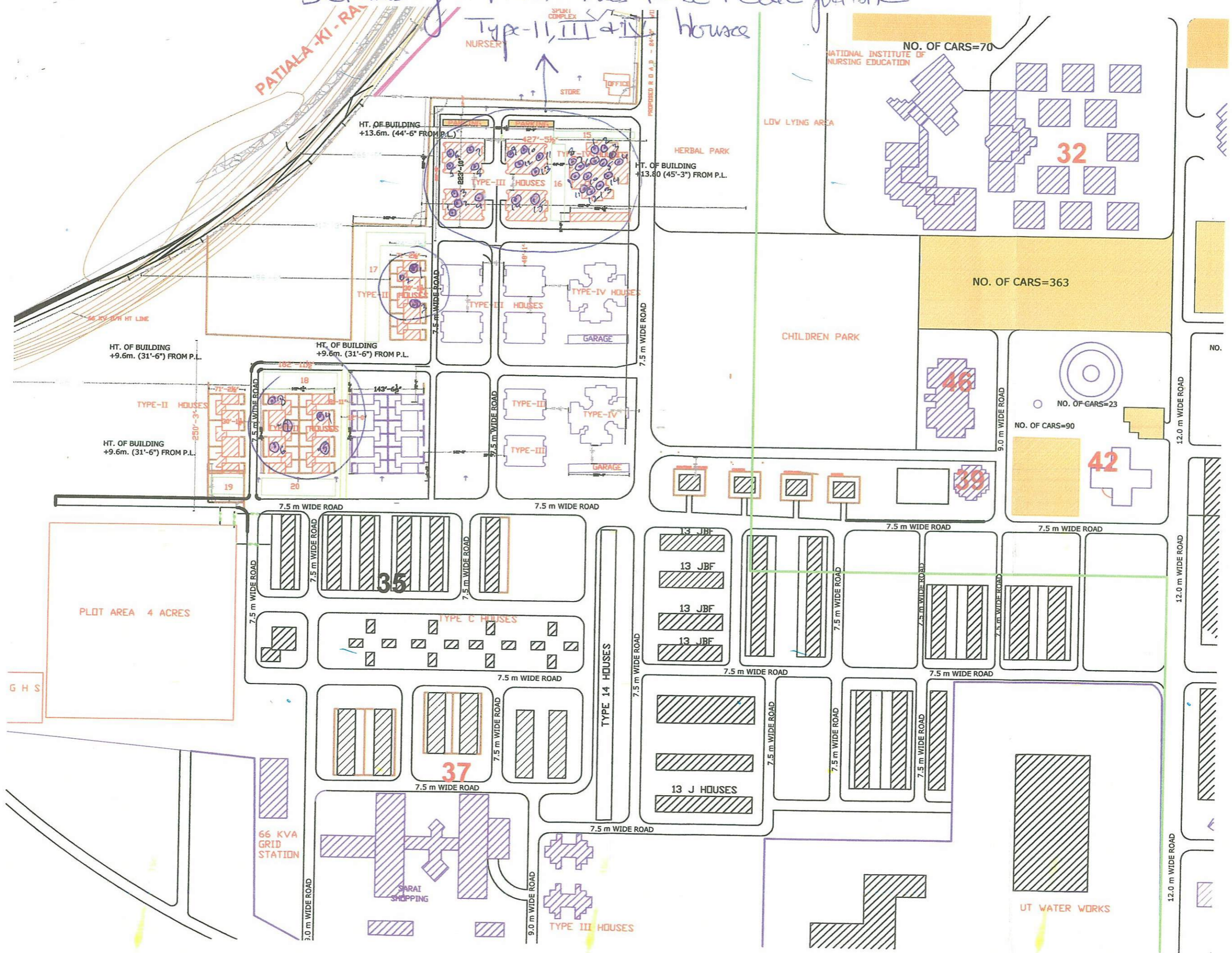


Details of 37 No. Trees to be Felled for site
 Type-II, III & IV Houses



Application for Environmental Clearance FORM 1

(I) BASIC INFORMATION	
1.	<p>Name of the Project:</p> <p>Expansion of PGIMER (Postgraduate Institute of Medical Education and Research) Chandigarh by addition of hospital, hostels and houses with a built up area of 75161.73 sq.m., Sector – 12, Chandigarh (U.T.)</p>
2.	<p>S. No. I the schedule</p> <p>The Project falls in S.No. 8 (a) Building and Construction Project</p>
3.	<p>Proposed capacity / area / length/ tonnage to be handled / command area / lease area / number of wells to drilled</p> <p>PGIMER is an institute of national repute in Medical Education and Research and has proposed new buildings as in Table-1 with a total built up area of 75161.73 sq.m. The buildings are without basement except for 250 bedded hospital which is with single basement. The height of the buildings vary from G+1 to G+4</p> <p>The proposed buildings include a 250 bedded hospital, NIPS college hostel and Mess, Nursing hostel and Mess, Married/Bachelor doctor hostel, classroom, Type II/III/IV/V/VI houses.</p> <p>The land use at PGIMER is-Total area is 277 Acres, out of which ground coverage for already constructed area is 33 Acres, ground coverage for proposed building is 4.67 Acres. An area of 122.20 Acres is under green belt/parks. Ground coverage for parking is 24.25 Acres. Area under footpath/road is 35 Acres and other open area is 57.88 Acres.</p> <p>The proposal for expansion of PGIMER is approved by Govt. of India Ministry of Health and Family Welfare (Annexure-I). The land ownership documents are attached at (Annexure-II).</p> <p>The total estimated cost of the Project is Rs. 183 Crores of which Rs 990 lac will be spent on environment protection measures.</p>

Table 1. Details of coming buildings in future

S. No.	Name of the building/Block	No. of storeys/ Total height	Whether basement is there or not. If yes, No. of basements	Total built up area (including for each floor and basement) in sq.m.	Whether centralized AC or not	Population /Bed
1	250 bedded hospital	G+4	Single basement	25,823.73	Yes	250 Beds.
2	NIPS College, Hostels (128 nos.) & Mess	College G+3 Hostel-G+3	-	7,798		250 Pop.
3	Nursing hostel, Mess (128 Nos.)	G+3	-	4,306		128 Pop.
4	Married doctor hostel (96 nos.)	G+4	-	4,992		288 Pop.
5	Bachelor doctor hostels (192 nos.)	G+4	-	5,184		192 Pop.
6	Nine hostel (120 nos.)	G+2	-	3,694		120 Pop.
6.1	Classroom-2	G+1	-	-		-
7	Type II houses (72 nos.)	G+2	-	4,752		288 Pop.
8	Type III houses (64 nos.)	G+3	-	5,120		256 Pop.
9	Type IV houses (32 nos.)	G+3	-	3,136		128 Pop.
10	Type V houses (28 nos.)	G+3	-	5,376		112 Pop.
11	Type VI houses (20 nos.)	G+1	-	4,980		80 Pop.

4.	New/Expansion /Modernization	Site pictures at different areas where construction is proposed are enclosed at Annexure-3
5.	Existing capacity/ Area etc	An existing hospital and Medical Research Institute with 33 Acres ground coverage for already constructed area. The total built up area of existing construction before 7.7.2004 is 301127.01 sqm and after 7.7.2004 is 83316.54 sqm.
6.	Category of the project 'A', 'B', 'C'	Category-B
7.	Does it attract the general conditions? If Yes, Please Specify.	No
8.	Does it attract the specific conditions? If Yes, Please Specify	No
9.	Location	PGIMER Campus, Sector-12, Chandigarh 30° 45' 48" N, 76° 46' 27" E.
	Plot/ Survey/Khasra No.	PGIMER Campus Sector-12, Chandigarh as earmarked in Layout Plan.
	Village	-
	Tehsil	-
	District	-
	State	Chandigarh (U.T.)

10.	Nearest railway station / Airport along with Distance in kilometers.	Distance of Chandigarh Railway Station@ 10 Km Distance of Chandigarh AirPort@ 12 Km
11.	Nearest town/District headquarters along with distance in kilometers	The nearest town and district headquarters is Chandigarh
12.	Village Panchayat, Zilla Parishads, Municipal corporation , local Bodies (Complete Postal address with telephone No. to be given)	Municipal Corporation Chandigarh New Deluxe Building Sector – 17C Chandigarh
13.	Name of the applicant	Hospital Engineer (Planning)
14.	Registered address	PGIMER, Sector-12, Chandigarh
15.	Address for correspondence:	
	Name	K.L Chaudhary
	Designation(owner/ Partner/CEO)	Hospital Engineer (Planning)
	Address	PGIMER, Sector-12, Chandigarh
	Pin Code	160012
	E- Mail	-
	Telephone No.	9417006993
	Fax No.	0172-2748368
16.	Details of alternative Sites examined, if any. Location of these sites should be shown on the topo Sheets.	No alternate site was examined. Expansion project only.
17.	Interlinked Projects	None
18.	Whether separate application of interlinked project has been submitted?	Not Applicable
19.	If Yes, date of submission.	Not Applicable
20.	If No, reason	Not Applicable
21.	Whether the Proposal involves approval / Clearance under: If Yes , details of the same and their to be given . (a) The Forest Conservation, Act,1980 (b) the Wild life Protection Act,1972 (c) The C.R.Z Notification, 1991.	The project site is located within 10 Km of Sukhna wild life sanctuary. The project propONENT has applied to Chief Wild Life Warden for authentication of project location and recommendation/comments thereon if any and the letter /map authenticating the project site is already submitted to SEAC. Clearance under The Forest Conservation, Act, 1980 and The C.R.Z Notification, 1991, not applicable.

22.	Whether there is any government Order / policy relevant / relating to the site?	No
23.	Forest land Involved (hectare)	No forest land is involved
24.	Whether there is any litigation pending against the project and /or land in which the Projects is proposed to be set up? (a) Name of the court (b) Case no. (c) Orders / Directions of the Courts , if any and its relevance with the Project	No court case is pending against the project and/or land in which project is proposed to be at up.

I hereby given the Under taking that the data and information Given in the application and enclosure are true to the best of my knowledge and in brief and belief and I am aware that if any part of the data and information submitted is found to be false or misleading at any stage, the project will be rejected and clearance give, if any to the project will be revoked at our risk and cost.

I further certify that no construction shall be undertaken till the environmental clearance is obtained.

Date: 9.4.2012
Place: Chandigarh


Signature of the applicant

With Name and Full Address

Mr. K.L Chaudhary
Hospital Engineer (Planning)
Department of Hospital Engineering and Planning
PGIMER, Sector-12, Chandigarh

(Project Proponent/Authorized Signatory)

NOTE:

1. The project involving clearance under Coastal Regulation zone Notification, 1991 shall submit with the application a C.R.Z map duly demarcated by one of the authorized agencies, showing the project activities, w.r.t. C.R.Z (at the stage of TOR) and the recommendation of the state coastal zone Management Authority (at the stage of EC). Simultaneous action shall also be taken to obtain the requisite clearance under the provisions of the C.R.Z Notification, 1991 for the activities to be located in the CRZ.
2. The project to be located within 10 km of the National parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of wild Animals, the project proponent shall submit the map duly authenticated by chief wildlife warden showing these features vis-à-vis the project location and the recommendation or comments of the Chief wildlife warden thereon (at the stage of EC).
3. All correspondence with the Ministry of Environment & Forests including submission of application for TOR/Environmental Clearance, subsequent clarification, as may be required from time to time, participation in the authorized signatory only. The authorized signatory should also submit a document in support of his claim of being an authorized signatory for the specific project."

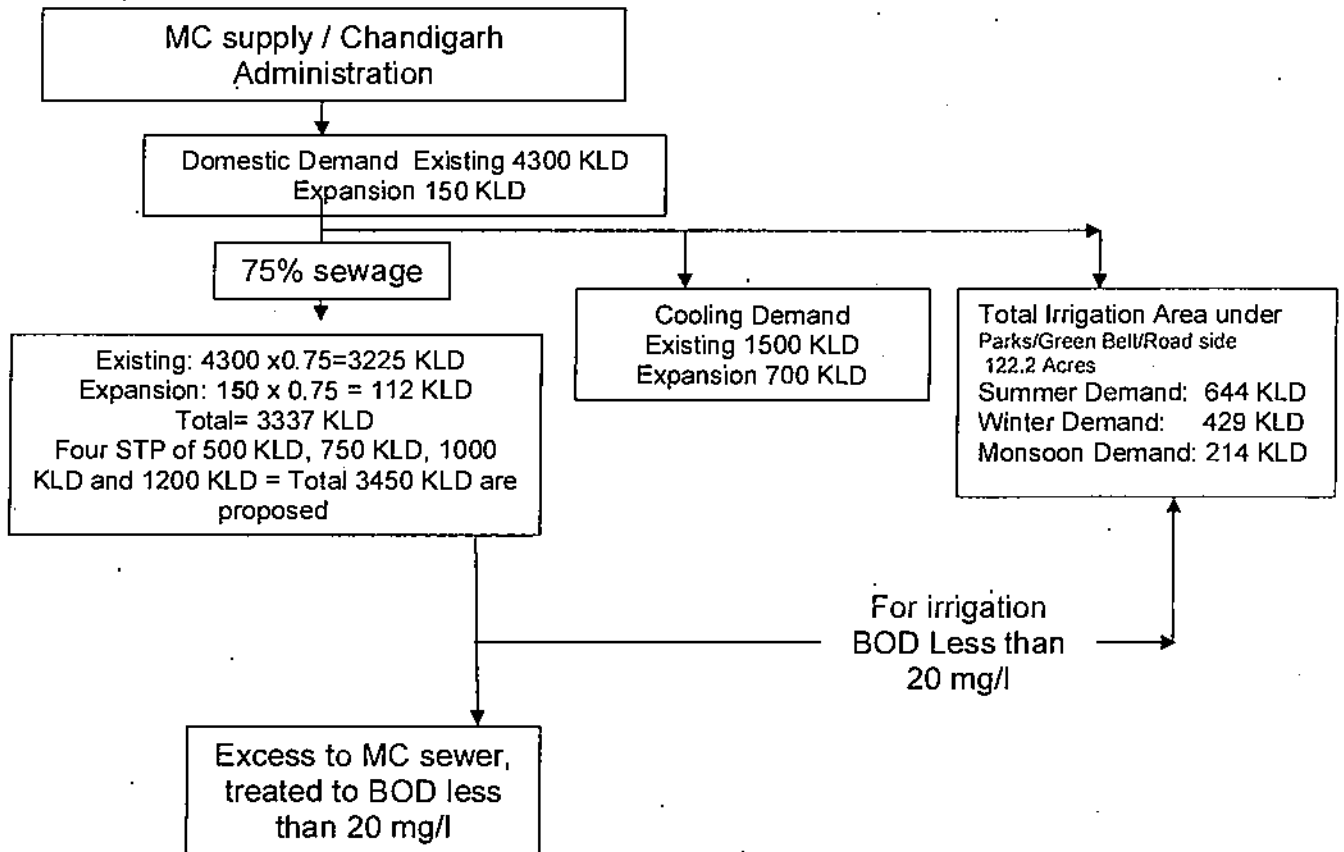
(II)	Activity
-------------	-----------------

1.	Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.		
S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
1.1	Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)	No	Land earmarked to PGIMER for expansion.
1.2	Clearance of existing land, vegetation and buildings?	No	Vacant land
1.3	Creation of new land uses?	Yes	The proposed construction will conform to approved land use.
1.4	Pre-construction investigations e.g. bore holes, soil testing?	Yes	The contour plan is attached as Drawing-4; The contour varies from @ 95 to 100. No pre-construction activities are done
1.5	Construction works?	Yes	As per proposed land use given in Area Statement on Layout Plan, at Drawing-5
1.6	Demolition works?	No	-
1.7	Temporary sites used for construction works or housing of construction workers?	Yes	At Peak Construction Activity, the number of workers shall be @ 220 approx. A part of this work force shall be from the local area and shall not require any residential facilities. Of this @ 60-75 workers shall reside at the site during Peak Construction Activity over a period varying from 12-18 months (PERT-CPM Chart/Table enclosed as Annexure-4).

1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations	Yes	See Land Use details in Drawing-5 (layout plan) and Section-3 of Basic Information (area details chart Table-I). Excavation will be involved for laying the foundation of the building and basements. A single basement is provided only in 250 bedded hospital. The soil excavated shall be used in cut and fill and for landscaping. No soil shall be thrown as a waste material												
1.9	Underground works including mining or tunneling?	Yes	Single basement as in 1.8												
1.10	Reclamation works?	No	-												
1.11	Dredging?	No	-												
1.12	Offshore structures?	No	-												
1.13	Production and manufacturing processes?	No	-												
1.14	Facilities for storage of goods or materials?	Yes	Temporary storage will be made for storing cement and other construction materials within the site												
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	The existing population of PGI is 5011. The project design population is worked out as below, <table border="1" data-bbox="906 1370 1406 1594"> <thead> <tr> <th>Hospital</th> <th>Activity</th> <th>Population</th> </tr> </thead> <tbody> <tr> <td></td> <td>250 bedded (1 patient+ 1 attendant)</td> <td>500</td> </tr> <tr> <td>Hostel House</td> <td>+</td> <td>864 +856 = 1720</td> </tr> <tr> <td></td> <td>TOTAL</td> <td>2220</td> </tr> </tbody> </table> A Floating population of @ 10%=220 is taken. The domestic water demand for the project is worked out as per Annexure-VI of EIA Manual for Building and Construction Projects by MoEF, Gol and NBC 2005:	Hospital	Activity	Population		250 bedded (1 patient+ 1 attendant)	500	Hostel House	+	864 +856 = 1720		TOTAL	2220
Hospital	Activity	Population													
	250 bedded (1 patient+ 1 attendant)	500													
Hostel House	+	864 +856 = 1720													
	TOTAL	2220													

		<p>(i) For hospital Including laundry with no. of beds exceeding 100 MoEF EIA Manual lays down 450 lpcd (250 beds)= 250X 450 = 112500 liters = 112.5 KLD</p> <p>(ii) For hostels/residences (135lpcd) (856+864) X135=25800 liters=25.8 KLD.</p> <p>(iii) Floating (45 lpcd) 220X45=9900 liters= 9.9 KLD.</p> <p>Total domestic water demand 148.2 say 150 KLD</p> <p>Waste water @ 75% (70-80% as per Manual of Sewage & Sewage Treatment) of water requirement 112 KLD will be generated. Currently, the sewage generated is sent to MC sewer without any treatment as Chandigarh has a terminal STP. However as the BOD limit fixed by Chandigarh Administration for discharge into public sewer is 100 mg/l; PGI now has proposed STP cum ETP of 500 KLD, 750 KLD, 1000 KLD & 1200 KLD for the entire institute as per feasibility report attached that will also cater to wastewater generated from expansion. The STP/ETPs will be based on MBBR/SAFF technology. The treated sewage shall be recycled for irrigation and excess shall be discharged into public sewer.</p> <p>The construction Phase water requirement varies from 30% of total water demand i.e 22 KLD to 45 KLD depending upon phases of construction.</p> <p>For details See water balance given below:</p>
--	--	--

WATER BALANCE EXISTING & EXPANSION



Demand for Irrigation At Institute

	Summer	Winter	Monsoon
Area in acres	122	122	122
Design application rate of sewage per acre per week in inches	0.4	0.4	0.4
Rainfall contribution	0.1	0.2	0.3
Net application rate per acre per week	0.3	0.2	0.1
1 acre = 43560 sq. feet	43560	43560	43560
1 cub feet = 7.48 gallaon	7.48	7.48	7.48
Water required gallons per week per acre	993777.84	662518.6	331259.3
water required liters per week per acre (1 gallon = 4.54 liters)	4511751.4	3007834	1503917
water required KL/day	644 KLD	429 KLD	214 KLD

		<p>Wastes: Construction waste shall be recycled to the extent possible within project for flooring and roads or sold to recyclers.</p> <p>During operation phase following waste shall be generated: The existing population of PGI is 5011. At the rate of 0.4 kg/capita @2004kg/day of solid waste is generated which is uplifted by MC.</p> <p>On expansion Solid waste from hostels/houses @0.4kg/capita =2220X0.4= 888 kg/day. Currently solid waste is sent to MC site. For expansion, the solid waste shall be segregated to biodegradable and non-biodegradable waste in the earmarked area. The recyclable inorganic waste shall be sold to local resellers. Any non recyclable waste or non-usable (inert waste) shall be sent to dumping site of MC. In Chandigarh a pellet making plant from bio-degradable waste has been provided by the MC. The biodegradable waste shall be sent for this plant and an option to treat a portion of biodegradable waste for making compost using a mechanical bio-composter to be used as manure over green belt is also kept in future plan. Separate area is earmarked for handling solid waste in Drawing-5</p> <p>The PGI has currently 1865 beds and @0.5kg/bed, about 932kg/day of biomedical waste is generated. On expansion Biomedical waste @ 500gm/bed = 250X0.5 =125kg/day shall be generated from expansion. The incinerable component of waste is burnt in two no. incinerators of 150 Kg/hour each. On expansion, the various components of biomedical waste shall be handed over to the authorized bio-medical waste service provider as notified by CPCC and or shall be burnt in incinerator provided at PGI or disposed of as per rules as laid</p>
--	--	--

		<p>down in authorization to be obtained under. Biomedical Waste Management and Handling Rules. No new incinerator is proposed.</p> <p>E-WASTE: As per E-waste Management and Handling Rules, that will come effect from 1 May 2012, the responsibility of consumer is to ensure that e-waste generated by them is channelized to authorized collection centre(s) or registered dismantler or is returned to pick up or take back services provided by producer. Accordingly The disposal of used/discarded e-waste by PGI shall be by- Identifying appropriate vendors who are authorized by Government with demonstrated capabilities to recycle the e-waste in eco-friendly manner; ensuring that all applicable legal and statutory requirements are fulfilled for disposal of such wastes; exploring possibilities with electronics suppliers to take full cycle responsibility of the electronic goods supplied and by exploring a buy back option. Also CII-yi Chandigarh and Attero recycling, Noida launched voluntary project for e-waste management for Chandigarh city. The first stage of the project would see industries/organizations as nodal points and in second phase the project will move on to cover the residence sector and will place e-waste disposal bins in the city.</p> <p>The hazardous Waste (Used oil from DG sets) shall be stored in lock and key and shall be sent to authorized resellers by CPCC. The authorization under Hazardous Waste Rules from CPCC shall be undertaken for which application is already made. There are existing 21 DG sets. 9 DG sets are proposed on expansion. At @50 litres/DG set/annum @1500 litres used oil which falls in category 5.1 shall be generated/annum.</p>
--	--	--

1.16	Facilities for long term housing of operational workers?	Yes	The expansion is to provide residential facilities to existing and future workers (doctors)
1.17	New road, rail or sea traffic during construction or operation?	Yes	During construction phase movement of @ 20-30 vehicles (max.) of those supervising the work or that ferrying construction material may be there. It shall be ensured that these have PUC certificates. On completion of the project the vehicles of the patients, staff members and the visitors may be there. Awareness program as displaying posters at Parking Areas will be done on need for keeping PUC certificates for vehicles.
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc	No	No new infrastructure for this purpose shall be required. The site has well connected roads. Only internal roads as per layout plan will be made.
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	-
1.20	New or diverted transmission lines or pipelines?	No	-
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	No	None
1.22	Stream crossings?	No	There is no stream crossing the site. The Patiala Ki Rao runs adjacent to site in North-South direction.
1.23	Abstraction or transfers of water from ground or surface waters?		The water demand is given in water balance diagram. The water is supplied by MC/Chandigarh Administration. There are no tube wells. The rainwater harvesting shall be undertaken from rooftop in housing and hostel areas. For the roof top area @ 160003 Sq.m area, with annual average rainfall of 800 mm and assuming runoff coefficient 0.8, total runoff available is 10240 KL/annum. The ground water shall be recharged by providing, Rain Water Harvesting pits to tap roof top water in respective buildings, as per guidelines of CGWB.
1.24	Changes in water bodies or the land surface affecting drainage or run-off?	No	-

1.25	Transport of personnel or materials for construction, operation or decommissioning?	Yes	Clause-1.17, Section-II (Activity) Form-I
1.26	Long-term dismantling or decommissioning or restoration works?	No	--
1.27	Ongoing activity during decommissioning which could have an impact on the environment?	No	--
1.28	Influx of people to an area in either temporarily or permanently?	Yes	The design population for the expansion is 2220 and @ 220 floating population is expected. As per PERT/CPM Table in Annexure-IV, the project completion is expected in August 2013. The Influx of people will be generally restricted to incoming patients and their visitors coming to hospital.
1.29	Introduction of alien species?	No	--
1.30	Loss of native species or genetic diversity?	No	--
1.31	Any other actions?	--	--
2.	Use of Natural resources for construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply):		
S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of Activity information data
2.1	Land especially undeveloped or agricultural land (ha)	No	See-Clause 1.1 Section-II of Form-I
2.2	Water (expected source & competing users) unit: KLD	Yes	See EMP, Water Balance Diagram and other Details. See section 1.23 of Section-II (Activity). This is a planned construction and there are no competing users. The water supply source is Municipal supply.

2.3	Minerals (MT)	No	-
2.4	Construction material – stone, aggregates, sand/s oil (expected source – MT)	Yes	These materials shall be procured from authorized outlets in and around the project site. The estimated consumption is as: Total Aggregates-52000 Cu.m Cement 5.7 Lacs bags, Bricks 1.33 Crore, Steel 7220 Tonnes.
2.5	Forests and timber (source – MT).	No	The Project shall involve minimum use of timber during construction purpose. All material required for shuttering purpose shall be that of mild steel. During construction itself a mix of Particle Board (e.g. For Cupboards and Door Panels), shall be used to make minimum use of wood. Similarly for residential purpose, hostels and hospital a mix of aluminium/MS windows, chowkets and particle board shall be used.
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)	Yes	Total Energy requirements for expansion are 6521 KW without energy saving measures. However actual after energy saving measures is 5411 KW to be provided by Electricity Department of which 3011 KW for hostels and residences and 2400 KW for 250 bedded hospital. Load calculations enclosed along as Annexure: 5. 9 DG sets of capacity 10250 KVA are proposed for power back-up for expansion to be run of HSD
2.7	Any other natural resources (use appropriate standard units)	No	--
3.	Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health.		
S.No.	Information/Checklist confirmation	Yes/N o	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)	No	The proposed project is a hospital and residence/hostels and does not envisage use of hazardous substances/chemicals as per MSIHC Rules

3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	No	--
3.3	Affect the welfare of people e.g. by changing living conditions?	Yes	The PGIMER is an institute of National Importance in medical Research. It is providing tertiary care facilities to the area. With expansion in facilities it will be able to cater to more patients in the region
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.	No	--
3.5	Any other cause	No	--
4.	Production of solid wastes during construction or operation or decommissioning (MT/month)		
S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
4.1	Spoil, overburden or mine wastes	No	The soil shall be excavated for lying of foundations & basements and shall be used for cut. & fill and landscaping within campus.
4.2	Municipal waste (domestic and or commercial wastes)	Yes	See 1.15
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)	Yes	See 1.15
4.4	Other industrial process wastes	No	--
4.5	Surplus product	No	--
4.6	Sewage sludge or other sludge from effluent treatment	Yes	See-Clause 4.2/1.15, Section-II (Activity) of Form-I Sludge from STP shall be used as manure.

4.7	Construction or demolition wastes	Yes	See-Clause 4.2/1.15, Section-II (Activity) of Form-I
4.8	Redundant machinery or equipment	No	--
4.9	Contaminated soils or other materials	No	--
4.10	Agricultural wastes	No	--
4.11	Other solid wastes	Yes	Biomedical Wastes/ E-waste See 1.15
5.	Release of pollutants or any hazardous, toxic or noxious substances to air (Kg/hr)		
S.No.	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources	Yes	<p>9 DG Sets of 10250 KVA capacity shall be provided. These shall be run on Diesel. At present 21 DG sets of 9405 KVA are there.</p> <p>These are to be used only as Standby and shall comply with emission limits as given in G.S.R. 520 (E), Environment (Protection) Amendment Rules 2003 at the manufacturing stage itself. The DG sets shall further be procured from agencies complying the noise emission standards at the manufacturing stage itself as per G.S.R. 371(E), the Environment (Protection) second Amendment Rules, 2002. All DG sets shall be equipped with exhaust chimney conforming to norms laid down by appropriate statutory bodies like CPCB / CPCC / MOEF</p> <p>In addition unit has 6 baby boilers, 2 of 850 kg/hr and 2 of 1000 kg/hr and LDO is used as fuel. There are also 2 incinerators of 150 kg/hr. No new incinerator or boiler is proposed.</p>

② 2 of 1.50 Tonne

5.2	Emissions from production processes	No	--
5.3	Emissions from materials handling including storage or transport	No	<p>During operation phase no such material handling shall be there.</p> <p>In order to reduce transport/vehicular emissions awareness on Use of PUC by residents/visitors shall be done. Promotion of travel on foot/bicycles by campus residents including feasibility of common pick and drop facility shall be looked into including use of battery driven vehicles.</p> <p>With PGI being on proposed Metro line, future visits to vehicles by visitors may also reduce.</p>
5.4	Emissions from construction activities including plant and equipment	Yes	<p>Dust may be generated during activities as excavation of foundation and basement. The excavation shall be done in a minimum time using machines. The vehicles which ferry construction material as sand are to be covered from top and made wet before movement and thus no dust is generated. The construction activity shall be segregated in phases to avoid any significant generation of dust. Also dust will be generated during the interiors & painting works, the Paints & adhesives used shall be of Low VOC & without lead content.</p>
5.5	Dust or odours from handling of materials including construction materials, sewage and waste	Yes	<p>The construction material involved shall not provide any odour. The STP is based on Activated Sludge Process and no odours shall be generated from the operation. A tree belt is further proposed along the STP boundary and Solid Waste Segregation Area to mitigate crossover of odours if any.</p>

5.6	Emissions from incineration of waste	Yes	The unit has two incinerators of 150 Kg/hour each and operating with Consent from CPCC under Bio-medical Waste Management & Handling Rules, 1998. It has also applied for consent under Air (Prevention and Control of Pollution) Act, 1981.
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)	No	--
5.8	Emissions from any other sources	No	--
6.	Generation of Noise and Vibration, and Emissions of Light and Heat:		
S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
6.1	From operation of equipment e.g. engines, ventilation plant, crushers	Yes	Unit will install 9 DG Sets 10250 KVA total capacity. The DG set will be with in-built acoustic enclosure as approved by CPCB and conforming to MoEF Notification GSR 371 (E). In addition the landscape plan is attached at Drawing-7. The project shall plant trees along the boundary, road sides and parking areas as suggested by the landscape architect. The layout is further so done that there is ample distance between roads and activities as hospital, residences. The trees shall act as a buffer.
6.2	From industrial or similar processes	No	Not Applicable
6.3	From construction or demolition	Yes	The noise from construction activities shall be contained within the area by providing barriers, planting trees from the very

			beginning. No construction activities at night shall be there. No demolition is involved.
6.4	From blasting or piling	No	Not Applicable
6.5	From construction or operational traffic	Yes	<p>The traffic during construction phase may be around only 20-30 vehicles in a day. This shall not have any significant impact. During the operational phase personnel vehicles shall be used by staff or visitors for which adequate parking is given (Drawing-6). Chandigarh Administration has also proposed MRTS for the area which may discourage use of personal vehicles. Further awareness to travel by foot/bicycles/ provision of common transport for campus residents is also proposed. Signs for no-Honking shall be displayed at different places. The hospital further is sensitive area from noise point of view, paths for the movements of patient care vehicles as ambulances can be earmarked so that they are not to blow sirens. The ambulance drivers further shall be made aware not to use sirens at night but to use flash lights.</p> <p>In addition adequate green area is given, so that noise impact is minimized.</p> <p>As per EIA manual by MoEF parking requirements are listed as:</p> <p>For Hospitals- 0.5-1.50 ECS per 100 sq.m of floor area For open parking 18 sq.m of ECS For basement 28 sq.m of ECS</p>

			<p>It is further given that for medical institutes for cities with population above 5 lac- one car parking space for 10 beds</p> <p>The PGI has an existing parking area of 817980 Sq.Feet. It has further proposed an area of 163818 sq.feet for expansion. It has proposed a parking for 750 cars for 250 bedded hospital which is well above the norms. The hostels and residences will have parking within the plots both open and under stilt.</p>
6.6	From lighting or cooling systems	No	-
6.7	From any other sources	No	-
7.	Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea:		
S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
7.1	From handling, storage, use or spillage of hazardous materials	No	The hazardous Waste (Used oil from DG sets) shall be stored in lock and key and shall be sent to authorized resellers by CPCC. M/s Ramky Enviro Engineers Limited, M/s Bharat Oil Company (I) Regd., M/s B.N. Concast (P) Limited, M/s Golden Petro, M/s Aggarwal Mfg. Co. are some of the authorized resellers.
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)	No	The sewage is treated and reused as per Water Balance. Thus this shall not add to any pollutant load.
7.3	By deposition of pollutants emitted to air into the land or into water	No	On expansion there is no point source of emission except 9 DG sets. These will comply with CPCB norms at the manufacturing stage.

7.4	From any other sources	No	-
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?	No	As explained in 7.1 to 7.4, such risk is not expected if mitigation measures as proposed are implemented.
8.	Risk of accidents during construction or operation of the Project, which could affect human health or the environment		
S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances	No	There is no storage of any hazardous chemicals.
8.2	From any other causes	No	The Building shall comply with the requirements of National Building Code towards Fire Safety for multistory structures. The current expansion has only G+1 to G=4 structures.
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc)?	Yes	The area falls under Zone-IV for earthquakes. The Building shall be designed against Earthquakes for Zone-IV requirements as laid down in NBC.
9.	Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality		
S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
9.1	Lead to development of supporting utilities, ancillary development or development stimulated by the project which could have impact on the environment e.g.: •Supporting infrastructure (roads, power supply, waste or waste water treatment etc.)	No	The project is a medical institute of international repute that will provide high end medical research and patient care facilities to people and is not likely to impact the environment adversely if mitigations measures are complied. The project is an expansion in a designated area

	<ul style="list-style-type: none"> • housing development • extractive industries • supply industries • other 		As such any developments around are well defined and controlled
9.2	Lead to after-use of the site, which could have an impact on the environment	No	A permanent medical institute is being expanded.
9.3	Set a precedent for later developments	No	As explained above
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	No	The project is in a developed area and no similar project is expected in near vicinity at present.

(III) Environmental Sensitivity			
S.No.	Areas	Name/ Identity	Aerial distance (within 15 km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	Yes	Sukhna wetland and wildlife sanctuary within 10 Km
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	-	Sukhna lake approx. 6 Km
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	Yes	Sukhna lake/ wildlife sanctuary
4	Inland, coastal, marine or underground waters	No	--
5	State, National boundaries		Punjab Boundary @ 2 Km
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	No	--
7	Defense installations	Yes	Chandimandir is at a distance of 12 Km
8	Densely populated or built-up area	Yes	Chandigarh, however adjacent Sectors 12, 15 are educational areas & less dense.
9	Areas occupied by sensitive man-made land uses (<i>hospitals, schools, places of worship, community facilities</i>)	-	500 m drawing is attached along as Drawing-2. The topographic sheet is attached along as Drawing-1.
10	Areas containing important, high quality or scarce resources (<i>ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals</i>)	No	--
11	Areas already subjected to pollution or environmental damage. (<i>those where existing legal environmental standards are exceeded</i>)	No	There is no critically polluted areas as notified by CPCB within 15 Km. The Test reports on baseline environment are enclosed along as Annexure:6.

12	Areas susceptible to natural hazard which could cause the project to present environmental problems (<i>earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions</i>)	-	The area has not faced any natural hazard except minor earthquake related vibrations some time so far. Site falls in seismic zone IV.
----	---	---	---

(IV)	Proposed Terms of Reference for EIA studies
------	--

The PGIMER has proposed Expansion by addition of hospital, hostels and houses with a built up area of 75161.73 sq.m. in existing campus in Sector – 12, Chandigarh (U.T.). The Project falls in S.No. 8 (a) Building and Construction Project. The proposed buildings include a 250 bedded hospital, NIPS college hostel and Mess, Nursing hostel and Mess, Married/Bachelor doctor hostel, classroom, Type II/III/IV/V/VI houses. The buildings are without basement except for 250 bedded hospital which is with single basement. The height of the buildings vary from G+1 to G+4. The land use at PGIMER is-Total area is 277 Acres, out of which ground coverage for already constructed area is 33 Acres, ground coverage for proposed building is 4.67 Acres. An area of 12220 Acres is under green belt/parks. Ground coverage for parking is 24.25 Acres. Area under footpath/road is 35 Acres and other open area is 57.88 Acres. The total estimated cost of the Project is Rs. 183 Crores. The Project Design Population is 2220 with a floating population of 220.

It is submitted that project be granted clearance subject to compliance of proposals as laid down in EMP that include:

1. The domestic water demand of 150 KLD and that for cooling for expansion 700 KLD. The water to be supplied by MC/ Chandigarh Administration yet ground water recharging is proposed through rain water harvesting at the rate of @ 10240 KL/annum.
2. Total wastewater generated @ 112 KLD shall be treated and recycled for irrigation as detailed out in Water balance diagram along with combined STP/ETPs proposed. A state of art STP based on SAFF/MBBR is proposed. If any excess left that will be disposed to MC sewer.
3. A detailed waste management plan is proposed as below:

Construction waste shall be recycled to the extent possible within project for flooring and roads or sold to recyclers.

Solid waste @ 888 kg/day shall be segregated to biodegradable and non-biodegradable waste in the earmarked area. The recyclable inorganic waste shall be sold to local resellers. Any non recyclable waste or non-usable (inert waste) shall be sent to dumping site of MC. In Chandigarh a pellet making plant from bio-degradable waste has been provided by the MC. The biodegradable waste shall be sent for this plant and an option to treat a portion of biodegradable waste for making compost using a mechanical bio-composter to be used as manure over green belt is also kept in future plan. Separate area is earmarked for handling solid waste

Biomedical waste @ 125kg/day shall be generated from expansion. The incinerable component of which will be burnt in two no. incinerators of 150 Kg/hour each. On expansion, the various components of biomedical waste shall be handed over to the authorized bio-medical waste service provider as notified by CPCC and or shall be burnt in incinerator provided at PGI or disposed of as per rules as laid down in authorization to be obtained under Biomedical Waste Management and Handling Rules.

As per E-waste Management and Handling Rules, that will come effect from 1 May 2012, the responsibility of consumer is to ensure that e-waste generated by them is channelized to authorized

collection centre(s) or registered dismantler or is returned to pick up or take back services provided by producer. The disposal of used/discarded e-waste by PGI shall be done accordingly.

The hazardous Waste (Used oil from DG sets) shall be stored in lock and key and shall be sent to authorized resellers by CPCC.

The authorization under Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 and Biomedical Waste Management and Handling Rules, 1998 shall be undertaken from CPCC.

4. Provision of plantation along the boundary, roads, parks as well as providing a buffer of trees along the STP, solid waste segregation area – providing dust capturing species as per CPCB guidelines and local varieties in consultation with Forest department. A total of 122.2 Acres is earmarked as green belt and landscaped area.

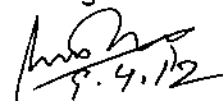
5. Provision of 9 Diesel Gen-sets of total capacity 10250 KVA for standby use only with acoustic enclosures in compliance to MoEF notification GSR 371 (E) and emission levels as per G.S.R. 520 (E), Environment (Protection) Amendment Rules 2003; Chimneys as per CPCB guidelines as well as with scrubbers.

7. Provision of Fire-fighting Measures and an Earthquake resistant structure as laid down in National Building Code and as per drawings provided

8. A total of 24.25 acres is earmarked for parking. Provision of parking area of 163818 sq.ft. for expansion is made. It has proposed a parking for 750 cars for 250 bedded hospital which is well above the norms. The hostels and residences will have parking within the plots both open and under stilt. In addition measures as awareness programs on use of PUC, walking/bicycling for campus residents; pick up arrangements by battery driven vehicle are suggested.

9. Total Energy requirements of the project for expansion are of 541 KW to be provided by Electricity Department of which 3011 KW for hostels and residences and 2400 KW for 250 bedded hospital after energy saving. These are achieved by following ECBC, 2007 norms and include measures as (1) CFL/LEDs (2) A 25 % mix for solar lights in external lighting (3) Building designs as per ECBC norms (4) Provision of solar water heaters in hostels.

Signature



Name

Stamp/Seal

Address:

FORM 1 A

FORM-1A	(Only for construction projects listed under item 8 of the Schedule)
	CHECK LIST OF ENVIRONMENTAL IMPACTS (Project proponents are required to provide full information and wherever necessary attach explanatory notes with the Form and submit along with proposed environmental management plan & monitoring programme)
1.	<p>LAND ENVIRONMENT</p> <p>Will the existing land use get significantly altered from the project that is not consistent with the surroundings? (Proposed land use must conform to the approved Master Plan / Development Plan of the area. Change of land use if any and the statutory approval from the competent authority are submitted). Attach Maps of (i) site location, (ii) surrounding features of the proposed site (within 500 meters) and (iii) the site (indicating levels & contours) to appropriate scales. If not available attach only conceptual plans.</p>
Reply:	<p>The following drawings are enclosed for the purpose of land use:</p> <p>Drawing-1 Topographic Sheet Drawing-2 Panoramic View Drawing-3 Location Plan and 500 m drawing Drawing-4 Contour plan Drawing-5 Layout Plan</p> <p>This is a expansion project and land is with PGI and lying vacant. For expansion, the proposed buildings include a 250 bedded hospital, NIPS college hostel and Mess, Nursing hostel and Mess, Married/Bachelor doctor hostel, classroom, Type II/III/IV/V/VI houses. The buildings are without basement except for 250 bedded hospital which is with single basement. The height of the buildings vary from G+1 to G+4. The land use at PGIMER is-Total area is 277 Acres; out of which ground coverage for already constructed area is 33 Acres, ground coverage for proposed building is 4.67 Acres. An area of 12220 Acres is under green belt/parks. Ground coverage for parking is 24.25 Acres. Area under footpath/road is 35 Acres and other open area is 57.88 Acres. Thus there is no alteration in land use.</p>
1.2	List out all the major project requirements in terms of the land area, built up area, water consumption, power requirement, connectivity, community facilities, parking needs etc.
Reply:	<p>The proposed buildings include a 250 bedded hospital, NIPS college hostel and Mess, Nursing hostel and Mess, Married/Bachelor doctor hostel, classroom, Type II/III/IV/V/VI houses. The buildings are without basement except for 250 bedded hospital which is with single basement. The height of the buildings vary from G+1 to G+4. The land use at PGIMER is-Total area is 277 Acres, out of which ground coverage for already constructed area is 33 Acres, ground coverage for proposed building is 4.67 Acres. An area of 12220 Acres is under green belt/parks. Ground coverage for parking is 24.25 Acres. Area under footpath/road is</p>

35 Acres and other open area is 57.88 Acres. The total estimated cost of the Project is Rs. 183 Crores. The Project Design Population is 2220 with a floating population of 220.

The domestic water demand is 150 KLD and that for cooling for expansion 700 KLD. The water to be supplied by MC/ Chandigarh Administration yet ground water recharging is proposed through rain water harvesting at the rate of @ 10240 KL/annum.

Total wastewater generated @ 112 KLD shall be treated and recycled for (I) irrigation as detailed out in Water balance diagram, along with combined STP/ETPs proposed.

Construction waste shall be recycled to the extent possible within project for flooring and roads or sold to recyclers.

Solid waste @ 888 kg/day shall be generated; Biomedical waste @ 125kg/day shall be generated from expansion. E-waste shall be generated in due course of time but is not quantified at present. It shall be handled as per E-waste Management and Handling Rules, that will come effect from 1 May 2012, the responsibility of consumer is to ensure that e-waste generated by them is channelized to authorized collection centre(s) or registered dismantler or is returned to pick up or take back services provided by producer. The disposal of used/discarded e-waste by PGI shall be done accordingly. The hazardous Waste (Used oil from DG sets) shall be stored in lock and key and shall be sent to authorized resellers by CPCC. The authorization under Hazardous Waste Rules from CPCC shall be undertaken.

A total of 122.2 Acres is earmarked as green belt and landscaped area.

Provision of 9 Diesel Gen-sets of total capacity 10250 KVA for standby use only with acoustic enclosures in compliance to MoEF notification GSR 371 (E) and emission levels as per G.S.R. 520 (E), Environment (Protection) Amendment Rules 2003; Chimneys as per CPCB guidelines as well as with scrubbers is suggested. A total of 24.25 acres is earmarked for parking. Provision of parking area of 163818 sq.feet for expansion is made. It has proposed a parking for 750 cars for 250 bedded hospital which is well above the norms. The hostels and residences will have parking within the plots both open and under stilt. Total Energy requirements of the project for expansion after energy conservation measures are 5411 KW to be provided by Electricity Department of which 3011 KW for hostels and residences and 2400 KW for 250 bedded hospital.

1.3	What are the likely impacts of the proposed activity on the existing facilities adjacent to the proposed site? (Such as open spaces, community facilities, details of the existing land use, disturbance to the local ecology).
Reply:	No likely impact on adjacent facilities. An expansion project in an earmarked developed site.
1.4	Will there be any significant land disturbance resulting in erosion, subsidence & instability? (Details of soil type, slope analysis, vulnerability to subsidence, seismicity etc may be given).
Reply:	No. The contour plan is attached at Drawing-4. Expansion project within existing campus
1.5	Will the proposal involve alteration of natural drainage systems? (Give details on a contour map showing the natural drainage near the proposed project site)
Reply:	There is no obstruction to any natural drainage.
1.6	What are the quantities of earthwork involved in the construction activity-cutting, filling, reclamation etc. (Give details of the quantities of earthwork involved, transport of fill materials from outside the site etc?)
Reply:	The contour level of the site varies from 95 to 100. . Soil to be excavated is that for foundations and basements (basement in hospital only). The soil thus excavated shall be used for cut & fill and landscaping within campus.
1.7	Give details regarding water supply, waste handling etc during the construction period
Reply:	The construction Phase water requirement varies from 15-30% of total water demand i.e 22 KLD to 45 KLD depending upon phases of construction. The workers shall be provided with toilet facilities attached to STP. The water supply source is Municipal supply. The construction waste shall be used in making the internal roads/floors.
1.8	Will the low lying areas & wetlands get altered? (Provide details of how low lying and wetlands are getting modified from the proposed activity)
Reply:	No
1.9	Whether construction debris & waste during construction cause health hazard? (Give quantities of various types of wastes generated during construction including the construction labour and the means of disposal)
Reply:	No. The waste during construction shall include material as broken brick, dry plaster pieces, broken sanitary items which shall be used within as in lying down floors, internal road. The pieces of iron shall be sold to Kabadis. For details see section 1.15 of Form-I and EMP

2.	WATER ENVIRONMENT
2.1	Give the total quantity of water requirement for the proposed project with the breakup of requirements for various uses. How will the water requirement met? State the sources & quantities and furnish a water balance statement.
Reply:	There shall be a domestic water demand of 150 KL/day and cooling water demand of 700 KLD. See water balance for more details. The water shall be supplied by MC/Chandigarh Administration
2.2	What is the capacity (dependable flow or yield) of the proposed source of water?
Reply:	The source of water supply is MC.
2.3	What is the quality of water required, in case, the supply is not from a municipal source? (Provide physical, chemical, biological characteristics with class of water quality)
Reply:	The water in the area conforms to the requirements of IS:10500. See test reports attached at Annexure-6.
2.4	How much of the water requirement can be met from the recycling of treated wastewater? (Give the details of quantities, sources and usage)
Reply:	See Water Balance Diagram in Form-I.
2.5	Will there be diversion of water from other users? (Please assess the impacts of the project on other existing uses and quantities of consumption)
Reply:	No
2.6	What is the incremental pollution load from wastewater generated from the proposed activity? (Give details of the quantities and composition of wastewater generated from the proposed activity)
Reply:	The waste water shall be sewage with BOD in the range of 180-250 mg/l. The BOD of treated sewage proposed is less than 30 mg/l. As minimal discharge of sewage will be done outside to MS sewer, the impact is negligible.
2.7	Give details of the water requirements met from water harvesting? Furnish details of the facilities created.
Reply:	RWH structures are proposed for @ 10240 KL/annum, from roof top as per CGWB guidelines.

2.8	What would be the impact of the land use changes occurring due to the proposed project on the runoff characteristics (quantitative as well as qualitative) of the area in the post construction phase on a long term basis? Would it aggravate the problems of flooding or water logging in any way?
Reply:	No. The change in land use does not alter natural run-off. The storm water drains are being provided in the area.
2.9	What are the impacts of the proposal on the ground water? (Will there be tapping of ground water; give the details of ground water table, recharging capacity, and approvals obtained from competent authority, if any)
Reply:	The water demand shall be met through Municipal Supply thus there is no direct impact on ground water. However ground water recharging through rain water harvesting wells is proposed and recycling of treated sewage is suggested
2.10	What precautions/measures are taken to prevent the run-off from construction activities polluting land & aquifers? (Give details of quantities and the measures taken to avoid the adverse impacts)
Reply:	The Construction Planning shall be done so that the excavation is prior to monsoon and all loose material is lifted to earmarked site so that there are no chances of soil flowing along with run-off and clogging the storm system. Further during the construction an agreement shall be there with the contractor to store all material as aggregates, sand and bricks in proper earmarked stacks. The material like cement or any material that can lead to generation of leachate shall be stored under sheds.
2.11	How is the storm water from within the site managed?(State the provisions made to avoid flooding of the area, details of the drainage facilities provided along with a site layout indication contour levels.
Reply:	Proper storm water drainage system. as per guidelines of Town and Country Planning is laid down which will connect to main storm network.
2.12	Will the deployment of construction laborers particularly in the peak period lead to unsanitary conditions around the project site (Justify with proper explanation)
Reply:	No. At the time of Peak Construction Activity @ 200 workers shall be employed. Of this @ 75 workers shall reside at the site and rest of workforce shall be local that shall commute daily. Common toilet and bathroom facility shall be provided for this workforce with a connection to STP/septic tank

2.13	What on-site facilities are provided for the collection, treatment & safe disposal of sewage? (Give details of the quantities of wastewater generation, treatment capacities with technology & facilities for recycling and disposal)
Reply:	About 112 Kl/day of sewage shall be generated that shall be recycled for the purpose of irrigation. The wastewater shall be treated to secondary level with Activated Sludge Process
2.14	Give details of dual plumbing system if treated waste water is used for flushing of toilets or any other use.
Reply:	-
3.	VEGETATION
3.1	Is there any threat of the project to the biodiversity? (Give a description of the local ecosystem with it's unique features, if any)
Reply:	Sukhna wetland/wild life sanctuary at a distance of approx. 6 Km. applied to chief wild life warden for authentication of project location. See Annexure-3.
3.2	Will the construction involve extensive clearing or modification of vegetation? (Provide a detailed account of the trees & vegetation affected by the project)
Reply:	No
3.3	What are the measures proposed to be taken to minimize the likely impacts on important site features (Give details of proposal for tree plantation, landscaping, creation of water bodies etc along with a layout plan to an appropriate scale
Reply:	See Environment Management Plan for Green Belt and Drawing-7
4	FAUNA
4.1	Is there likely to be any displacement of fauna- both terrestrial and aquatic or creation of barriers for their movement? Provide the details.
Reply:	No
4.2	Any direct or indirect impacts on the avifauna of the area? Provide details.
Reply:	No
4.3	Prescribe measures such as corridors, fish ladders etc to mitigate adverse impacts on fauna
Reply:	Not Applicable

5.	AIR ENVIRONMENT
5.1	Will the project increase atmospheric concentration of gases & result in heat islands? (Give details of background air quality levels with predicted values based on dispersion models taking into account the increased traffic generation as a result of the proposed constructions)
Reply:	No. The proposed project does not have any new permanent operating source of fossil fuel burning as Boiler or Furnace. On expansion only 9 generators to be provided shall only act as standby and shall comply by standards as laid down in MoEF Notifications GSR 371E and GSR 520 E for compliance at manufacturing stage for noise and emission levels. The two number incinerators are already operating and no new incinerator shall be added.
5.2	What are the impacts on generation of dust, smoke, odorous fumes or other hazardous gases? Give details in relation to all the meteorological parameters.
Reply:	There shall not be generation of hazardous gases or odorous fumes. The dust generation during the construction activity shall be controlled
5.3	Will the proposal create shortage of parking space for vehicles? Furnish details of the present level of transport infrastructure and measures proposed for improvement including the traffic management at the entry & exit to the project site.
Reply:	No See Parking Plan Drawing-7 and 6.5 in Form-1
5.4	Provide details of the movement patterns with internal roads, bicycle tracks, pedestrian pathways, footpaths etc., with areas under each category.
Reply:	See Drawing-6
5.5	Will there be significant increase in traffic noise & vibrations? Give details of the sources and the measures proposed for mitigation of the above.
Reply:	No. The noise from construction activities shall be contained within the area by providing barriers, planting trees from the very beginning. No construction at night shall be there. No demolition is involved. See 6.5 for traffic management
5.6	What will be the impact of DG sets & other equipment on noise levels & vibration in & ambient air quality around the project site? Provide details.
Reply:	Provision of Diesel Gen-sets is for standby use only with acoustic enclosures in compliance MoEF notification GSR 371 (E) and emission levels as per GSR G.S.R. 520 (E), Environment (Protection) Amendment Rules 2003. Scrubbers for DG sets shall be provided.

6.	AESTHETICS
6.1	Will the proposed constructions in any way result in the obstruction of a view, scenic amenity or landscapes? Are these considerations taken into account by the proponents?
Reply:	No
6.2	Will there be any adverse impacts from new constructions on the existing structures? What are the considerations taken into account?
Reply:	No.
6.3	Whether there are any local considerations of urban form & urban design influencing the design criteria? They may be explicitly spelt out.
Reply:	Urban form and urban design follow the modern principles of architecture and shall be got approved from local authorities.
6.4	Are there any anthropological or archaeological sites or artifacts nearby? State if any other significant features in the vicinity of the proposed site have been considered.
Reply:	No anthropological or archeological sites in the vicinity.
7.	SOCIO-ECONOMIC ASPECTS
7.1	Will the proposal result in any changes to the demographic structure of local population? Provide the details.
Reply:	The project is a medical institute and the expansion has design population of 2220. The development is proposed in phases. The overall expansion of the institute may extend up to August 2013. Development being in phases, the change in demographic structure shall merge with the local development.
7.2	Give details of the existing social infrastructure around the proposed project.
Reply:	See location plan/ 500 m plan attached along as Drawing-3
7.3	Will the project cause adverse effects on local communities, disturbance to sacred sites or other cultural values? What are the safeguards proposed?
Reply:	No
8.	BUILDING MATERIALS
8.1	May involve the use of building materials with high-embodied energy. Are the construction materials produced with energy efficient processes? (Give details of energy conservation measures in the selection of building materials and their energy efficiency)
Reply:	The structure shall be with RCC framework with external 230 mm brick masonry & internal 115 mm brick masonry with 18 mm external plaster and 12 mm thick internal plaster. The ECBC norms shall be followed. The wood shall be replaced with Particle Board wherever possible. In concrete work admixtures shall be used to reduce water cement ratio, which saves both cement and water. Pressed steel and aluminum windows are proposed in majority of the building activity.

8.2	Transport and handling of materials during construction may result in pollution, noise & public nuisance. What measures are taken to minimize the impacts?
Reply:	Dust may be generated during activities as excavation of foundation; the foundation shall be excavated in a minimum time. The vehicles which ferry construction material as sand are to be covered from top and made wet before movement and thus no dust is generated. The construction activity shall be segregated in phases to avoid any significant generation of dust.
8.3	Are recycled materials used in roads and structures? State the extent of savings achieved?
Reply:	The construction waste shall be used in floors, internal roads.
8.4	Give details of the methods of collection, segregation & disposal of the garbage generated during the operation phases of the project
Reply:	See EMP and Clause 4.2 of Section-II of Form-I
9.	ENERGY CONSERVATION
9.1	Give details of the power requirements, source of supply, backup source etc. What is the energy consumption assumed per square foot of built-up area? How have you tried to minimize energy consumption?
Reply:	<p>Total energy consumption shall be 5411 KW to be provided by Electricity Department of which 3011 KW for hostels and residences and 2400 KW for 250 bedded hospital.</p> <p>Energy consumption without energy saving measures is 6521 KW. Thus @ 1110 KW shall be saved.</p> <p>For air conditioning of hospital the energy minimization is planed as below:</p> <p>The hospital shall have air conditioning systems to operate between 40% minimum demand and 95% maximum demand, the selection therefore is so proposed that the overall power requirement remains consistent with the demand avoiding all possible waste. There will be multiple chillers each with their own cooling towers, pumps etc. each chiller will have separate pumps and cooling towers. Therefore the number of pumps and cooling tower operating at a time will not be more than the number of chillers, thereby saving energy. The screw compressors shall be used that are most energy efficient @ 0.70 IKW per ton to 0.73 IKW/ton. These have very few moving parts thus less wear and tear. The system shall also provide operational flexibility by providing separate ceiling suspended AHU for different areas. Thus it would be possible to operate AC</p>

	<p>only in those areas which are in use. This will save energy. The AHU's shall also be provided with variable frequency drive. Cooling Towers shall be provide with thermostatic control to switch off the fan motor to conserve energy during periods of low ambient wet bulb temperature. Lobbies and corridors shall be designed at inside temperature one deg.C higher than balance areas. HCFC/CFC free chillers shall be used.</p> <p>Over energy minimization is planned with use of CFL/LED. Solar water heaters, solar light mix in external lighting.</p>
9.2	What type of, and capacity of, power back-up to you plan to provide?
Reply:	The back-up source is DG Set, 10 DG sets of 11250 KVA capacity are proposed. The stand by generator shall be installed in compliance to MoEF notification GSR 371 (E) and emission levels as per GSR G.S.R. 520 (E), Environment (Protection) Amendment Rules 2003.
9.3	What are the characteristics of the glass you plan to use? Provide specifications of its characteristics related to both short wave and long wave radiation
Reply:	There are no extensively glazed building facade as such use of Low E glass is not considered. Normal glass is provided in the windows.
9.4	What passive solar architectural features are being used in the building? Illustrate the applications made in the proposed project.
Reply:	-
9.5	Does the layout of streets & buildings maximize the potential for solar energy devices? Have you considered the use of street lighting, emergency lighting and solar hot water systems for use in the building complex? Substantiate with details
Reply:	Yes, 25% solar mix external lighting is proposed. The solar devices shall be fixed in such a manner that they get the maximum exposure to sun.
9.6	Is shading effectively used to reduce cooling/heating loads? What principles have been used to maximize the shading of Walls on the East and the West and the Roof? How much energy saving has been effected?
Reply:	The ECBC guidelines as to be adopted by the UT shall be fulfilled.
9.7	Do the structures use energy-efficient space conditioning, lighting and mechanical systems? Provide technical details. Provide details of the transformers and motor efficiencies, lighting intensity and air-conditioning load assumptions? Are you using CFC and HCFC free chillers? Provide specifications.

Reply:	<p>For the hospital the air conditioning systems to operate between 40% minimum demand and 95% maximum demand, the selection therefore is so proposed that the overall power requirement remains consistent with the demand avoiding all possible waste. There will be multiple chillers each with their own cooling towers, pumps etc. each chiller will have separate pumps and cooling towers. Therefore the number of pumps and cooling tower operating at a time will not be more than the number of chillers, thereby saving energy. The screw compressors shall be used that are most energy efficient @ 0.70 IKW per ton to 0.73 IKW/ton. These have very few moving parts thus less wear and tear. The system shall also provide operational flexibility by providing separate ceiling suspended AHU for different areas. Thus it would be possible to operate AC only in those areas which are in use. This will save energy. The AHU's shall also be provided with variable frequency drive. Cooling Towers shall be provide with thermostatic control to switch off the fan motor to conserve energy during periods of low ambient wet bulb temperature. Lobbies and corridors shall be designed at inside temperature one deg.C higher than balance areas. HCFC/CFC free chillers shall be used.</p> <p>Transformer of 98% efficiency will be used.</p>
9.8	<p>What are the likely effects of the building activity in altering the micro-climates? Provide a self assessment on the likely impacts of the proposed construction on creation of heat island & inversion effects?</p>
Reply:	<p>The use of open areas, tree plantation shall help avoid any changes to micro-climate.</p>
9.9	<p>What are the thermal characteristics of the building envelope? (a) roof; (b) external walls; and (c) fenestration? Give details of the material used and the U-values or the R values of the individual components.</p>
Reply:	<p>Thermal characteristics as per ECBC as adopted by UT of Chandigarh shall be achieved.</p>
9.10	<p>What precautions & safety measures are proposed against fire hazards? Furnish details of emergency plans</p>
Reply:	<p>We shall follow the guidelines as per NBC 2005.</p>
9.11	<p>If you are using glass as wall material provides details and specifications including emissive and thermal characteristics.</p>
Reply:	<p>-</p>

9.12	What is the rate of air infiltration into the building? Provide details of how you are mitigating the effects of infiltration
Reply:	-
9.13	To what extent the non-conventional energy technologies are utilized in the overall energy consumption? Provide details of the renewable energy technologies used.
Reply:	25% solar mix external lighting, use of CFL's in place of normal lamps; use of solar water heaters in hostels
10.	Environment Management Plan
Reply:	The Environment Management Plan would consist of all mitigation measures for each item wise activity to be undertaken during the construction, operation and the entire life cycle to minimize adverse environmental impacts as a result of the activities of the project. The Environment Management Plan is enclosed.