



सत्यमेव जयते

Proceedings of the State Environment Impact Assessment Authority Kerala

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

Sub: Environmental Clearance - Prior environmental clearance for the proposed Industrial Building Project within KINFRA Film and Video Park in Survey Nos. 158/3 at Kazhakootam and 407/1-1 at Airooppara Village, Kazhakootam Panchayath, Trivandrum Taluk, Trivandrum District. Application of Sri. K. Sudhakaran, General Manager (Projects), KINFRA - E.C Granted- Orders issued.

STATE ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY

No. 879/SEIAA/EC/3222/2015

dated, Thiruvananthapuram 04-10-2016

- Read:-**
1. Application dated 16-06-2015 by Sri. K. Sudhakaran, General Manager (Projects), KINFRA ANNEX, TC 31/2312, Sasthamangalam, Thiruvananthapuram, Pin: 695010
 2. Minutes of the 55th meeting of SEAC held on 10/11/20-05-2016.
 3. Minutes of the 54th meeting of SEIAA held on 21-06-2016.
 4. Minutes of the 58th meeting of SEIAA held on 08-09-2016.

ENVIRONMENTAL CLEARANCE NO. 155/2016

Sri. K. Sudhakaran, General Manager (Projects), KINFRA ANNEX, TC 31/2312, Sasthamangalam, Thiruvananthapuram, Pin: 695010, vide his application received on 11th August 2015 and has sought environmental clearance under the EIA Notification, 2006 for the building project in Sy. Nos 158/3; 407/1-1 at Kazhakootam and Airooppara Villages and Kazhakootam Panchayath Trivandrum Taluk, Trivandrum District. The project comes under Category B, 8(a) of Schedule of EIA Notification 2006. No forest land is involved in the present project. Other details are as follows:

Basic Details	
Name of the Project	Application for prior Environmental Clearance for the proposed building space within KINFRA Film and Video Park, Kazhakootam Trivandrum.
Survey Numbers	Kazhakootam -158/3; Airooppara-407/1-1
Village	Kazhakootam and Airooppara
Tehsil	Trivandrum
District	Trivandrum
Extent of land in hectares	10.1171 hectare. (101171 m ²)
Is the property forest land/Govt. land/ own land	Own Land
Latitude	8.582423°
Longitude	76.880584°
Extent of area (in hectares)	Existing built up area-16722.55 m ² Proposed built up area-122178.4 m ² Total built up area-138900.9 m ²
Height of the proposed Building	32m
Expected cost of the project	422 Crores
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	The proposed development is within the KINFRA Film and Video Park. There is no change in the land use pattern as per the general plan of the KINFRA campus which is sparsely built up.
Topography of land and elevation	The proposed site is more or less flat terrain. The Video park campus constitutes the eastern part of a north-south trending broadly flat terrain truncated by north-south trending valleys. The topography altered substantially for construction of buildings and roads. Hence the ridges and depressions discernible in the contour map of the park area are artifact of the original topography. The eastern and western peripheries display higher elevation with the central portion being lower by about 14-15 metres, thereby channeling the waters towards south. Slopes are moderate in the eastern and western peripheries, and gentle in the central part.
Vegetation	The project execution will not pose any significant threat to the biodiversity of the region since the proposed development site is situated within an active zone of infrastructure development amidst habitation and related human interferences. The vegetation of the region is typical of any lateritic midland village/suburban area of Kerala, composed of cultivated plants, including avenue trees, garden plants, minor crops and agroforestry species of the homesteads, and wild growths formed by bushes, trees, climbers and weeds.
Nearest water body	KINFRA Film and Video Park is having its own Rain Water Harvesting pond (RWH pond) at northern side of the KINFRA Park covering 19627.25 square meter land area and having an average depth of 5 meter

Proneness to natural hazards		The site falls in Zone III (moderate seismicity) in the seismic zonation map of India which is common in Kerala. Presence of loose sediments in the area is capable of amplifying ground motion in the event of local or far away seismic events.
Environmental parameters considered		
Water		
Water (expected use and sources in KLD) (In detail)	<p><u>Construction Phase</u></p> <ul style="list-style-type: none">• Source - Existing rainwater harvesting pond within the KINFRA if required the excess water will be purchased.• Demand- Total domestic water demand for workers is 6.75 KLD <p><u>Operation phase</u></p> <ul style="list-style-type: none">• Source - Existing rainwater harvesting pond within the KINFRA• Demand- 1003 KLD	
Sources of generation and facilities for liquid waste treatment	The total quantity sewage generated is 352 KLD .This will be treated in proposed STP and the treated water meeting the standards as specified in IS 10500 will reused for flushing and gardening.	
Environment Management plan / Eco- restoration plan	Air pollution	<p><u>Construction Phase</u></p> <ul style="list-style-type: none">• Water will sprinkled in the construction yard in a regular manner• Pollution- under check (PUC) should be made mandatory for all vehicles used for construction activities.• Regular maintenance and inspection of the machineries should be conducted.• The excavators, loaders, vehicles and cranes should be operated only well within the fenced area of the project site.• Personnel masks should be provided to workers.• The tires of the transport vehicles have to be washed before leaving the construction site.• The material transport vehicles should be adequately covered.• The DG should be operated only on standby mode.• Periodic emission test should be conducted.• The stack height of the DG set has to be in conformance with the CPCB guidelines. <p><u>Operational Phase</u></p> <ul style="list-style-type: none">• Open burning of the Waste particularly if it contains plastics/polyethylene will be strictly banned since it produces dioxins in addition to other toxic gases.• A vegetation belt which involves evergreen trees and pollution supressing plants will be maintained in the plot in order to minimise the air pollution from the pollutant emissions.• DG sets comply with MoEF norms of emissions will be used <p>Vehicles with pollution under control certificate may be allowed to ply.</p>

	Water pollution	<p>Construction Phase</p> <ul style="list-style-type: none"> • Liquid mud will be collected in the temporary pits created in the site during the construction phase. • The site clearance should not be initiated during or prior to heavy monsoon season. • Vehicles should be inspected periodically • The construction machineries and for the detection of leaks and spillages • The maintenance and inspection of vehicles should be confined to designate paved areas only. • The oily surface run off should be collected for treatment and disposed of. • Vehicles should be inspected periodically • The construction machineries and for the detection of leaks and spillages • The maintenance and inspection of vehicles should be confined to designate paved areas only. • The oily surface run off should be collected for treatment and disposed of. • Confined area which is situated away from the water bodies should be allot for cleaning for construction machineries. <p>Operational Phase</p> <ul style="list-style-type: none"> • A well-managed waste disposal scheme in accordance with Waste Management rule will be adopted. • Waste water generated form the activities will be treated in a sewage treatment plan. <p>Storm water will be collected in existing RWH pond within the site</p>
	Noise	<p>Construction Phase</p> <ul style="list-style-type: none"> • Well maintained drilling equipments will be used. • Diesel generator should have noise control measures to meet standards set by Central Pollution. • Workers shall not be exposed to sound of more than 85-90 dB for more than eight hours a day and shall be provided with ear plugs. • Noise level of vehicles used for construction activities should meet the noise standards set by Central Pollution Control Board . • Construction contract shall clearly specify the use of equipment emitting noise of not greater than 90 dB (A) for the eight hour operation shift. • The vibrators would be mounted on vibration damping mountings recommended for machines. • Noise quality monitoring shall be conducted as per Environmental Monitoring Plan to detect noise pollution <p>Operational phase</p> <ul style="list-style-type: none"> • DG sets will be provided with acoustics enclosure <p>DG sets will be palced in acoustically treated room</p>

	Solid Waste Management	<p>Construction Phase</p> <ul style="list-style-type: none"> The construction waste should be disposed of properly by the construction contractor. Most of the waste generated are recyclable /reusable. Left over oil, grease, steel and aluminium bits, paper, plastics cardboard cartons etc. can be termed under the category of recyclable waste. Bags, containers, plastic containers etc can be termed as reusable waste. During construction period organic waste, plastic, paper etc is generated from site offices, workers change rooms, eating places etc. This will be treated under contractor's scope. <p>Operational Phase</p> <ul style="list-style-type: none"> STP is proposed to treat the liquid waste. Municipal Solid waste generated will be treated in compliance with Municipal Solid Waste (Management and handling) Rules 2000. Biogas plant and recycle waste store are proposed in order to facilitate proper waste management.
	Eco-restoration	<ul style="list-style-type: none"> Compensatory plantation will be carried out. No protected or endangered species are reported in the project area.
Energy		
Energy requirement		<ul style="list-style-type: none"> The source of electricity for this proposed building is Kerala State Electricity Board (KSEB). Power required during construction: 30 KW/day (KSEB);temporary connection Power required during operation: 1500 KWA (KSEB) Power backup mechanism as per the requirement will be provided. The energy consumption has been tried to be minimized by adopting following methods Energy-efficient light fixtures & BE 5star rated equipment's are proposed. At the places that have to be lightened 24 hours a day, high performance lamps are proposed. Buildings design should assure the natural ventilation and cross ventilation in the prevailing climate Roof top solar panels and roof top plantation are proposed Energy efficient T5 & T8 lamps, LED, CFL lamps are proposed for whole lighting system. On all electric panels, a request to switch off light on leaving the room should be pasted.
Biodiversity		
Presence of any endangered species or red listed category		Nil
Loss of native species and genetic diversity		The project execution will not pose any significant threat to the biodiversity of the region since the proposed development site is situated within an active zone of infrastructure development amidst habitation and related human interferences.
Eco restoration programmes		It is proposed to develop greenery in the project site, including aesthetically designed landscapes, lawns, gardens (lung-spaces) and green belts (involving indigenous and acclimatized exotic species in consideration of its aesthetic appeal ecological services - dust/air pollution amelioration noise mitigation) in the post-construction phase.
Social aspects		
Proximity to nearest densely populated or		The proposed development is coming in the KINFRA Film and Video Park, which is declared as dedicated area for supporting the industries associated with

build-up area (In detail)	the animation, IT and ITES and declared as a special economic zone by Government of India. At present the KINFRA Film and Video Park supports visual media and IT related industries. This includes Earnest and Young, Magic Planet, Vismaya max studio, DCSMAT media school, Maya Film shooting centre, Ravathy Kalamandir and Prasad Film Laboratory. The location for the proposed development is within the SEZ area of the park .The only existing building within SEZ area is Drishya building supporting IT sector. One of the sensitive area near to the site is sainik School situated at the western side of the plot.
CSR related to the project	C.S.R activities are undertaken by KINFRA

General	
Details of Authorised Signatory & Address for correspondence	Shri.K. Sudhakaran General Manager (Projects) KINFRA ANNEX , TC 31/2312, Sasthamangalam, Thiruvananthapuram Pin: 695010 E-mail: kinfraannexe@gmail.com Ph:9656208006 ; 0471-2726585
Details of NABET approved EIA consultant Organisation	Name of consultant: KITCO Ltd. Address for correspondences: KITCO Limited, Femith's, P B No 4407, Puthiya Road, NH ByPass, Vennala, Kochi -682028 Contact details: e mail-mail@kitco.in, ph:0484-4129000 NABET approval letter : Letter No: NABET/EIA/338/IA-017 dated 13 th November 2013 and Letter No: NABET/EIA/SA/338 dated 23 rd December 2015

3. The proposal was first considered in the 55th meeting of SEAC held on 10/11/20-05-2016. The Proponent and Engineer attended the meeting and engineer made a power point presentation about the salient features of the project briefly. The Committee appraised the proposal based on Form 1, Form 1 A and conceptual plan and recommended for issuance of EC subject to the general conditions.

4. The proposal was considered by SEIAA in its 54th meeting held on 21-06-2014. Authority held that this being a Rs.422 Cr project in 10.2 ha.site visit ought to have been conducted. It was decided that the Chairman and Member visit the site and submit a report to consider the recommendations.

5. Accordingly the Chairman and Member SEIAA visited the project site at Kinfra Film and Video Park Kazhakkootam on 09/08/2016. The site inspection report is extracted as below:

"The project site falls in Kazhakkootam and Ayirooppara Villages. There is an existing building with area 16000 m² In addition, four new blocks with area of 1,23,327 m² is planned making the total built up area ~1,39,100 m².Kinfra has 25 acres for the project, out of total extent of 75 acres for the Kinfra Film &Video Park. The project area is notified as SEZ. Project cost is Rs. 422 Cr.

The project authorities explained that a well envisioned EMP has been proposed for the project and site. The construction is site specific so that removal of earth could be avoided. Rainwater will be directed to the existing RWH pond. 20% of total electricity to be consumed will be from renewable sources, for which rooftop solar panels will be setup. There will be an Environment Monitoring cell for overseeing implementation of the EMP. Separate STP will be provided. Facilities have been planned for biogas generation from organic wastes, generated. Good practices in energy saving will be adopted – CSR activities are being executed by Kinfra. No Wetland or Paddy land are involved in the project area and now planted with Accacia. No Environmentally disagreeable situations have come to notice. Environmental Clearance can be accorded subject to the following specific conditions:

1. The entire acacia plantation shall be cleared Land available after construction shall be planted with native trees, for developing a green belt.
2. It must be ensured that effluent water from STP and other treated liquid wastes shall be reused to the maximum and grey water if let out from the site to drains (not leading to the RWH pond) shall conform to the PCB norms for such effluents.
3. Use of glass for the proposed buildings shall be below 40%. LED lighting shall be adopted.
4. General green norms for buildings may also be stipulated".

6. The Authority considered the proposal again in the light of the inspection report in its 58th meeting held on 08-09-2016. Authority accepted the recommendation of SEAC and decided to issue E.C to the proposed Industrial Building Project within KINFRA Film and Video Park, Thiruvananthapuram in Survey Nos. 158/3 at Kazhakootam and 407/1-1 at Airooppara Village, Kazhakootam Panchayath, Trivandrum Taluk, Trivandrum District.subject to the specific conditions recommended by the inspection team and the usual general conditions for non-mining projects.

7. Environmental clearance as per the EIA notification- 2006 is therefore granted to the proposed Industrial Building Project within KINFRA Film and Video Park, Thiruvananthapuram in Survey Nos. 158/3 at Kazhakootam and 407/1-1 at Airooppara Village, Kazhakootam Panchayath, Trivandrum Taluk, Trivandrum District, subject to the specific conditions in para 5 above, the usual general conditions for non-mining projects other than mining appended hereto and the following green conditions to be adhered to, strictly.

Green conditions

1. Adequate rain water harvesting facilities shall be arranged for.
2. Technology and capacity of 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 facilities for the building shall be provided.
7. Generation of solar energy to be mandatory for own use and /or to be provided to the grid.
8. There shall be no compromise on safety conditions and facilities to be provided by the project proponent, which shall be ensured for occupation, regularisation or consent to operate

8. The clearance issued 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-1 A, Environment Management Plan as submitted. The assurances and clarifications given by the proponent in the application and related documents will be deemed to be part of these proceedings as conditions as undertaken by the proponent, as if incorporated herein.

9. Validity shall be seven years from the date of issuance of E.C., subject to inspection by SEIAA on annual basis and compliance of the conditions, subject to earlier review of E.C in case of violation or non-compliance of any of the conditions stipulated herein or genuine complaints from residents within the scrutiny area of the project.

10. Compliance of the conditions herein will be monitored by the Authority or its agencies and also by the regional office of the Ministry of Environment & Forests, Government of India, Bangalore.

- i. Necessary assistance for entry and inspection should be provided by the project proponent and those who are engaged or entrusted by him to the staff for inspection or monitoring
- ii. Instances of violation if any shall be reported to the District Collector, Trivandrum to take legal action under the Environment (Protection) Act, 1986.

11. The given address for correspondence with the authorised signatory of the project Sri. K. Sudhakaran, General Manager (Projects), KINFRA ANNEX, TC 31/2312, Sasthamangalam, Thiruvananthapuram, Pin: 695010.

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

To,

Shri.K. Sudhakaran
General Manager (Projects)
KINFRA ANNEX, TC 31/2312,
Sasthamangalam,
Thiruvananthapuram
Pin: 695010
E-mail: kinfraannexe@gmail.com
Ph:9656208006 ; 0471-2726585.

Copy to,

1. MoEF Regional Office, Southern Zone, Kendriya Sadan, 4th Floor, E& F Wing, II block, Koramangala, Bangalore-560034.
2. Additional Chief Secretary to Government, Environment Department.
3. The District Collector, Thiruvananthapuram.
4. The District Town Planner, Thiruvananthapuram
5. Secretary Kerala, State Pollution Control Board, Pattom, Thiruvananthapuram-4
6. The Secretary, Zonal office, Corporation of Thiruvananthapuram, Kachani- Aruvikkara Road, Vattiyoorkavu, Nettayam, Thiruvananthapuram-695013
- ✓ 7. Chairman, SEIAA
8. Website
9. E.C file
10. Stock File
11. O/C



Forwarded / By Order

Rajendran

Rajendran Chettiar, C.
Administrator, SEIAA

SECRET

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

Rajendran
Rajendran Chettiar, C.
Administrator, SEIAA

