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STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY, BIHAR

Beltron Bhawan, Shastri Nagar, Patna-800023

Ref. No. 07

Dated- 26/10/12

To,

Sri Subhash Pandey,
Registrar,
Indian Institute of Technology, Patna
Patliputra Colony,
Patna-800013

Sub: Environmental Clearance for the proposed IIT, Patna at Bihta.

Sir,

With reference to your letter No. IITP/IWC/208/2012 dated 30/07/2012 and subsequent letter No. IITP/IWC/208/2012 dated 30/7/2012, the proposal has been examined by SEAC and processed in accordance with the EIA Notification, 2006 and its amendment thereof. It is noted that the salient features of the project for which Environmental Clearance has been accorded by SEIAA are as follows:

Land area	:	20,23,436.5 sqm
Built-up area	:	137,997.62 sqm
Water consumption	:	Total water demand for the Campus is 1500m ³ /d
Power requirement	:	7.0 MVA
Connectivity	:	The project site is adjacent to SH-2. Bihta is the nearest large town. The project site is at a distance of 35 km (approx) from Patna.
Community facilities	:	Sports complex, stadium, swimming pool, gymnasium, club houses, cafeteria, indoor auditorium, open air theatre.
Parking needs	:	Total number of Car parking within IITP campus is 1133 nos. (approx), which is as per the design standard requirement.

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Part A- SPECIFIC CONDITIONS

I. *Construction Phase*

Facility of labourers during construction:-

- i. Provision of drinking water, wastewater 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. In case of non availability of the sewer system, an onsite treatment system has to be provided.
- iii. Health and safety of the workers should be ensured during construction. Personnel protective equipment like helmets, earmuffs, 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. Disposal of muck including excavated material 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.
- ii. Diesel generator sets during construction phase should have acoustic enclosure and should conform to E(P) Rules prescribed for air and noise emission standards.
- iii. Vehicles/equipment 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.
- iv. Regular supervision of the above and other measures should be in place all through the construction phase so as to avoid disturbance to the surroundings.
- v. 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.
- vi. Loading and unloading operations should not be carried out in open areas.
- vii. Use of Ready-Mix concrete is recommended for this project.
- viii. Adequate measures to be adopted to avoid wastage of water for curing of concrete structures.
- ix. Promotion of use of cleaner fuel and fuel quality improvement should be done. Excessive energy consumption and fuel usage should be avoided.
- x. Accumulation/stagnation of water should be avoided to ensure vector control.

Selection of materials for better energy efficiency:-

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- i. Use of energy efficient construction materials should be ensured to achieve the desired thermal comfort.
- ii. Fly Ash is to be used for construction as per Notification No. S.O. 769(E) dated 14.09.1999 amended vide Notification No. S.O. 979 (E) dated 27.8.2003 and S.O. 2804 (E) dated 03.11.2009 of the Ministry of Environment & Forests, Govt. of India.
- iii. 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.
- iv. Use of energy efficient lighting systems e.g. High Pressure Sodium Vapour (HPSV) Lamps, LED etc. should be promoted. Solar energy should be used for outdoor lighting. Out of total 169 nos. outdoor lighting, at least 25 % of external lighting will be based on solar power, as proposed, Solar water heating will also be introduced in building requiring hot water.
- v. Passive solar cooling to be incorporated in building design. Buildings should be oriented for ensuring natural ventilation and day lighting.
- vi. Proper insulation of roof should be provided to achieve desired thermal comfort. Use of light coloured, reflective roofs having an SRI (solar reflectance index) of 50 % or more should be incorporated.
- vii. Adequate open space, greenery and water bodies to be provided as per rules.
- viii. Restrict the use of glazed surface as per National Building Code 2005.

Water Body Conservation:-

- i. The water bodies, if any, should not be lined and the embankments should not be cemented. The water bodies are to be kept in natural conditions without disturbing the ecological habitat.

Plantation Proposed:-

- i. The landscape planning should include plantation of native species. The species with heavy foliage, broad leaves and wide canopy cover are desirable. Water intensive and/or invasive species should not be used for landscaping. Plantation should be done in consultation of the Department of Forests, Govt. of Bihar

Water supply:-

- i. Water requirement during construction phase shall be met from municipal supply. Ground water should not be abstracted without prior permission of the competent authority as per the Central Ground Water Board.

Sewage Treatment Plant:-

- i. As per the proposal submitted by the proponent waste water shall be treated in STP.

Rain Water Harvesting Scheme:-

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- i. The proponent must collect rainwater from roof-top catchments and reuse for various purposes after necessary cleaning. Water bodies should be created and used for storing rain water. Adequate retention time and storage provisions should be provided for harvesting rainwater.
- ii. Adequate firefighting storage should be provided as per norms.

Municipal Solid Waste Management:-

- i. Adequate provision shall be made for storage of solid waste and adequate means of access shall be provided. 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 & standards of competent authority for traffic management. Bell mouth type arrangement should be made at the entry & exit. Proper traffic management plan should be adopted in consultation with Traffic authorities.

Others:-

- i. Efficient management of indoor air quality must be ensured for health and safety of the users.
- ii. 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.
- iii. Provisions should be kept for the integration of solar water heating system.

II. Operation Phase

Water Supply:-

- i. Water requirement during operation phase shall be met from municipal supply. Ground water should not be abstracted without prior permission of the competent authority.
- ii. As proposed, low flow appurtenances shall be used in the buildings. Water meters conforming to ISO standards should be installed in the buildings to monitor the daily water consumption. Use of water efficient devices/fixtures and appliances should be promoted. Installation of dual flushing system should be considered to conserve water.
- iii. The proponent practice rainwater harvesting on regular basis.

Sewage Treatment Plant:-

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- i. As per the proposal submitted by the proponent wastewater shall be treated in STP. Treated sewage should conform to E(P) Rules. Treatment Plants should be monitored on a regular basis. Reuse of treated wastewater should be carried out as proposed.

Emission from Diesel Generator Set:-

- i. The stack height and emissions from D.G. sets should conform to the norms of Central Pollution Control Board. The certification of space design for DG sets should be done by competent authority.

Ensure Energy Efficiency:-

- i. Use of energy efficient electrical systems should be promoted. High efficiency lamps with electronic ballasts should be used.
- ii. 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 be based on cleaner fuel.
- iii. The project proponent should resort to solar energy at least for street lighting/indoor lighting and water heating.
- iv. Energy Audits should be conducted on a regular basis.

Transport Management:-

- i. Use of public mode of transportation should be promoted. Use of the least polluting type of transportation should be promoted. Adequate parking space should be provided as per norms.
- ii. Pathways should be covered or shadowed by tree canopy as far as practicable. Transport system should be such that traffic will be calm in neighborhoods. Traffic within the project site should be restricted by regulation. Adequate vertical and horizontal clearances of overhead electric power and telecommunication lines should be provided.

Solid Waste Management:-

- i. The proponent should abide by the Municipal Solid 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 wastes. The solid waste is to be disposed off in consultation with municipal authority.
- ii. The proponent should provide different coloured bins for different categories of waste and ensure complete segregation of biodegradable and non-biodegradable wastes. The solid waste from different collection and storage bins should be finally collected at transfer stations. Further

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- 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.
- iii. Spent oil from DG sets should be stored in HDPE drums in isolated covered facility and disposed off as per the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008. Spent oil from DG Sets should be disposed off through registered recyclers only.
 - iv. Various types of electrical and electronic wastes generated in the buildings, which includes PC, Xerox machine components etc. should be collected separately for transportation to the authorized recyclers approved by the State/Central Pollution Control Boards. There should also be provision for storage of these wastes in the building before transportation. The e-waste collected should be processed by authorized recycling unit. The proponent should abide by e-waste (Management & Handling) Rules, 2011.

Others:-

- i. The implementation of Environmental Management Plan should be carried out, as proposed. Regular monitoring should be carried out during construction and operation phases.
- ii. The project proponent should provide guidelines to the users to ensure conservation of energy and water. In house environmental awareness campaigns should be carried out at regular intervals to ensure environmental protection.
- iii. Firefighting systems should be designed in compliance with the WBFS and NBC norms. Preventive measures should be adopted for Risk & Disaster Management as per the provisions of the National Building Code 2005.
- iv. As a measure of precaution against accidents, Disaster Management Plan should be prepared. Good housekeeping practices and preventive measures should be adopted to prevent spread of diseases/vectors from the laboratory areas to the neighboring habitation areas.
- v. Environmental Management Information System shall be maintained properly.

Part-B General Conditions

- 1. The environmental safeguards contained in the EMP Report should be implemented in letter and spirit.
- 2. All the labourers to be engaged for construction works should be screened for health and adequately treated before issue of work permits. Provision should be made for the supply of kerosene or cooking gas to the labourers during construction phase.

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3. In case of any violation of the conditions laid down in this Environmental Clearance, Section 16 of the Environment (Protection) Act, 1986, will be applicable. In case of any change(s) in the scope of the project, the project would require a fresh appraisal by the SEAC, West Bengal.
4. The State Expert Appraisal Committee, Bihar 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.
5. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives.
6. These stipulations would be enforced among others under the provisions of the Water (Prevention & 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 including the amendments and clarification circulars.

Yours faithfully,



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

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Yours faithfully,



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