

**STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY,  
BELTRON BHAWAN, SHASTRINAGAR, PATNA- 800023**

Ref. no.:- **141**

Patna, dated:-16/09/13

From,

S.K. Karn,  
Member Secretary,  
(SEIAA Bihar)

To,

Executive Engineer,  
Construction Division- 1,  
Building Construction Department,  
Patna


**Sub: Environmental Clearance for the proposed International Convention Centre Building, Near Gandhi Maidan, Patna**

Sir,

This has reference to your application no. 633 Anu, dated 10.07.2013 for Environmental Clearance your proposal which has been examined by SEIAA on the recommendation of SEAC and processed in accordance with the EIA Notification of 2006 and its amendment thereof.

It is noted that the salient features of project for which Environmental Clearance has been given in the table below:-

<b>TOTAL PLOT AREA</b>	<b>49,350.28 Sq. M.</b>
Built Up Area (BUA)	54,671.87 Sq. M.
Green Belt Area	7588.499 Sq. M.
Height of the Buildings	35 m. max <sup>m</sup> .
<b>PARKING FACILITIES</b>	
Four Wheelers (Car, Jeep etc.)	357 Nos.
Two Wheelers (Motorcycle, Scooter)	425 Nos.

  
**MEMBER SECRETARY  
STATE ENVIRONMENT IMPACT  
ASSESSMENT AUTHORITY  
(SEIAA) BIHAR**

Ambulance	-
<b>Water Requirement</b>	475 KLD
<b>Power Requirement</b>	3026 kW
<b>Power Emergency Back-up</b>	2 No. 1500 KVA +2 Nos 750 KVA DG Set
<b>Water Pollution Control</b>	160 KLD STP
<b>Air Pollution Control</b>	DG sets will be equipped with Acoustic Enclosure & Stack height will be 3 m. above roof of the building in which DG set will be installed
<b>Solid Waste Disposal</b>	Through Patna Municipal Corporation

## **SPECIFIC CONDITIONS**

### **1. Construction Phase**

#### **Facility of Labourers during Construction:-**

- i) Provision of drinking water waste water disposal and solid waste management should be ensured for labour camps. Water usage during construction should be optimized to avoid any wastage.
- ii) Proper sanitation facilities should be provided for construction workers to ensure environmental sanitation. Sewage generated from the areas occupied by the construction labourers have to be directed into the existing sewage drain of the area.
- iii) Health and safety of the workers should be ensured during construction Personnel protective equipment like helmets, earmuffs, earplugs etc. should be provided to the workers. For vibration control damped tools must be used and the number of hours that a worker uses them must be limited.

#### **Steps to avoid disturbance during construction:**

- i) All the top soil excavated during construction activities should be stored for use in horticulture /landscape development within the project site. Adequate erosion and sediment control measures to be adopted before ensuing construction activities.
- ii) The plan should identify wastes to be generated and designate handling recycling and disposal method to be followed.
- iii) Disposal of muck including excavated material and demolition debris during construction phase should not create any adverse effects on the neighboring communities and disposed off taking the necessary precautions for general safety and health aspects.

- iv) Diesel generator sets during construction phase should have acoustic enclosures and should conform to Environment (Protection) Rules, 1986 prescribed for air and noise emission standards.
- v) Vehicles/equipments deployed during construction phase should be in good condition and should conform to applicable air and noise emission standards and should be operated only during non-peaking hours.
- vi) Ambient noise levels should conform to residential standards both during day and night. Only limited necessary construction should be done during night time. Fortnightly monitoring of ambient air quality (SPM, SO<sub>2</sub> and NO<sub>x</sub>) and equivalent noise levels should be ensured during construction phase.
- vii) Construction spoils, including bituminous material and other hazardous materials including oil from construction equipments must not be allowed to contaminate surface water/soil and the dump sites for such material must be secured so that they should not leach into the ground water. If necessary, oil trap should be installed where is deployment of heavy machineries.
- viii) 15 m screen and adequate sprinkler arrangement shall be provided . Care should be taken to keep all material storages adequately covered and contained so that they are not exposed to winds.
- ix) Loading and unloading operations should not be carried out in open area.
- x) Use of Ready Mix concrete is recommended for this project.
- xi) Adequate measures to be adopted to avoid wastage of water for curing of concrete.
- xiii) Adequate mitigation measures should be adopted to control dust emissions, noise and vibrations from construction activities. Vehicles and construction machineries should be properly maintained vehicles should conform to CPCB/Bihar State Pollution Control Board (BSPCB) norms.
- xiv) Promotion of use of cleaner fuel and fuel quality improvement should be done Excessive energy consumption and fuel usage should be avoided.
- xv) Accumulation /stagnation of water should be avoided to ensure vector control.

#### **Selection of Materials for Better Energy Efficiency :-**

- i) Use of energy efficient construction materials should be ensured to achieve the desired thermal comfort.
- ii) Design layout should ensure adequate solar access and ventilation. Proper planning and window design for daylight integration should be considered.
- iii) Use of fly ash based bricks/blocks/tiles/products shall be explored to the maximum extent possible.
- iv) Construction should conform to the requirements of local seismic regulations. The project proponent should obtain permission for the plans and designs including structural design, standard and specifications from concerned authority.

- v) Construction technologies that require less material and possess high strength should be adopted. Materials with low embodied energy and high strength should be used preferably.
- vi) Use of energy efficient lighting system e.g. High Pressure Sodium Vapor (HPSV) Lamps , LED etc should be promoted. Solar energy should be used for outdoor lighting.
- vii) Passive solar cooling to be incorporated in building design. Buildings should be oriented for ensuring natural ventilation and day lighting. Zoning of work place will be done to reduce energy consumption.
- viii) Proper insulation of roof should be provided to achieve desired thermal comfort. Use of light colored, reflective roofs having an SRI ( Solar reflectance index) of 50% or more should be incorporated.
- ix) Use of high albedo or reflective pavements to keep parking lots, pavements and inside roads cool should be incorporated.
- x) Guidelines to the occupants should include usage efficiency measures such as energy efficient lighting and water efficient system.
- xi) Reduce hard paving-onsite (open area surrounding building premises) and /or provide shade on hard paved surfaces to minimize heat island effect and imperviousness of the site.
- xii) Adequate open space, greenery and water boodles to be provided as per rules.
- xiii) Any proposed building with air-conditioning facility should follow the norms proposed in the ECBC regulations framed by the Bureau of Energy Efficiency. Use of chillers will be CFC & HCFC free.
- xiv) Restrict the use of glazed surface as per National Building Code, 2005.

**Water Body Conservation:-**

- i) Water body within the premises of the project area (if any) should not be lined and no embankments should be cemented.

**Plantation Proposal:**

- i) The greening programme shall include plantation of both exotic and indigenous species.
- ii) Plantation along the side of the proposed building complex roads and in the open spaces shall be developed to act as sinks of air pollution. The plantation of trees shall be completed in the construction stage. The plantation shall consist of mixture of available indigenous, fast growing and sturdy species of trees, shrubs and herbs. Preferential plantation of flowering trees with less timber and fruit value shall be carried out.
- iii) Water intensive and/or invasive species should not be used for landscaping.

### **Water Supply:-**

- i) Ground water should not be abstracted without prior permission of the competent authority.
- ii) Project proponent shall provide adequate measuring arrangement at the inlet point of water uptake and at the discharge point for the measurement of water utilized in different categories to monitor the daily water consumption.
- iii) Water saving practices such as usage of water saving devices/fixtures low flow flushing system, sensor based fixture, auto control valves, pressure reducing devices etc. should be adopted.
- iv) Water budget should be adopted as per the plan submitted.

### **Sewage Treatment Plant:**

- i) As per the proposal submitted by the proponent wastewater shall be treated in STP and fully reused.
- ii) Treated water recovered from STP would be used for flushing the toilets, gardening purpose, make-up water in air conditioning systems etc.. As proposed, Moving Bed Bio Reactor (MBBR) type sewage treatment plant should be installed. The Sewage Treatment Plant shall be ensured before the completion of the Building Project.

### **Storm Water Management & Mitigation of Heat Island Effect:-**

- i) Imperviousness of the site shall not exceed the NBC (National Building Code, 2005) standards for imperviousness factor applicable to different types of area.
- ii) Total paved area of site under parking, roads, paths or any other use should not exceed 25% of the site area.
- iii) Minimum 50% of paved area on site should have pervious paving or shaded under vegetation or topped with finish having solar reflectance of 0.5 or higher.
- iv) Adequate storm water drainage network to be designed for the project. Storm water management plan should be implemented so as to prevent sudden discharge of excessive volumes of storm water to the receiving waters thus reducing the shock load on the drainage system.
- v) Heat island effect should be minimized by use of shading or reflective surfaces, mainly the surfaces that contribute to the heat island effect i.e. street, sidewalks, parking lots and buildings. White roofs should be provided in the building.

### **Rain Water Harvesting Scheme:-**

- i) Rain water from open spaces shall be collected and reused for landscaping and other purposes. Rooftop rainwater harvesting shall be adopted for the Project Building Complex.

### **Municipal Solid Waste Management**

- i) Adequate provision shall be made for storage of solid waste and adequate means of access shall be provided.
- ii) Space should be kept reserved for waste storage, collection etc. in site planning and architectural designs.

### **Transport Management:-**

- i) Both internal and external traffic planning and management should be adequate to ensure uninterrupted traffic movement in the area during construction as well as operation phase
- ii) The design of service road and the entry and exit from the project area should conform to the norms and standards of competent authority for traffic management. Bell mouth type arrangement should be made at the entry & exit.

### **Others:-**

- i) All mandatory approvals and permissions as required from, Director of explosives a Fire Department, Airport Authority etc. shall be obtained.
- ii) Provision of Effective Controls and Building Management Systems such as Automatic Fire Alarm and Fire Detection and Suppression system etc must be ensured.
- iii) Efficient management of indoor air quality must be ensured for health and safety of the users.
- iv) Adequate measures to be adopted for water conservation during construction and operation stage. Use of efficient irrigation equipment, evaporative cooling unit in air conditioning system etc. should be considered.
- v) Rest room facilities should be provided for service population.
- vi) Provisions should be kept for the integration of solar water heating system.
- vii) Unskilled construction laborers shall be recruited from the local areas.
- viii) Provision of vermin-composting for the biodegradable solid waste generated from the Project Building Complex as well as the large amount of biomass that shall be available from the tree plantation shall be made.
- ix) Periodical monitoring of ground water table and quality shall be carried out. Construction of tube wells, bore wells shall be strictly regulated. towers should be installed within the premises either on the ground or on the roof.
- x) The height of the stack of the DG sets should be as per norms of CPCB.

## **II. Operation Phase**

### **Water Supply**

- i) Water requirement during operation phase shall be primarily met from Bore well supply Arsenic free water supply should be ensured.
- ii) Ground water should not be abstracted without prior permission of the competent authority.
- iii) Use of water meter conforming to ISO standards should be installed at the inlet point of water uptake to monitor the daily water consumption. Use of water efficient devices /fixtures and appliances should be promoted. Installation of dual flushing should be considered to conserve water.
- iv) The proponent must practice rainwater harvesting on regular basis.

**Sewage Treatment Plant:-**

- i) As per proposal submitted by the proponent, waste water shall be treated in STP .
- ii) Treated waste water shall be fully reused for landscaping , car washing etc..Reuse of treated wastewater should be carried out as proposed.
- iii) Sewage Treatment Plants should be monitored on a regular basis.

**Emission of Diesel Generator Set:-**

- i) Noise barriers will be provided at appropriate locations so as to ensure that the noise levels do not exceed the prescribed standards.
- ii) Diesel generator sets should be provided with integral acoustic enclosures manufacturing stage itself as per Central Pollution Control Board norms.
- iii) The stack height and emission from D.G. sets should conform to the norms of Central Pollution Control Board.

**Ensure Energy Efficiency:-**

- i) Use of energy efficient construction materials to achieve the desired thermal comfort should be incorporated. The desired level of 'R' and 'U' factors must be achieved. U factor for the top roof should not exceed 0.4 watt/sq.m/degree centigrade with appropriate modifications of specifications and building technologies. The provision of National Building Code, 2005 should be strictly followed.
- ii) Use of energy efficient electrical systems should be promoted. High efficiency lamps with electronic ballasts should be used.
- iii) Energy efficient Motors and properly rated Transformers should be installed Manufacturer's certificate to this effect shall be obtained and kept on record. Backup power supply should be based on cleaner fuel.
- iv) The power cabling shall be adequately sized as to maintain the distribution losses not to exceed 1% of the total power usage. Record of transmission losses shall be

- maintained. The proponent shall install permanent electrical metering to record demand (KVA) and total power factor.
- v) The project proponent should resort to solar energy at least for street lighting and water heating.

**Transport Management:-**

- i) Vehicles having PUC certificates should be promoted.
- ii) Adequate parking space should be provided as per norms.
- iii) Pathways should be covered or shadowed by tree canopy as far as practicable.
- iv) Transport system should be such that traffic will be calm in neighborhoods. Traffic within the project site should be restricted by regulation.
- v) Adequate vertical and horizontal clearances of overhead electric power and telecommunication lines should be provided.

**Municipal Solid Waste/ Other Wastes:-**


- i) The proponent should abide by the Municipal Wastes (Management and Handling) Rules, 2000 . The proponent must develop the Solid Waste Management and Disposal Scheme ensuring storage and segregation of biodegradable and non-biodegradable waste.
- ii) The solid waste is to be disposed off in consultation with Municipal Authority.
- iii) The proponent should provide different coloured bins for different categories of waste and ensure complete segregation of biodegradable non-biodegradable waste. The solid waste from different collection and storage bins should be finally collected at traffic stations. Further segregation will be done at transfer stations to collect recyclables such as plastic, polythene, glass, metals, textiles, rubbers, leathers, paper etc. Separate compartments shall be provided for each type of recyclables.
- iv) The proponent should abide by the Hazardous Wastes (Management & Handling and Transboundary Movement) Rules, 2008. Collection and storage of hazardous wastes, if any, during pre-construction and post-construction activity should be planned properly. The expected hazardous wastes should be disposed off separately as per the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008.
- v) Spent oil from DG sets should be stored in HDPE drums in isolated covered facility and disposed off as p.er the Hazardous Wastes (Management, Handling and Transboundary Movement)Rules,2008. Spent oil from DG Sets should be disposed off through registered recyclers only.



## General Conditions:

- i) The implementation of Environmental Management Plan should be carried out, as proposed.
- ii) Regular monitoring should be carried out during construction and operation phases.
- iii) Risk Assessment study along-with Disaster Management Plan (DMP) shall be prepared. The mitigative measures for disaster prevention and control shall be prepared and get approved from competent authority.
- iv) Firefighting systems should be designed in compliance with the WBFS and NBC norms.
- v) First aid box shall be made readily available in adequate quantity at all the times.
- vi) Preventive measures should be adopted for Risk & Disaster Management as per the provisions of the National Building Code, 2005.
- vii) The proponent should abide by the Direction issued by the Department of Environment & Forests, Government of Bihar /CPCB/BSPCB.
- viii) In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by the SEIAA/SEAC, Bihar.
- ix) Any appeal against this Environmental Clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
- x) The project proponent should advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the Bihar State Pollution Control Board and may also be seen on the website of the SEIAA, Bihar and Ministry of Environment and Forests at <http://www.envfor.nic.in>. The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to SEIAA, Bihar and to the Regional Office of MoEF, Bhubaneshwar.

Yours faithfully,

  
**MEMBER SECRETARY  
STATE ENVIRONMENT IMPACT  
ASSESSMENT AUTHORITY  
(SEIAA) BIHAR**


(S.K. Karn)  
Member- Secretary

Memo No. :- **141**

Patna, dated: 16/09/13

Copy forwarded to : The Secretary, Environment & Forests Department, Sichaibhawan, Patna/ The Chairman, Bihar State Pollution Control Board, Beltron Bhawan, IInd Floor, LBS Nagar, Jawahar Lal Nehru Marg, Shastrinagar, Patna- 800023/Chairman, SEAC, Bihar/Chairman, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi-23/Chief Conservator of Forest (C), Ministry of Environment & Forests, Regional Office (EZ), A/3, Chandrasekharpur, P.O. Rail Vihar, Bhubaneswar - 751023/, Advisor (EIA), Paryavaran Bhawan, Ministry of Environment & Forests, CGO Complex, Lodhi Road, New Delhi- 110003/ Guard File.

Yours faithfully,



MEMBER SECRETARY  
STATE ENVIRONMENT IMPACT  
ASSESSMENT AUTHORITY  
(SEIAA) BIHAR

(S.K. Karn)  
Member Secretary  
SEIAA, Bihar.