Validity expires on 30.03.2024

सत्यमेव जयते

Proceedings of the State Environment Impact Assessment Authority Kerala

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

Sub: SEIAA - Environmental Clearance for the Residential cum Commercial Project in Sy. Nos. 220/13-2, 220/13-1, 220/13-1, 220/7, 220/8-1, 220/8-2, 220/14, 221/1, 221/1-1, 221/1-2, 221/1-3 at Pangappara Village, Thiruvananthapuram Taluk, Thiruvananthapuram District, Kerala by Sri. Joyis Jose, General Manger, M/s Kerala Land Reforms and Development Co-operative Society Limited (LADDER) - EC Granted-Orders issued

State Environment Impact Assessment Authority, Kerala

No. 896/SEIAA/EC1/3457/2015 dated, Thiruvananthapuram 31.03.2017

Ref:
1. Application dated 24.08.2015 from Sri.Joyis Jose, General Manger, M/s Kerala Land Reforms and Development Co-operative Society Limited
2. Minutes of the 55th meeting of SEAC held on 10/11/20-05-2016
3. Minutes of the 58th meeting of SEAC held on 28/29-06-2016
4. Minutes of the 60th meeting of SEAC held on 28/29-07-2016
5. Minutes of the 59th meeting of SEIAA held on 27-09-2016
6. Minutes of the 64th Meeting of SEAC held on 16/17-11-2016.
7. Minutes of the 62nd Meeting of SEIAA held on 23-12-2016

ENVIRONMENTAL CLEARANCE NO.25/2017

Sri.Joyis Jose, General Manger, M/s Kerala Land Reforms and Development Co-operative Society Limited (LADDER), vide his application received on 24.08.2015 has sought Environmental Clearance under the EIA Notification, 2006 for the Residential cum Commercial project in Sy. Nos. 220/13-2, 220/13-1, 220/13-1, 220/7, 220/8-1, 220/8-2, 220/14, 221/1, 221/1-1, 221/1-2, 221/1-3 at Pangappara Village, Thiruvananthapuram Taluk, Thiruvananthapuram District, Kerala. It is interalia, noted that the project comes under the Category B, 8(a) of Schedule of EIA Notification 2006. No forest land is involved in the present project. Other details of the project are as follows:

Basic Details		
Name of the Project	Application for prior environmental clearance for the proposed Capital Hill Flat cum commercial project at Pangappara, Trivandrum.	
Survey Numbers	220/13-2, 220/13-1, 220/13-1, 220/7, 220/8-1, 220/8-2, 220/14, 221/1, 221/1-1, 221/1-2, 221/1-3	
Village	Pangappara	
Tehsil	Thiruvananthapuram	
District	Thiruvananthapuram	
Extent of land in hectors	0.722 ha	
Is the property forest land/Govt. land/ own land	Own Land	
Latitude	8°33'30.55"N	
Longitude	76°54'6.90"E	
Height of the building	62.05 (Residential Building) and 18.70 m (Commercial Building)	
Total plot area	0.722ha	
Total built-up area	35112.69 m^2.	
Expected cost of the project	82 Lakhs	
Interlinked project (if any)	Nil	
Whether CRZ is applicable	Nil	
Status of litigation/complaint/cases	Nil	
Permanent or temporary change on land use, land cover or topography	As per the master plan of Trivandrum district issued by town and country planning department the proposed land is categorized as land for residential use, public/ semipublic use and park and open spaces. Thus the proposed land use is in line with the master plan. Also it is in congruence with the existing land use of the surrounding area.	
Topography of land and elevation	The site forms part of a moderate to steep slope of a highly dissected laterite terrain lying to the west of the NH-47, and the adjoining north-south trending valley draining to the south.	
Vegetation	The project area does not harbor any significant biodiversity as is situated amidst habitation, a busy highway (NH 47), minor commercial activities, infrastructure development, and related human interferences. Presently, the vegetation cover of the project site is composed of a few common bushes, herbaceous elements including weeds, and saplings of trees	
Nearest water body	Aakulam Lake- 6.4Km	
Change in water bodies due to mining activities	Nil	
Proneness to natural hazards		
Environmental parameters considered		
WATER		
Water (expected use and	Construction phase water demand	36.2 m3/day

sources in KLD) (In detail)	Source	Rain Water Harvesting Tank and supply from contractors
	Operation phase water demand	117 m3/day
	Source	Rain Water Harvesting Tank and Municipal water supply from Kerala Water Authority
Sources of generation and facilities for liquid waste treatment (In detail)	Waste water I expected to be generated from the residential flats and commercial building proposed. A sewage treatment plant (STP) of capacity 100 KLD is proposed for the treatment of Liquid waste generated during the operation phase.	
Facilities for liquid waste treatment(In detail)	A sewage treatment plant (STP) of capacity 100 KLD is proposed for the treatment of Liquid waste generated during the operation phase.	
Water quality meeting requirements (In detail)	IS 10500 drinking water standard will be met for the water used for the drinking and other contact use. The treated water will be used for the flushing and landscaping purposes.	
Water Regime (In detail)	Ground water potential within the laterite terrain over Precambrian rocks is moderate, and the same can be extracted through large diameter open wells. Water table is about 11-12 m at the top of the slope portion during the field survey in the month of May, 2015, and it is 1.00 m below surface in the valley portion, indicating a broadly westerly ground water flow direction within the site. A surface drain in the valley within the site is recommended as a surface water source for the project.	
LAND		
Access road to the site – Width & Condition	The proposed site is directly connected with NH 47. The highway in front of the site is about 10m wide. It is proposed to develop an internal road connection to the main road in order to avoid the increase in traffic.	
Proximity to forest lands	Nil	
Storage of explosives /hazardous substances (In detail)	Nil	
Hazardous waste management	No hazardous wastes are generated during either construction or operation phase.	
Facility for solid waste management (In detail)	During construction phase, the solid waste generated will be treated as per the contractor's term. During the operation phase, the solid waste will be collected and segregated and stored in area designated for the solid waste collection. The waste will be treated as per the MSW rules. The organic and inorganic waste will be treated accordingly.	

Top soil, overburden etc. (In detail)	Top soil gets compacted with the movement of vehicles, man and machineries during the construction phase. Top soil will be stripped out and preserved in heaps under cover which is to be restored back to the areas proposed for green belt and landscaping.		
EnvtMgmt plan/ Eco restoration plan (brief details	Management plan		
	Air pollution	Construction phase	• Water spraying before loading ,unloading or any other handling operations for solid containing fines - to minimize air pollution • Stockpiles of aggregate shall be kept covered • Ambient Air Quality will be monitored as per Environmental Management Plan and adequate action will be taken for compliance
		Operation phase	• Proper maintenance of engines & Certification of Pollution Under Check. • Idling of trucks will be discouraged during loading/unloading.
	Water Pollution	Construction phase	• The construction machineries and vehicles should be inspected periodically for the detection of leaks and spillages. • The maintenance and inspection of vehicles should be confined to designated paved areas only. The oily surface run off should be collected for treatment and disposed off. • Confined area which is situated away from the water bodies should be allotted for cleaning for construction machineries.
		Operation	• Waste water generated

		Phase	from the residential flats and commercial space will be connected to STP as per the swage lane plan • Storm water will be managed with well-connected drain layout connected with ground water recharging pits and also collection in rain water tank.
	Noise	Construction phase	• 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
		Operation Phase	• DG sets would be incompliance for acoustics and air quality. • Low sulphur diesel would be used in DG • Traffic management would be streamlined with symbols so that idling can be avoided
	Solid waste management	Construction phase	• Will be collected and segregated and treated under contractor's term. Management measures include 1. Segregation 2. Storage 3. Transfer 4. Reuse/Recycle
		Operation Phase	• Organic food waste Will be segregated stored in marked closed bins and composted. • Recyclable Inorganic

			waste, discarded plastic bags, paper products , bottles (pet) , packing materials etc. will be Stored in marked bins separately for subsequent transfer to certified recyclers. • All recycling material to be sold to vendors with authorization for SPCB
	Eco restoration	A well-developed landscape plan is proposed including the indigenous species.	
NOISE			
Sources of noise pollution control measures(In detail)	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		
Noise level monitoring (In detail)	The ambient noise quality of the proposed site was monitored at three location a) Residential area in the southern side of the proposed site. b) Residential area in the northern side of the proposed site. c) CH MuhammedKoya school on the western side of the proposed site. As per the monitoring result it was found that the ambient noise quality is well within the permissible standards laid by CPCB. Noise quality of the proposed site will be continuously monitored both during construction and operation period as per the schedule presented in the Environmental Monitoring Plan presented in **Annexure XVI** of Form IA		
AIR			
Likely emissions affecting environment (In detail)	During construction phase, emissions will be from vehicular movements and from the construction equipments like mixer plant, DG sets etc. During operational phase, the main source of emission will be from DG sets during power failures and vehicular movement.		
By deposition of pollutants emitted to air into the land or into water (In detail)	Nil		
Air quality monitoring (In detail)	The ambient noise quality of the proposed site was monitored at four locations. a) Residential area in the southern side of the proposed site.		

	b) Residential area in the northern side of the proposed site. c) CH MuhammedKoya school on the western side of the proposed site. d) Inside the proposed site As per the monitoring result it was found that the ambient air Noise quality of the proposed site will be continuously monitored both during construction and operation period as per the schedule presented in the Environmental Monitoring Plan presented in **Annexure XVI** of Form IA	
ENERGY		
Energy requirement (In detail)	Construction phase	15kWA/day
	Operation phase	900kVA/day
BIODIVERSITY		
Presence of any endangered species or red listed category (In detail)	Nil	
Loss of native species and genetic diversity (In detail)	Nil	
Eco restoration programmes (In detail)	A well-developed landscape plan is proposed including the indigenous species.	
SOCIAL ASPECTS		
Proximity to nearest densely populated or build-up area (In detail)	Kazhakootam-6Km	
CSR ACTIVITIES		
CSR related to the project (In detail)	The proponent agreed to spend **Rs.30,00,000/-** towards the CSR activities (Local Road and drainage development, extending housing facilities to weaker sections, Social forestry)	
GENERAL		
Details of Authorised Signatory & Address for correspondence)	Sri.Joyis Jose, General Manager Kerala Land Reforms and Development Co-operative Society Limited (LADDER) No: 4482, H.O: Nalonklandy Arcade, Pushpa Jn, Chalappuram, P.O, Calicut - 673 002	
Details of NABET approved EIA consultant Organisation	KITCO Ltd Femiths's P B No: 4407 Puthiya Road NH Bypass, Vennala, Kochi-682028	

2. The proposal was considered in the 55th meeting of SEAC held on 10th, 11th& 20th May, 2016. The Committee appraised the proposal based on Form 1, Form I A and conceptual plan. The Committee made following suggestions:-

- Enhance rainwater storage capacity to 380KL.
- Internally provide soak pits for sewage water disposal and it shall not be released outside the compound.
- Provide facility for storing 10 days non-biodegradable waste generated.
- Ensure stability of cuttings.
- The Committee deferred the item for site visit.

A field visit was conducted by a Sub Committee consisting of Sri.S.Ajayakumar, Sri.John Mathai, Dr.Oommen.V.Oommen & Dr.Keshav Mohan on 15.06.2016. The report is as follows:

The proponent was requested to submit the additional documents.

1. *The revised traffic circulation plan with a ramp width of 5 m.*
2. *Structural details of retaining wall.*
3. *Details of earth cutting with plan and section.*
4. *RWH capacity to be enhanced to 380 KL.*
5. *Sewage effluent disposal shall be in compliance of relevant standards.*
6. *Material Recovery Facility (MRF) shall be provided.*

3. On receipt of the inspection report the proposal was again considered by SEAC in its 58th meeting held on 28th& 29th June 2016. The Committee noted that,

The architects explained the concerns of the sub-committee regarding the spiral exit provided for the vehicles. Its viability and safety are doubtful. Hence they were requested to examine alternate options and explain it before the Committee. The item was deferred for the same.

As per the clarifications sought in the field visit report the proponent submitted the following documents.

i. The revised traffic circulation plan with a ramp width of 5 m.
ii. Structural details of retaining wall.
iii. Details of earth cutting with plan and section.

4. The proposal was again considered in the 60th meeting of SEAC held on 28th & 29th July 2016. The proposal was appraised by SEAC considering Form I, Form IA, Conceptual plan, field visit report and all other documents and details provided by the proponent. The Committee recommended the proposal for issuance of Environmental Clearance with general conditions in addition to the specific conditions that,

1. Rainwater storage capacity shall be enhanced to 380 KL.
2. Sewage effluent disposal shall be in compliance with BIS specifications for land disposal.
3. Material Recovery Facility (MRF) shall be provided considering waste generation for 10 days.

CSR obligations have not been undertaken.

5. The proposal was considered by SEIAA in its 59th meeting held on 27th September 2016. Authority noted that application is for the prior environmental clearance for the proposed capital hill flat cum commercial project at Pangappara, Trivandrum. Total built up area is 35112.69 m^2. But the expected cost is stated to be 82 lakhs. The Authority doubted the veracity of the cost estimated. Also there is no CSR undertaking. Field visit report has also not been furnished. Authority decided to refer the case to SEAC for clarifications on the above and for field visit report.

6. The proposal was considered in the 64th Meeting of SEAC held on 16th and 17th November 2016. The Committee observed that the cost estimate is Rs 82 Crores as indicated in the application. As the field inspection report was misplaced; the subcommittee has furnished a copy of the same which is incorporated in the file. As regards CSR, it is applicable only to institutions coming under Companies Act. However in the case of mining proposals considering the environmental disturbance they are causing, we insist on commitments from proponents to plough back substantial amounts for the welfare of the local communities. In the case of building proposals unless they are incorporated companies we insist only on strict environmental safe guard measures and green building protocols.

7. The Authority considered the proposal in its 62nd Meeting held on 23rd December 2016. The Authority decided to grant EC on submission of revised CSR agreement and on submission of an affidavit that all the general and specific condition shall be strictly implemented.

8. The proponent has submitted the affidavit on 25.03.2017 committing a CSR amount of Rs.30 lakh and stating that all the specific and general conditions shall be strictly implemented. Environmental Clearance as per the EIA notification 2006 is therefore granted to the Residential cum Commercial Project by Sri. Joyis Jose, General Manger, M/s Kerala Land Reforms and Development Co-operative Society Limited (LADDER) Ltd in Sy. Nos. 220/13-2, 220/13-1, 220/13-1, 220/7, 220/8-1, 220/8-2, 220/14, 221/1, 221/1-1, 221/1-2, 221/1-3 at Pangappara Village, Thiruvananthapuram Taluk, Thiruvananthapuram District, Kerala subject to the specific conditions mentioned in para 4 above, the usual general conditions for projects other than mining appended hereto and the following green conditions should be strictly adhered to.

Green Conditions.

1. Adequate rain water harvesting facilities shall be arranged for.
2. Technology and capacity of the STP to be indicated with discharge point (if any) of the treated effluent.
3. Effluent water not conforming to specifications shall not be let out to water bodies.
4. Maximum reuse of grey water for toilet flushing and gardening and construction work shall be ensured.
5. Dual plumbing for flushing shall be done.

6. Provisions for disposal of e-wastes, solid wastes, non-biodegradables and separate parking facility for the buildings shall be provided.
7. Generation of solar energy to be mandatory for own use and/or to be provided to the grid.
8. There shall be no compromise on safety conditions and facilities to be provided by the project proponent, which shall be ensured for occupation, regularisation or consent to operate.

9. 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.

10. 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.

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

i. Necessary assistance for entry and inspection by the concerned officials and staff should be provided by the project proponents.
ii. Instances of violation if any shall be reported to the District Collector, Thiruvananthapuram to take legal action under the Environment (Protection) Act 1986.
iii. The given address for correspondence with the authorized signatory of the project is, Sri.Joyis Jose, General Manager, Kerala Land Reforms and Development Co-operative Society Limited (LADDER), No: 4482, H.O: Nalonklandy Arcade, Pushpa Jn, Chalappuram P.O, Calicut - 673 002

Sd/-
V.S.SENTHIL.I.A.S,
Member Secretary (SEIAA)

To,

Sri.Joyis Jose,
General Manager
Kerala Land Reforms and Development
Co-operative Society Limited (LADDER)
No: 4482, H.O: Nalonklandy Arcade,
Pushpa Jn, Chalappuram P.O
Calicut - 673 002

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
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 Thiruvananthapuram, Vikas Bhavan P.O, Tvpm – 695 033
9. Chairman, SEIAA, Kerala
10. Website
11. Stock file
12. O/c

Forwarded/By Order

Rajendran

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