

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. Sri. P.H.Kurian, I.A.S;
Member Secretary.*

Sub: SEIAA- Environmental Clearance for the Proposed upgradation of Existing District Hospital in Sy Nos. 955/1A, 955/1B2, 955/2, 955/3, 962, 963 at Block 15 & 20, Kannur Village, Kannur Taluk, Kannur District, Kerala by Dr.V.P.Rajesh, Superintendent of the District Hospital Kannur –Granted –Orders Issued.

STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY, KERALA

File No. 1176(A)/EC/SEIAA/KL/2018

Dated, Thiruvananthapuram 17/03/2018

- Ref:**
1. Application received on 23/02/2018 from Dr.P.V.Rajesh, Hospital Superintendent, District Hospital, Kannur, Ayikkara Government Hospital Road, Burnacherry Post, Kannur- 670 017.
 2. Minutes of the 86th meeting of SEAC held on 27th February, 2018.
 3. Letter No. 7801/A2/2017/KCZMA dated 08.03.2018 from Kerala Coastal Zone Management Authority
 4. Minutes of the 87th meeting of SEAC held on 3rd March 2018
 5. Minutes of the 82nd SEIAA meeting held on 15th March 2018
 6. Affidavit from Dr.V.P.Rajesh, Hospital Superintend, District Hospital Kannur

Environmental Clearance No. 64/2018

Dr.V.P.Rajesh, Superintendent of the District Hospital Kannur, Ayikkara Government Hospital Road, Burnacherry Post, Kannur – 670 017, vide his application received on 23/2/2018, has sought Environmental Clearance under EIA Notification, 2006 for the proposed upgradation of existing District Hospital Project in Sy Nos. 955/1A, 955/1B2, 955/2, 955/3, 962 & 963 at Kannur Block 15 & 20 Village, Kannur Taluk, Kannur 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 provided by the project proponent

BASIC INFORMATION OF BUILDING PROJECT

(To be filled in by the Project Proponent)

PART A

PROJECT DETAILS	
File No	1176(A)/EC/SEIAA/KL/2018
Name /Title of the project	Upgradation of existing District Hospital Kannur

Name and address of project proponent.	Dr V P Rajesh Hospital Superintendent District Hospital Kannur Ayikkara Government Hospital Road, Burnacherry Post, Kannur, Kerala 670017	
Owner of the land	District Hospital Kannur	
Survey Nos. District/Taluk/ and Village etc.	955/1A, 955/1B2, 955/2, 955/3, 962, 963	
Category/Sub Category and Schedule	Category B	
Date of submission of Application	9.02.2018 (online application)	
Total Built up Area& No. of Floors	Existing Built-up Area -19646 Sqmt Proposed Built-Up Area -11259.5 Sqmt Total Built-Up Area- 26360.5 Sqmt	
No of apartments	NA	
Height of the building from the ground level	Building Height from GL (m)	Building Height from GL (m)
	Super Specialty Hospital	24.45
	Surgical Block	17.97
	Trauma Care Block	19.8
	Administrative Block	14.69
	Gynaecology Block 10	10
	Paediatrics Block 6	9
	NICU Block	6
	New Canteen	6
GPS Co-ordinate	Latitude (N): 11°51'38.95"N	
	Longitude(E): 75°22'10.92"E	
Brief description of the project.	The District Hospital Kannur is an existing hospital functioning to the possible level with the available facilities and infrastructure. At present the hospital has a capacity of 450 beds with main specialties General Medicine, General Surgery, Ortho, Gynaecology, ENT, Ophthalmology, Dermatology, Dental and Paediatrics. However there is a grave need for up gradation of existing facilities. And in this context it is decided to modify the existing hospital.	
Is it a new Project or expansion/modification of an existing project?	Expansion of an existing project	
Details of the Project Cost	₹.82.86 Crore	
If CRZ recommendation applicable?	Yes	
Distance from nearby habitation	28 m ; commercial 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		
Is ESA applicable? If so, distance from ESA limit	NA	

IMPACT ON WATER																								
Details of water requirement per day in KLD		Water Demand During Operational Phase – 370 KLD during operational phase																						
Water source/sources.		Water Source – KWA and Open Wells																						
Details of water requirements met from water harvesting.		<p>The currently the water supply source of hospital is KWA and the same will supply the adequate water to satisfy the additional water demand after the up gradation. Also hospital itself have 2 nos of open well serving as alternative non drinking water source. More over four numbers of RWH tanks are proposed to operate for storing and recharge the of the rain water capture from the site. Details of the RWH tank proposed is given in Table below;</p> <table><tr><th>Sl. no</th><th>Tank</th><th>Dimension</th><th>Capacity</th></tr><tr><td>1</td><td>Tank -1 near administrative building</td><td>13*6*2.5</td><td>195 KL</td></tr><tr><td>2</td><td>Tank -2 –Near to NICU</td><td>12.5*5.5*3</td><td>200 KL</td></tr><tr><td>3</td><td>Tank-3 Under the parking area in front of super specialty block</td><td>12*6*3.5</td><td>200 KL</td></tr><tr><td>4</td><td>Tank -4 at the basement of super specialty block as UG Sump</td><td>12.5*4.2* 3.5</td><td>125 KL</td></tr></table>			Sl. no	Tank	Dimension	Capacity	1	Tank -1 near administrative building	13*6*2.5	195 KL	2	Tank -2 –Near to NICU	12.5*5.5*3	200 KL	3	Tank-3 Under the parking area in front of super specialty block	12*6*3.5	200 KL	4	Tank -4 at the basement of super specialty block as UG Sump	12.5*4.2* 3.5	125 KL
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What are the impacts of the proposal on the ground water?		<p>The main water source for the proposal is KWA. However the project incorporate provisions of storing and recharging of the rain water collected from the site The rain water from terrace and other open areas will be collected through rain water down takes and harvested by means of recharge pits or rainwater harvesting tank. However, the rain water from paved areas will be collected by storm water trenches / gutter. The landscape drainage will also be diverted to the storm water drainage system provided at the ground level. Percolation pits/troughs (as per calculation) will be provided along the boundary of the plot to get maximum percolation in-line with rain water harvesting scheme proposed (this will be done based on Hydro geological and Geophysical survey report).</p>																						
WASTE MANAGEMENT																								
Explain the facilities for liquid waste management		<p>An STP of capacity 300 KLD is proposed in the project for the proper disposal of liquid waste generated.It is estimated that waste water of an amount of 300 KLD will be generated under maximum occupancy condition and an amount of 240 KLD treated water with inland irrigation surface water standard is expecting, which will be stored in the lined pond and reused for non-portable purpose (flushing, gardening etc.). A green belt along the periphery of STP will also be developed</p>																						
Solid Waste Management		<p>Waste generated from the hospital area is biomedical in nature and to be collected and disposed in tune with the biomedical waste management rule 2016. Approximate quantity of the solid waste generated from hospital is 1kg/bed/day (0.3 to 3.5 kg/bed/day). (source:https://www.slideshare.net/gunijo/new-bio-medical-waste-managementrules-2016). In this case total no of beds after expansion is 800. And hence waste generation</p>																						

	is expected after expansion is estimated as 550 kg/day.
E-Waste Management	E-waste generation will be marginal and same will be deposited in accordance with E Waste management Rule.
Facilities for Sewage Treatment Plant	The total waste water generated will be directed to STP of capacity 300 KLD. The quality of this treated water would be meeting the standards as specified in IS 10500. The STP proposed is accompanied with a lined pond which will stagnantly keep the out flow of the STP .This outflow can be reused for flushing and gardening. The remain water after reuse can be utilized. Hence no incremental pollution load from the waste water generated from the proposed activity is expected.
How much of the water requirement can be met from the recycling of treated waste water? (Facilities for liquid waste treatment)	The amount of waste water generated from the proposed hospital facility is near to 300 KLD and treated water available for the reuse is expected to be 240 KLD. This available treated water will be reused for landscaping and flushing purpose in super specialty block.
What is the incremental pollution load from waste water generated from the proposed activities?	The total waste water generated will be directed to STP of capacity 300 KLD. The quality of this treated water would be meeting the standards as specified in IS 10500. The STP proposed is accompanied with a lined pond which will stagnantly keep the out flow of the STP .This outflow can be reused for flushing and gardening. The remain water after reuse can be utilized. Hence no incremental pollution load from the waste water generated from the proposed activity is expected
How is the storm water from within the site managed?	The rain water from terrace and other open areas will be collected through rain water down takes and harvested by means of recharge pits or rainwater harvesting tank. However, the rain water from paved areas will be collected by storm water trenches / gutter. The landscape drainage will also be diverted to the storm water drainage system provided at the ground level. Percolation pits/troughs (as per calculation) will be provided along the boundary of the plot to get maximum percolation in-line with rain water harvesting scheme proposed (this will be done based on Hydrogeological and Geophysical survey report)
Will the deployment of construction labourers particularly in the peak period lead to unsanitary conditions around the project site (Justify with proper explanation)	The rain water from terrace and other open areas will be collected through rain water down takes and harvested by means of recharge pits or rainwater harvesting tank. However, the rain water from paved areas will be collected by storm water trenches / gutter. The landscape drainage will also be diverted to the storm water drainage system provided at the ground level. Percolation pits/troughs (as per calculation) will be provided along the boundary of the plot to get maximum percolation in-line with rain water harvesting scheme proposed (this will be done based on Hydrogeological and Geophysical survey report)
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)	An STP of capacity 300 KLD is proposed in the project for the proper disposal of liquid waste generated

Give details of dual plumbing system if treated waste is used for flushing of toilets or any other use.	There would be separate lines for Drinking water and Non Drinking Water in order to ensure the reuse of treated water in the proposed super specialty block.
TRAFFIC MANAGEMENT	
Sufficiency of Parking Space	The existing District Hospital Kannur is bounded by roads at North-Eastern and North- Western Side. Width of the road. In the proposal. The proposal involves provision for sufficient parking spaces as per KMBR rules.
Width of access road	7m wide
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?	<p>The source of electricity for the development is Kerala State Electricity Board (KSEB).The following electrical facilities has been proposed:</p> <p>Power during construction: 30 kW/day (KSEB);temporary connection</p> <p>Power during operation: 1250 KVA; maximum load</p> <p>Power backup mechanism : At present the hospital is having the DG sets of rating</p> <p>At present the hospital. is having 100KVA, 25KVA, 15KVA, 5KVA for power back. After the development an additional 2 nos of 1000 KV transformer in parallel operation and one1000 KVA DG sets are proposed</p> <p>.The energy consumption has been tried to be minimized by adopting following methods</p> <p>Energy-efficient light fixtures & BE 5star rated equipments are proposed.</p> <p>At the places that have to be lightened 24 hours a day, high performance lamps are proposed.</p> <p>Good insulation for the steam carrying pipes in the sterilization unit to avoid heat losses is proposed.</p> <p>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.</p> <p>Energy efficient T5 & T8 lamps, LED, CFL lamps are proposed for whole lighting system.</p> <p>On all electric panels, the hospital should paste a request to switch off light on leaving the room.</p>
What type of, and capacity of power back-up to you plan to provide?	At present the hospital is having the DG sets of rating 100KVA, 25KVA, 15KVA, 5KVA for power back. After the development an additional 2 nos of 1000 KV transformer in parallel operation and one1000 KVA DG sets are proposed for the power back mechanism
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?	<p>Normal plain glass with the following characteristics is proposed</p> <p>u value-1.13 Btu/hr</p> <p>SHGC=0.4</p> <p>VLT=99%</p>
What passive solar architectural features are being used in the building? Illustrate the	<p>Passive solar architectural features proposed in the buildings are listed below</p> <p>Cross ventilation is ensured in whole design which will reduce</p>

applications made in the proposed project.	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. Grid Interactive solar system without battery is proposed in the project Normal plain glass with low Solar Heat Gain Coefficient (SHGC of 0.4) and high Visible Light Transmittance (VT of 0.99) is used in the construction				
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 design of new buildings. The project proponent shall made provision Grid Interactive solar system without battery is proposed in the 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?	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 lowthermal conductivity (acrylic, silicone, and urethanes coatings) more over solar panels provided on the building top will also gave shade to roof.				
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 project site covers 40 percentages with footprints of buildings and roads which are likely to contribute heat island effect. Building roof will be painted with white heat reflecting coating .The roof will be coated with material of high solar reflectance. 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)				
What are the thermal characteristics of the building envelope? (a) roof (b) external walls; and (c) fenestration? Give details of the materials used.	The thermal characteristics of the building materials provided is given below in Table 18 Table 18 The Thermal Characteristics of the Building Materials <table><tr><th>S</th><th>Item</th><th>Provided</th><th>Thermal Characteristics</th></tr></table>	S	Item	Provided	Thermal Characteristics
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What is the rate of air infiltration? Non-conventional energy technologies are utilized in the overall energy consumption? Provide details of the renewable energy technologies used.	Rate of air infiltration as per ASHRAE 62.1 is considered for the design purpose. Grid Interactive solar system without battery is proposed in the project															
Details of renewable energy (non – conventional) used.	Grid Interactive solar system without battery is proposed in the project															
IMPACT ON AIR ENVIRONMENT																
What are the mitigation measures on generation of dust, smoke , odours, fumes or hazardous gases	The district hospital is existing at the heart of Kannur town and the proposal is for the expansion of the existing hospital hence the increment in the air pollution will be negligible during operational phase .During the construction phase definitely there will be an incremental concentration in air emissions due to increased emissions and operation of machines. The increased traffic during construction and operational phases will also increase traffic related pollution with increase in CO, NO, SO, and SPM. With careful management of access roads and application of dust suppression/ water spray, SPM concentration can be contained. Careful maintenance and management of traffic will keep other emissions to insignificant levels. The ambient air quality levels are far below the critical limits. Hence the contribution from the proposed activities will give incremental concentration which will also be in acceptable limits.															
Details of internal traffic management of the site.	The movement and parking of vehicles within the compound will be restricted to parking zones close to the entry and exit points. Pedestrian and vehicle movements are prioritized in such a way that crossings are designed accordingly															
Details of noise from traffic, machines and vibrator and mitigation measures	During the construction phase increase in the traffic noise and vibrations is expected and in this project the increase in the ambient noise and vibration level in the operational phase will be minimum since it is an expansion of existing hospital. A very care will be taken to minimize the enhancement of the noise and vibrations expected from the site to existing operational area of hospital and to neighboring area especially to nursing school and residential area. The significant sources for noise and vibration expected and suitable mitigation measures suggested are presented in Table															

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	The present ambient air quality along the project area is presented the Table below Ambient Air Quality within Site. <table><tr><th rowspan="2">Parameters</th><th rowspan="2">Unit</th><th rowspan="2">Intervals</th><th colspan="3">Value Reported</th></tr><tr><th>A1</th><th>A2</th><th>A3</th></tr><tr><td>Particulate Matter of Size less than 10µm(PM₁₀)</td><td>µg/m³</td><td>I</td><td>39.17</td><td>65.17</td><td>70.81</td></tr><tr><td>Particulate Matter of Size less than 2.5µm(PM_{2.5})</td><td>µg/m³</td><td>I</td><td>19.05</td><td>34.26</td><td>35.66</td></tr><tr><td rowspan="3">Sulphur Dioxide (SO₂)</td><td rowspan="3">µg/m³</td><td>I</td><td>9.59</td><td>17.34</td><td>12.17</td></tr><tr><td>II</td><td>13.87</td><td>19.63</td><td>10.42</td></tr><tr><td>III</td><td>12.64</td><td>15.99</td><td>13.55</td></tr><tr><td rowspan="3">Nitrogen Dioxide (NO₂)</td><td rowspan="3">µg/m³</td><td>I</td><td>54.67</td><td>37.06</td><td>52.91</td></tr><tr><td>II</td><td>50.45</td><td>34.15</td><td>54.05</td></tr><tr><td>III</td><td>52.13</td><td>35.16</td><td>50.04</td></tr><tr><td rowspan="3">*Carbon Monoxide (CO)</td><td rowspan="3">mg/ m³</td><td>I</td><td>0.9</td><td>1.0</td><td>1.0</td></tr><tr><td>II</td><td>0.8</td><td>0.8</td><td>0.9</td></tr><tr><td>III</td><td>1.0</td><td>0.9</td><td>0.8</td></tr></table>	Parameters	Unit	Intervals	Value Reported			A1	A2	A3	Particulate Matter of Size less than 10µm(PM ₁₀)	µg/m ³	I	39.17	65.17	70.81	Particulate Matter of Size less than 2.5µm(PM _{2.5})	µg/m ³	I	19.05	34.26	35.66	Sulphur Dioxide (SO ₂)	µg/m ³	I	9.59	17.34	12.17	II	13.87	19.63	10.42	III	12.64	15.99	13.55	Nitrogen Dioxide (NO ₂)	µg/m ³	I	54.67	37.06	52.91	II	50.45	34.15	54.05	III	52.13	35.16	50.04	*Carbon Monoxide (CO)	mg/ m ³	I	0.9	1.0	1.0	II	0.8	0.8	0.9	III	1.0	0.9	0.8
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	From Table it can be inferred that the ambient air quality of the location is well within the limits.																																																															
Will the proposal create shortage	The existing District Hospital Kannur is bounded by roads at																																																															

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.	North-Eastern and North-Western Side. Width of the road. In the proposal. The proposal involves provision for sufficient parking spaces as per KMBR rules.											
Provide details of the movement patterns with internal roads, bicycles tracks, Pedestrian pathways, footpaths etc., with areas under each category	The movement and parking of vehicles within the compound will be restricted to parking zones close to the entry and exit points. Pedestrian and vehicle movements are prioritized in such a way that crossings are designed accordingly											
Will there be significant increase in traffic noise & vibrations? Give details of the sources and the measures proposed for mitigation of the above.	<p>During the construction phase increase in the traffic noise and vibrations is expected and in this project the increase in the ambient noise and vibration level in the operational phase will be minimum since it is an expansion of existing hospital. A very care will be taken to minimize the enhancement of the noise and vibrations expected from the site to existing operational area of hospital and to neighboring area especially to nursing school and residential area.</p> <p>The significant sources for noise and vibration expected and suitable mitigation measures suggested are presented in Table below;</p> <table><tr><th>Phase of construction</th><th>Source of Pollution</th><th>Mitigation Measures Suggested</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 rowspan="2">Operation Phase</td><td>Noise would be generated from DG sets</td><td>DG sets would be in compliance for acoustics and air quality.</td></tr><tr><td>Noise would be generated from traffic</td><td>Multilevel vegetation cover incorporating trees and shrubs to cutoff the noise propagation to hospital and sensitive areas will be provided.</td></tr></table>	Phase of construction	Source of Pollution	Mitigation Measures Suggested	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	Operation Phase	Noise would be generated from DG sets	DG sets would be in compliance for acoustics and air quality.	Noise would be generated from traffic	Multilevel vegetation cover incorporating trees and shrubs to cutoff the noise propagation to hospital and sensitive areas will be provided.
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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										
Operation Phase	Noise would be generated from DG sets	DG sets would be in compliance for acoustics and air quality.										
	Noise would be generated from traffic	Multilevel vegetation cover incorporating trees and shrubs to cutoff the noise propagation to hospital and sensitive 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 due to the operation of DG sets and equipments. The following mitigation measures will have to be adopted to reduce the impact on noise levels and											

	<p>ambient air quality:</p> <p>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.</p> <p>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).</p> <p>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.</p> <p>Noise quality monitoring shall be conducted as per Environmental Monitoring Plan to detect noise pollution.</p> <p>Noise level of vehicles used for construction activities should meet the noise standards set by Central Pollution Control Board (maximum 80 dB(A).</p> <p>Construction contract shall clearly specify the use of equipment emitting noise of not greater than 90 dB (A) for the eight hour operation shift.</p> <p>Pollution- under –check (PUC) should be conducted for vehicles in every three months</p> <p>Stack height and emission level of vehicles and machineries should meet the relevant SPCB.</p> <p>Water should be sprinkle periodically to suppress the dust generation.</p> <p>High temporary fences provided around the construction site can mitigate the dust generation.</p>
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IMPACT ON BIODIVERSITY AND ECO RESTORATION PROGRAMMES

Will the project involve extensive clearing or modification of vegetation (Provide details)	<p>The project execution requires cutting of two trees, the details of which are as follows.</p> <p>One tree of Ficus religiosa (Peepal tree, Arayal) of girth (GBH) 320 cm</p> <p>An average sized Coconut tree</p>
What are the measures proposed to minimize the likely impact on vegetation (details of proposal for tree plantation/ landscaping)	It is recommended to develop green belt along the periphery and in vacant areas within the hospital premise towards purifying air, filtering of airborne dust, oxygen replenishment, atmospheric cooling, noise attenuation and improving aesthetics.
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)	There is no impoundment of any water bodies and hence no restriction in the water borne fauna. Since the project is the expansion of already existing hospital impact on the terrestrial fauna is negligible

SOCIO-ECONOMIC ASPECTS	
Will the proposal result in any change to the demographic structure of local population? Provide the details.	Since it the proposal for the expansion of already existing hospital, the significant change in the demographic structure of the population is not expected. However establishment for government owned the super specialty hospital will attracts the population to use the facility.
Give details of the existing social infrastructure around the proposed project	<p>The District Hospital Kannur is situated in Kannur Village in Kannur Taluk of Kannur District. The District Hospital at Kannur is one among the major healthcare providers in the District located in the Cantonment area near the bus depot and is easily accessible by people. It is a boon to patients since it is run by the Government with the sole intention of providing good health care facilities to the common man at an affordable cost. The hospital at present has a capacity of 450 beds with main specialties General Medicine, General Surgery, Ortho, Gynecology, ENT, Ophthalmology, Dermatology, Dental and Pediatrics. As understood from a visit to the Hospital, it suffers from a number of constraints such as lack of super specialty departments, old dilapidated buildings, shortage of space, lack of modern diagnostics and therapeutic equipment, improper drainage etc.</p> <p>The Kannur Cantonment in which the hospital is located is one of the 62 cantonments in India and the only one in Kerala. The Cantonment at Kannur falls in the Class III category. Defense offices such DSC centre, DSC record, pay accounts office DSC Kannur are located here.</p> <p>The cultural spot St. Angelo Fort (also known as Kannur Fort or Kannur Kotta) is located within 3 km radial distance from the hospital boundary. St. Angelo Fort is built by the first Portuguese Viceroy in India, Don Francesco de Almeida (1505), St. Angelo's Fort is among the most historic sites in Kannur. This massive triangular laterite structure is flanked by gigantic bastions that make for an imposing sight. It changed hands between the Dutch and eventually the British, who would remodel and reequip it into their primary military stronghold in Malabar.</p> <p>The hospital is adjoined to the Kannur Bus Private Bus Stand which facilitates the accessibility to the hospital.</p>
Will the project cause adverse effects on local communities, disturbances to sacred sites or other cultural values? What are the safeguards proposed?	Since the proposal is for the expansion of already existing hospital the adverse impacts on the surroundings will be minimal except during construction phase. More over the proposal is for the expansion of basic health infrastructure need of the population, it will be having only positive socio-economic impacts.
BUILDING MATERIALS	
May involve the use of building materials with high embodied	The proposed project is a public utility project. From the economical point of view and also unavailability of the energy

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)	<p>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:</p> <p>Locally available materials would be utilized for construction purposes.</p> <p>Fly ash containing cement would be used for construction</p> <p>PCC cement bricks would be used for construction.</p> <p>Locally available aggregates would be utilized for construction.</p> <p>Glass with low SHGC and high U value is proposed</p>
Transport and handling of materials during construction may result in pollution, noise & public nuisance. What measures are taken to minimize the impacts?	<p>The site shall be isolated by installing tall fabric fences to obstruct noise and dust.</p> <p>All the materials will be properly covered during transportation.</p> <p>Sprinkling of water would be conducted periodically to subside the generated dust.</p> <p>Adequate traffic management measures shall be adopted to monitor the movement of men, vehicles and materials within the project site.</p> <p>Noise sources would be isolated and would be enclosed with noise absorbing covers/ barriers.</p> <p>Personnel protective gears would be provided to workers.</p> <p>Machinery of optimum capacity will be employed and low amplitude operation would be preferred to reduce noise pollution.</p> <p>Man and material transit would be confined to the non-peak hours</p> <p>The vehicle used in the site will be fitted with speed breaker</p>
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.	Biomedical wastes generated from the hospital will stored in secondary storage room and then will transferred to IMGAE for the further disposal. Pharmaceutical waste will be returned back to the supplier. Liquid waste will be treated in STP and septic tank as appropriate. Degradable waste will dispose through biogas plant and non-degradable waste will stored and transferred to vendors. Detailed Waste Management Mechanism is attached here with.
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.	<p>The disaster management plan for the DHK is prepared so as to cover all three stages of disaster such as;</p> <ul style="list-style-type: none"> • Pre Disaster phase - prevention, mitigation and preparedness-Onsite & Offsite • Disaster response phase / during disaster. • Post Disaster phase --- recovery (rchabilitation and reconstruction). <p>The detailed disaster management plan is attached here with</p>
Storage of explosives/hazardous substance in detail	NA
What precautions & safety measures are proposed against	Detailed fire hazard management measure proposed for DHK is attached here with

fire hazards? Furnish details of emergency plans	
Litigation/court cases if any	NA
AESETHETICS	
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?	The whole project is designed in such a way that the proposed constructions will only minimally cause 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?	The project is accompanied with proper Environmental Management Plans in order to minimize the impacts expected on the surrounding features.
Whether there are any local considerations of urban form & urban design influencing the design criteria? They may be explicitly spelt out.	The building design is influenced by local characteristic of existing hospital building.
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	NA
Details of CSR activity and the amount set apart per year	NA
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) 2805066mail@kitco.in NABET Certificate No. & Issue Date: NABET/EIA/SA/338 dated 23.12.2015
Details of Authorized Signatory and address for correspondence	Dr V P Rajesh Hospital Superintendent District Hospital Kannur Ayikkara Government Hospital Road, Burnacherry Post, Kannur, Kerala 670017 Email:vpdrrajesh@gmail.com Ph:9446266752
SUMMARY AND CONCLUSION	
Overall justification for implementation of the project.	The project is for expanding the existing basic health infrastructure facility in order to cater the demand of the current population. The proposal envisages only short term impacts on the surrounding land use during construction period. The same will be managed by the better implementation of EMP.

Explanation of how adverse impact have been mitigated.	<p>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.</p> <p>Also, an environmental monitoring plan is proposed to monitor whether the construction and operation activities are complying with the national standards.</p>
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2. The proposal was placed in the 86th meeting of SEAC held on 27th February, 2018. The Committee appraised the proposal based on Form 1, Form I A, conceptual plan and other connected documents.

The Committee observed that considering the expected vehicular traffic the parking facility proposed is very inadequate. In this regard, the proponent submitted that a proposal for enhancing the parking facility by exchanging land with the adjoining military cantonment is under the consideration of the government. Efforts in this regard are ongoing. The Committee requested the proponent to submit the details of the proposal in writing. The Committee also observed that the existing pediatric block and NICU block can be demolished in future and the existing facilities there can be accommodated by the vertical expansion of the surgical block. This will open up space for additional parking facility. The Committee also observed that the recommendations of the KCZMA is yet to be obtained for the proposal. Hence it was decided to defer the item for the same.

3. The proponent submitted the details of the proposal for enhancing the parking facility as sought by SEAC. The minutes of the 92nd meeting of KCZMA, approving the proposal was also submitted.
4. The proposal was placed in the 87th meeting of SEAC held on 3rd March 2018. 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 in its earlier meeting had pointed out the inadequacy of the parking facility provided in the proposal. In reply to the above observation the Superintendent of District Hospital, Kannur has submitted, the details of a proposal for exchange of land between the District Hospital, Kannur and Kannur Contonment Board. The District Collector has also submitted a note on 09.03.2018, confirming the above details. The land thus received is proposed to be utilized for providing additional parking facility. After examining all the records, the committee decided to recommend EC subject to general conditions over and above the following specific conditions.
 1. *The Proponent shall take urgent steps to effect the barter of land between District Hospital, Kannur and Kannur Contonment Board and build suitable parking facility for providing additional parking area for the hospital.*
 2. *The conditions stipulated in the Letter No.7801/A2/2017/KCZMA dt.08.03.2018 of KCZMA shall be strictly followed.*
5. The proposal was considered in the 82nd SEIAA meeting held on 15th 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. Assurance on the supply of dependable source of water should be obtained from Kerala Water Authority. A notarized affidavit agreeing all the above specific and general conditions should be submitted before the issuance of EC. The proponent has submitted the affidavit vide ref 6th cited stating that all the specific and general conditions shall be strictly mandated.

6. Environmental Clearance as per the EIA notification 2006 is hereby accorded for the upgradation of existing District Hospital Kannur by Dr.V.P.Rajesh, Hospital Superintendent, District Hospital Kannur, Ayikkara Government Hospital Road, Burnacherry Post, Kannur- 670 017 in Sy No.955/1A, 955/1B2, 955/2, 955/3,962 & 963 in Block 15 & 20 Kannur Village,, Kannur Taluk & Kannur District with total built-up –Area 26360.5 Sqm subject to the clarifications, conditions mentioned in para 4 & 5 above and the usual general conditions for projects other than mining appended hereto and the following green conditions should be strictly adhered to.

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.
7. 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 1I) 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.
8. 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.

- 9 Compliance of the conditions herein will be monitored by the State Environment Impact Assessment Authority or its agencies and also by the Regional Office of the Ministry of Environment and Forests, Govt. of India, Bangalore.
- Necessary assistance for entry and inspection by the concerned officials and staff should be provided by the project proponents.
 - Instances of violation if any shall be reported to the District Collector, Kannur to take legal action under the Environment (Protection) Act 1986.
 - The given address for correspondence with the authorized signatory of the project is, Dr.V.P.Rajesh, Hospital Superintendent, District Hospital Kannur, Ayikkara Government Hospital Road, Burnacherry Post, Kannur – 670 017.

Sd/-

P.H.Kurian I.A.S
Member Secretary(SEIAA)

To,

Dr.V.P.Rajesh,
Hospital Superintendent,
District Hospital Kannur,
Ayikkara Government Hospital Road, Burnacherry Post,
Kannur – 670 017.

Copy to

- MoEF Regional Office, Southern Zone, Kendriya Sadan, 4th Floor, E&F Wing, II Block, Koramangala, Bangalore-560034
- Additional chief Secretary to Government, Environment Department,
- The District Collector, Kannur
- The District Town Planner, Kannur
- Member Secretary, Kerala State Pollution Control Board, Pattom
- Chairman, SEIAA
- The Tahsildar, Kannur
- The Secretary, Kannur Municipal Corporation
- Website
- Stock File
- O/c



Forwarded /By Order

Administrator(SEIAA)

GENERAL CONDITIONS *(for projects other than mining)*

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

- (xviii) Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.
- (xix) Any appeal against this Environmental Clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under section 11 of the National Environment Appellate Act, 1997.
- (xx) The project proponent should advertise in at least two local newspapers widely circulated in the region, one of which (both the advertisement and the newspaper) shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the Department of Environment and Climate Change, Govt. of Kerala and may also be seen on the website of the Authority at www.seiaakerala.org. 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 project proponent if it was found that construction of the project has been started without obtaining environmental clearance.


II. Operation Phase

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



