by CPCB. • Air quality of the proposed site will be continuously monitored both during construction and operation period as per the schedule in the EMP.		
Will the proposal create shortage of parking space for vehicles? Furnish details of the present level of transport infrastructure and measures proposed for improvement	A parking provision for 361 No of four wheelers and 402 No of two wheelers are provided as per KMBR rules. Circulation plan with segregation for entry and exit to the plot will be adopted. With the proposed development of Hospital building, there will be an increase in vehicular traffic volume. Sufficiently		

<table>
<tr><td>including the traffic management at the entry & exit to the project site.</td><td>wide entry and exit roads will help to manage the increase in traffic with the proposed hospital. Apart from this, entry and exit roads from the proposed hospital will be directed to the old National Highway (NH-47), which is a road of very lean traffic volume. This will also help to manage the incremental traffic volume to a better extend.</td></tr>
<tr><td>Provide details of the movement patterns with internal roads, bicycles tracks, Pedestrian pathways, footpaths etc., with areas under each category</td><td>The movement and parking of vehicles within the hospital building will be restricted to parking zones close to the entry and exit points and the basement parkings provided in the hospital block. Pedestrian and vehicle movements are prioritized and crossings are designed accordingly</td></tr>
<tr><td>Will there be significant increase in traffic noise & vibrations? Give details of the sources and the measures proposed for mitigation of the above.</td><td>The proposed development will enhance the traffic noise and vibrations in the site surroundings.
The significant sources for noise and vibration and migration measures proposed are presented below
<table>
<tr><th>Phase</th><th>Source</th><th>Mitigation Measures</th></tr>
<tr><td>Construction Phase</td><td>Noise would be generated from construction machineries</td><td>• Low amplitude displacement machineries would be used.
• All the machines would comply with the norms set by CPCB.
• Machines will be maintained periodically to meet CPCB standard
• Appropriate fencing will be provided between construction site and existing activity area to reduce the propagation of sound</td></tr>
<tr><td></td><td>Noise generated from vehicular movement along the site.</td><td>• Noise level of vehicles used for construction activities should meet the noise standards set by Central Pollution Control Board (maximum 80 dB(A)</td></tr>
<tr><td>Operational Phase</td><td>Noise would be generated from DG sets</td><td>• DG sets would be incompliance for acoustics and air nquality.</td></tr>
<tr><td></td><td>Noise would be generated from traffic</td><td>• The entry and exit points of hospital building where the traffic induced noise will predominate is away from</td></tr>
</table>
</td></tr>
</table>

			the human settlements. As mostly the LMV will be operating for commuting purpose, traffic induced noise level is not expected to have significant impact on the ambient setting. • Multilevel vegetation cover incorporating trees and shrubs to cut off the noise propagation to activity areas will be provided.
What will be impact of DG sets & other equipments on noise levels & vibration in & ambient air quality around the project site? Provide details	There would be increased noise levels and degradation of air quality due to the operation of DG sets and equipment. The following mitigation measures will be adopted to reduce the impact on noise levels and ambient air quality: • Diesel generator should have noise control measures to meet the noise standards set by Central Pollution Control Board (75 dB (A) at 1 m from the enclosure surface for generators with integral acoustic enclosure. • Acoustic enclosure for generators without integral acoustic enclosure shall be designed for minimum 25 dB (A) insertion loss or for meeting the ambient noise standards, whichever is on the higher side at 0.5 m from the enclosure). • Workers shall not be exposed to sound of more than 85–90 dB for more than eight hours a day and shall be provided with ear plugs. • Noise quality monitoring shall be conducted as per Environmental Monitoring Plan to detect noise pollution.\ • Noise level of vehicles used for construction activities should meet the noise standards set by Central Pollution Control Board (maximum 80 dB (A). • Construction contract shall clearly specify the use of equipment emitting noise of not greater than 90 dB (A) for the eight hour operation shift. • Pollution- under –check (PUC) should be conducted for vehicles in every three months • Stack height and emission level of vehicles and machineries should meet the relevant SPCB. • Water should be sprinkle periodically to suppress the dust generation. • High temporary fences provided around the construction site can mitigate the dust generation.		
IMPACT ON BIODIVERSITY AND ECO RESTORATION PROGRAMMES			
Will the project involve extensive clearing or modification of vegetation	The project construction will involve cutting and removal of 158 trees belonging to 13 species from the project site. This include 107 trees of coconut, 32 trees of areca nut, and four		

(Provide details)	trees each of *Artocarpushirsutus*(Wild jack/Anjili) and *Tectonagrandis*(Teak). Species wise and girth wise classification of trees to be removed from the project site is given in submitted application. These species are commonly found in the region, and none of them figure in the rare category plants of IUCN. Ground cover of the project site is formed mostly by weedy herbs, grasses and climbers, which are commonly found in the region. Therefore, clearing or modification of vegetation cover during construction will not affect the floral diversity of the area. Moreover, the project development envisages landscaping and development of greenery in the post-construction phase considering the engineering (noise attenuation, filtering of airborne dust, etc.) and aesthetic needs of the premises.
What ate the measures proposed to minimize the likely impact on vegetation (details of proposal for tree plantation/ landscaping)	The project execution will not cause any significant impact on vegetation/flora, and ecology of the region in general. The trees to be cut and removed from the project site are commonly found, rather cultivated, in the area. Nevertheless, it is recommended to develop greenbelts and avenues involving indigenous or acclimatized exotic species of trees and bushes considering the aesthetic and engineering needs (amelioration/ filtering of airborne dust and pollutants, and noise attenuation), gardens/lung-spaces involving medicinal and ornamental plants.
Is there any displacement of fauna – both terrestrial and aquatic. – If so what are the mitigation measures ? Presence of any endangered species or red listed category (in detail)	Nil
SOCIO- ECONOMIC ASPECTS	
Will the proposal result in any change to the demographic structure of local population ? Provide the details.	The proposed Super speciality hospital is planned in the land under the procession of the proponent. Hence, further land acquisition is not anticipated. Inhabitation The locality is devoid of tribal groups and marginal Community. Though there is no any tribal settlement in the proposed site, the area is bordered by residential buildings. Most of the families are very poor belongs to daily wage workers and agricultural laborers. **Demographic changes** The development will cause the high influx of labour force during the construction phase and influx of staffs doctors, nurses & public during operational phase .This will lead to an increase in the commercial activity, recreational activity and influx of traffic in vicinity area. Subsequent developments such as hotels, shopping centers, workshops etc. are anticipated. The local economic growth can be triggered due to increased business opportunities with commercial

<table>
<tr><td></td><td>establishments. With the implementation of project there would be minimal structural changes in demography of the region.
Economic Changes
In the construction phase, there will be employment opportunity of 1000s of man days during construction activities. But this will not benefit to the local people because in Kerala, 90% of construction workers are carried out by migrants from other states. Most of the contractors are willing to adopt migrant people on various reasons. The hospital building will have all facilities such as consultation, lab facilities and others. In order to meet the treatment needs of the people and other allied functions like maintenance of garden around the hospital, security, cleaning duty and others will generate employment opportunities to the local people. If this project is developed as per the vision of the proponent, this rural area may be changed into a city and in future the project must bring economic growth to the area in many ways.</td></tr>
<tr><td>Give details of the existing social infrastructure around the proposed project</td><td>The social infrastructure present within 1 km of site is presented below
<table>
<tr><th>Sl no</th><th>Name</th><th>Distance (Km)</th></tr>
<tr><td colspan="3">Schools</td></tr>
<tr><td>1</td><td>A J College of Science & Technology</td><td>0.70</td></tr>
<tr><td>2</td><td>Blue Mount Public School</td><td>0.70</td></tr>
<tr><td colspan="3">Public Utilities</td></tr>
<tr><td>1</td><td>Kumaranasan Memorial</td><td>1.06</td></tr>
<tr><td>2</td><td>Federal Bank</td><td>1.18</td></tr>
<tr><td>3</td><td>Bharath Petroleum</td><td>0.27</td></tr>
<tr><td colspan="3">Places of worship</td></tr>
<tr><td>1</td><td>Poikayil Muslim Jama-ath mosque</td><td>0.30</td></tr>
</table></td></tr>
<tr><td>Will the project cause adverse effects on local communities, disturbances to sacred sites or other cultural values? What are the safeguards proposed?</td><td>No adverse effects on local communities or disturbance to sacred sites or other cultural values are anticipated. However, during the construction phase, the influx of migrant labors will lead to mixing of cultural values in the project region</td></tr>
<tr><td colspan="2">BUILDING MATERIALS</td></tr>
<tr><td>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</td><td>From the economical point of view and also unavailability of the energy efficient material source conventional building materials are proposed in the construction. However practices are made to use maximum natural day light and natural air condition in the building. The following measures would be adopted as energy conservation measures in the selection of building materials:
• Locally available materials would be utilized for construction purposes.</td></tr>
</table>

materials and their energy efficiency)	• Fly ash containing cement would be used for construction • PCC cement bricks would be used for construction. • Locally available aggregates would be utilized for construction. • Glass with low SHGC and high U value is proposed
Transport and handling of materials during construction may result in pollution, noise & public nuisance. What measures are taken to minimize the impacts?	• The site shall be isolated by installing tall fabric fences to obstruct noise and dust. • All the materials will be properly covered during transportation. • Sprinkling of water would be conducted periodically to subside the generated dust. • Adequate traffic management measures shall be adopted to monitor the movement of men, vehicles and materials within the project site. • Noise sources would be isolated and would be enclosed with noise absorbing covers/ barriers. • Personnel protective gears would be provided to construction workers. • Machinery of optimum capacity will be employed and low amplitude operation would be preferred to reduce noise pollution. • Man and material transit would be confined to the non-peak hours. • The vehicle used in the site will be fitted with speed breaker
Are recycled materials used in roads and structures? State the extent of savings achieved?	Construction waste of inorganic origin would be used in the foundation of roads. This can reduce import of base materials for laying roads.
Give details of the methods of collection, segregation & disposal of the garbage generated during the operation phases of the project.	The management practice will be in compliance with Solid Waste Management Rules 2016 .The requirement for storage facilities and transportation will be based on the quantum of waste generated. The solid waste will be segregated at the source of generation under the scope of individual units. The solid waste generated will be segregated in to three streams namely, Wet (Biodegradable), Dry (Plastic, Paper, metal, wood, etc.) and domestic hazardous wastes (diapers, napkins, empty containers of cleaning agents, mosquito repellents, etc.). These segregated waste will be handed over to the common storage facility run by Super Speciality Hospital. From there the wet waste will be biologically disposed within the site. Dry wastes will be sell to vendors and domestic hazardous waste will be sell to authorized agencies. The segregated solid waste will be collected in labelled common colour coded baskets. The facilities proposed for the disposal of solid waste collected are as follows • **Bio gas Plant** The Biogas plant proposed will be used for the treatment of

	biological waste produced. The capacity of the plant will be decided only after the quantification of the waste. • **Composting area** The organic waste produced in excess of the biogas plant capacity will be composted within the site in a demarcated area near to STP. The composting facility will be considered under full occupancy condition. The manure thus generated will be utilized within the site or will be sold out. • **Secondary waste storage area** A well sheltered area near STP is proposed to store the dry and hazardous type waste generated from the entire area. These wastes will be send to authorized persons as per the fixed scheduled chart
RISK MANAGEMENT	
Are there sufficient measures proposed for risk hazards in case of emergency such as accident at the site during construction & post construction phase.	Disaster will be managed under three situations • **Pre Disaster phase - prevention, mitigation and preparedness.** Pre-Disaster Phase stage consists of building design precaution, training for the inhabitants, Constitution of a Disaster/ Emergency Management Cell (EMC), provision for circuit breaker, provision for Fire hazard resistant system, provision of assembly points and conduction of mock drills • **Disaster response phase / during disaster.** During minor disaster facilities within the plot will be used.The disaster management committee will head the rescue services during the disaster. The disaster management training will be provided to securities of the building. If the disaster management committee itself could not manage the disaster, they will inform to District disaster management committee, Fire and Rescue Centre ,Water Authority , KSEB as per the requirement and they will take over the management of disaster • **Post Disaster phase – recovery (rehabilitation and reconstruction).** After disaster, the emergency period will be declared within the plot .The emergency period depends on the extent of disaster and the rehabilitation time requirement. The activities within the buildings will be restarted after the withdrawal of the emergency notification
Storage of explosives/hazardous substance in detail	Nil
What precautions & safety measures are proposed against fire hazards? Furnish details of emergency plans	Proper fire hazard resistant systems are integrated as part of the project.
Litigation/court cases if any	Nil

AESTHETICS	
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?	As the proposed location is almost a plain land with the little undulations, the buildings are designed in such a way that the proposed constructions will not result in the obstruction of a view, scenic amenity or landscapes
Will there be any adverse impacts from new constructions on the existing structures? What are considerations taken into account?	No impacts are anticipated form the proposed activity on the existing structures.
Whether there are any local considerations of urban form & urban design influencing the design criteria? They may be explicitly spelt out.	No
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
Details of CSR activity and the amount set apart per year	Free treatment to 50 BPL patients suffering from serious ailments referred by the local body.
Details of NABET approved EIA Consultant engaged- Their name, address and accreditation details	KITCO Ltd, Femith's, P.B No:4407, Puthiya Road, NH Bypass, Vennala, Kochi-682028 (0484) 4129000 (0484) 2805066 mail@kitco.in NABET Certificate No. & Issue Date: NABET/EIA/SA/338 dated 23.12.2015
Details of Authorized Signatory and address for correspondence	Abdul Rahman Nazarudeen Managing Director, Kerala Medicity Medical Services Pvt Ltd KavumoolaVeedu, Mullaramcode, Manmboor P.O, Thiruvananthapuram

SUMMARY AND CONCLUSION	
Overall justification for implementation of the project.	The proposed Super speciality hospital is planned in the land under the procession of the proponent. Proposed project will enhance the medical care facilities around the project influence area. The area is bordered with residential units withmost of the families belonging lower income group. The development will cause the high influx of labour force during the construction phase and influx of staffs doctors, nurses & public during operational phase.This will lead to an increase in the commercial activity, recreational activity and influx of traffic in vicinity area. Subsequent developments such as hotels, shopping centers, workshops etc. are anticipated. The local economic growth can be triggered due to increased business opportunities with commercial establishments. The hospital building will have all facilities such as consultation, lab facilities and others. In order to meet the treatment needs of the people and other allied functions like maintenance of garden around the hospital, security, cleaning duty and others will generate employment opportunities to the local people.
Explanation of how adverse impact have been mitigated.	The impacts of the proposed project will be mitigated by the implementation of proper Environmental Management plan for both construction and operation phase. The impact due to the generation of waste will be mitigated by a proper waste management plan. Also, an environmental monitoring plan is proposed to monitor whether the construction and operation activities are complying with the national standards.

2. The proposal was placed in the 73rd Meeting of SEAC held on 30th& 31st May, 2017. Further to the intimation of SEAC, the proponent and engineer attended the meeting and the engineer made a power point presentation about the salient features of the project briefly. The Committee appraised the proposal based on Form 1, Form I A and conceptual plan. The Committee directed the proponent to submit the following details/clarifications.

a) A convincing water balance statement and details of dependable source of water
b) Details of parking facility with enhanced provisions
c) Details of cutting and filling and measures to ensure the stability of the steep cut faces.

As CSR component the proponent agreed to give free treatment to 50 BPL patients suffering from serious ailments referred to them by the local body. The Committee decided to defer the item for field inspection.

Subsequently, site visit was conducted on 04.07.2017 by Subcommittee consisting of Sri. Ajaya Kumar and Sri. John Mathai.The representatives of the proponent were present at the site at the time of site visit. The report is as follows;

The proposal is for a super speciality hospital. It is located along the old NH starting at Melthonnakkal. This old road seems to have a right of way more than 15m but is now covered with thick vegetation and about 5 m of its width is only in a motorable condition. Proponents may work with appropriate authorities to make this road motorable with at least 10 m width. After the presentation at the SEAC, proponents modified the proposal raising the level of the building so that the cutting shall be minimised and filling shall be balanced with the cutting. Now the cutting is at a safe level.

1. *Width of road starting from old NH to the plot is adequate as per KMBR but its width should be enhanced with wide footpath so that pedestrian safety is assured. Parking in this road should be avoided. This is also required to avoid parking of cars along the road.*
2. *Access to be provided from all around for fire fighting and evacuation*
3. *The existing storm water channel on the southern side is to be defined with definite width and depth to ensure natural flow. A buffer distance of at least 3 m to be left between the base of the entry road and channel edge.*
4. *The dependable source of water in the form of a pond of ~3500 m2 inner area is being developed away from the project site. This source to be solely dedicated to the project. RWH of 1400 m3 is additional to the source.*
5. *A safe plan for disposal of excess STP treated water should be submitted*
6. *Structural design of retaining wall on the north should ensure stability. Structural design certified by a Structural engineer should be submitted certifying safety during construction and lifetime.*
7. *Parking facility for 361 cars is provided which is adequate as per existing KMBR. But it should be enhanced to at least 400 at the time when completion plan is submitted. A certificate to this extent shall be obtained.*
8. *The proponent should submit the revised drawings.*

3. The proposal was considered in the 76th meeting SEAC held on 25th& 26th July 2017.The Committee appraised the proposal based on Form 1, Form I A, field inspection report of the Sub Committee and all other documents submitted with the proposal. The Committee decided to **Recommend for issuance of EC** subject to general conditions in addition to the following specific conditions.

1. *Width of road starting from old NH to the plot is adequate as per KMBR but its width should be enhanced with wide footpath so that pedestrian safety is*

assured. Parking in this road should be avoided.

2. *Access road should be provided all around for fire fighting and evacuation*
3. *The existing storm water channel on the southern side is to be defined with definite width and depth to ensure natural flow. A buffer distance of at least 3 m to be left between the edge of the road and the existing storm water channel.*
4. *The source of water will be from a pond to be developed 300 m away from the project site. This source should be solely dedicated to the project. RWH with a capacity of 1400 m3 will also be provided.*
5. *Excess STP treated water should be safely disposed.*
6. *Structural design of retaining wall on the north should ensure stability.*
7. *Parking facility for 361 cars is provided which is adequate as per existing KMBR. But provision should be provided for the future enhancement of parking facility.*

As CSR component the proponent agreed to give free treatment to 50 BPL patients suffering from serious ailments referred to them by the local body.

4. The proposal was placed in the 74th meeting of SEIAA on 09.10.2017. Authority considered the proposal in the meeting and found that the proponent has not submitted the basic information inspite of repeated reminders. Authority decided to defer the proposal for receipt of basic information asked for and for considering in the next meeting.

5. The proposal was placed in the 75th meeting of SEIAA held on 28.10.2017. Authority accepted the recommendation of SEAC and decided to issue EC subject to general condition in addition to the following specific conditions.

1. *Width of road starting from old NH to the plot is adequate as per KMBR but its width should be enhanced with wide footpath so that pedestrian safety is assured. Parking in this road should be avoided. This is also required to avoid parking of cars along the road.*
2. *Access road should be provided all around for fire fighting and evacuation*
3. *The existing storm water channel on the southern side is to be defined with definite width and depth to ensure natural flow. A buffer distance of at least 3 m to be left between the edge of the road and the existing storm water channel.*
4. *The source of water will be from a pond to be developed 300 m away from the project site. This source should be solely dedicated to the project. RWH with a capacity of 1400 m3 will also be provided.*
5. *A safe plan for disposal of excess STP treated water should be submitted.*
6. *Structural design of retaining wall on the north should ensure stability. Structural design certified by a Structural engineer should be submitted certifying safety during construction and lifetime.*
7. *Parking facility for 361 cars is provided which is adequate as per existing KMBR. But provision should be provided for the future enhancement of parking facility to atleast 400 at the time when completion plan is submitted. A certificate to this extent shall be*

obtained.

8. *Car parking should be made available for patients and visitors without fee.*

As CSR component 2% of the total project cost should be set apart to give free treatment to 50 BPL patients suffering from serious ailments referred to them by the local body and also for other CSR activities. A notarised affidavit for the commitment of CSR activities and also agreeing to all the general and specific conditions should be submitted as noted above before the issuance of EC.

6. The proponent has submitted the affidavit dated 23.01.2018 read as paper (6) above and stating that all the specific and general conditions shall be strictly implemented.

7. Environmental Clearance as per the EIA notification 2006 is hereby granted to the proposed Super Speciality Hospital Project by Mr.Abdul Rahman Nazarudeen, Managing Director, Kerala Medicity Medical Services Pvt. Ltd. in Sy. Nos.402/5-2,6,6-1,7,17-1-1, 403/1,11,12-1, 404/1-1,4-1,5-1,6-1, 405/8-1,9-1-1,11-2,13,13-1,14-1-1,14-2,15 at Mel Thonnakkal Village, Thiruvananthapuram Taluk, Thiruvananthapuram District, Kerala subject to the specific conditions mentioned in para 5 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.

8. 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.

9. 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.

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, Mr.Abdul Rahman Nazarudeen, Managing Director, Kerala Medicity Medical Service Pvt. Ltd., KavumoolaVeedu, Mullaramcode, Manmboor P.O, Thiruvananthapuram District, Kerala-695317

Sd/-

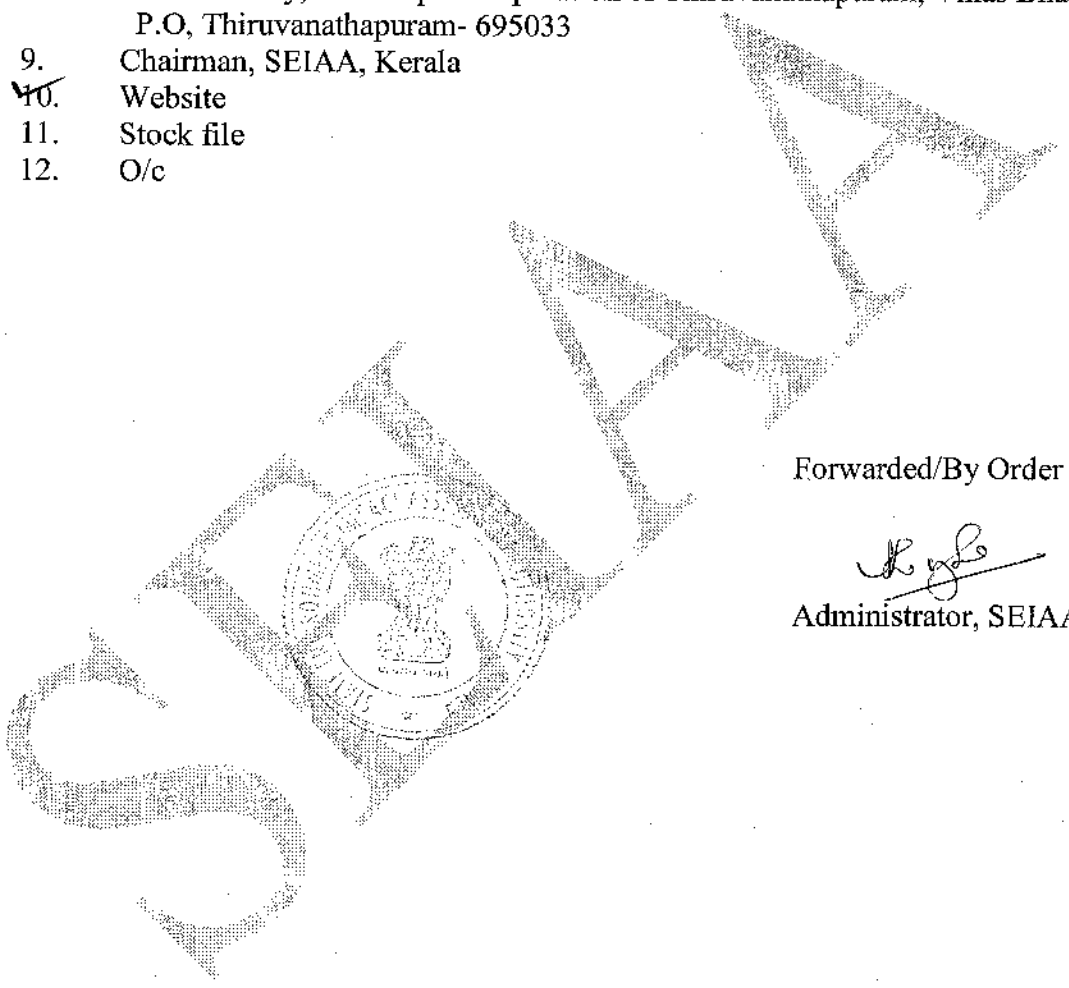
P.H. KURIAN.I.A.S,
Member Secretary (SEIAA)

To,

Mr.Abdul Rahman Nazarudeen,
Managing Director,
Kerala Medicity Medical ServicePvt. Ltd,
KavumoolaVeedu, Mullaramcode,
Manmboor P.O, Thiruvananthapuram - 695317

Copy to:

1. MoEF Regional Office, Southern Zone, Kendriya Sadan, 4th 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, Thiruvananthapuram District
6. The Member Secretary, Kerala State Pollution Control Board
7. The Director, Dept. of Environment and Climate Change, Govt. of Kerala, Tvm-24
8. The Secretary, Municipal Corporation of Thiruvanathapuram, Vikas Bhavan P.O, Thiruvanathapuram- 695033
9. Chairman, SEIAA, Kerala
10. Website
11. Stock file
12. 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, Banglore 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. 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 27th 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 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