

Master Plan for IIT, Gandhinagar



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Ar. Ujan Ghosh did his Bachelors course from the School of Planning and Architecture, New Delhi in 1975 and Master of Architecture and Master of City Planning in Urban Design from University of Pennsylvania, Philadelphia in 1980. He is a senior partner at Upal Ghosh Associates since 1982 providing consultancy services in architecture, interior and urban design. He is also a visiting professor of SPA, New Delhi and a founder member of Institute of Urban Designers, India.



This master plan is the document that would guide the development of IITGN campus for years to come. It defines the open space structure, movement system and the infrastructural services required for great buildings to come up. The Urban Design scheme gives the architect of individual buildings and structures the greatest freedom.

The Project :

IIT Gandhinagar campus on 400 acres of land on the western banks of river Sabarmati for 10,000 students

Status : Project completed - Buildings built - students have moved in

Client's brief :

- An ambience that sets the campus apart from others
- Provides functional convenience and promotes interaction among students and faculty
- Uses resources efficiently and leads to GRIHA rating for buildings and the whole development.

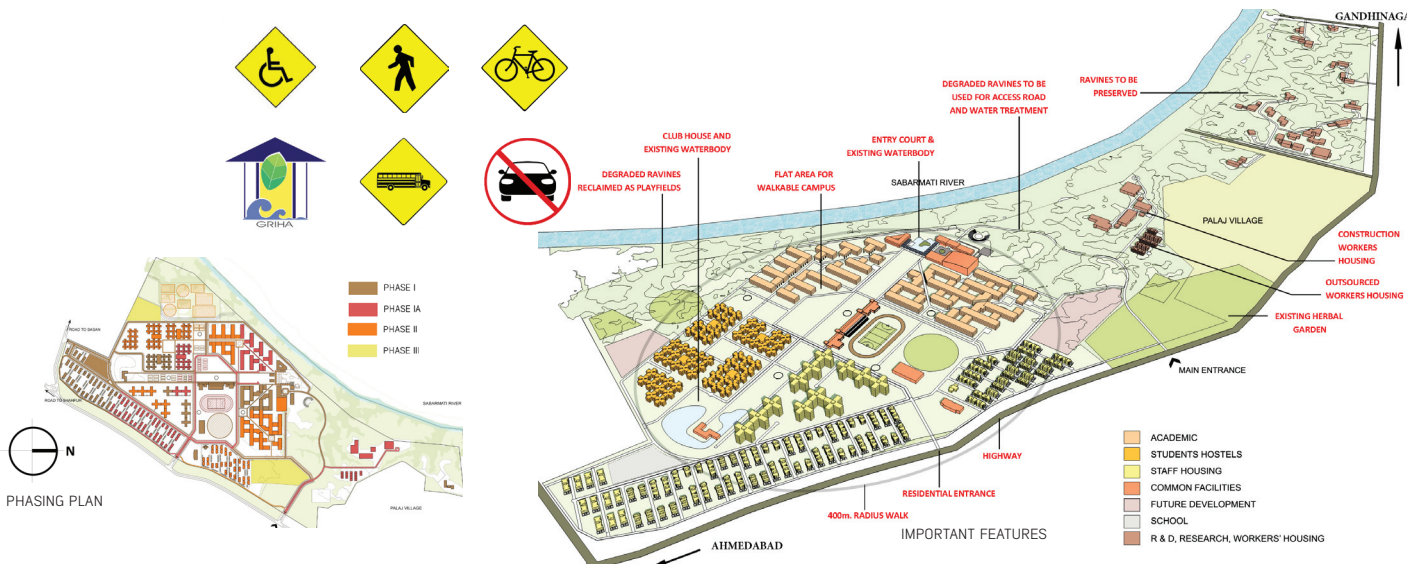
Our Goals :

- Efficient use of land
- Efficient use of built space
- Zero water import
- Zero energy import
- Zero waste export
- Mobility without cars
- Preservation of bio-diversity
- Social Equity
- Cultivation of food onsite
- Harvesting energy onsite
- GRIHA rated campus

Built Space Requirements :

The initial set of space requirements assessed by GCDC and the active participation of the committee of stakeholders is:

	Phases	1	1a	2	
	Total Number of Students	1200	2400	4800	
		Areas (in sqm)		Total area	
A	Administrative area	0	6293	0	6293
B	Academic area	25230	19129	44359	88718
C	Lecture Halls & Teaching Labs	8508	7845	16353	32706
D	Central Facilities	0	12775	11720	24495
E	Sports Facilities	0	7300	0	7300
F	Services	6100	0	4475	10575
G	Staff Residences	50600	38940	86075	175615
H	Guest House Complex	0	4050	4050	8100
I	Married Student Housing	0	7980	7980	15960
J	Student Hostels	42900	51600	56700	151200
	Total for Built space for phase	133338	155911	231712	520961
	Grand Total for Built space				520961



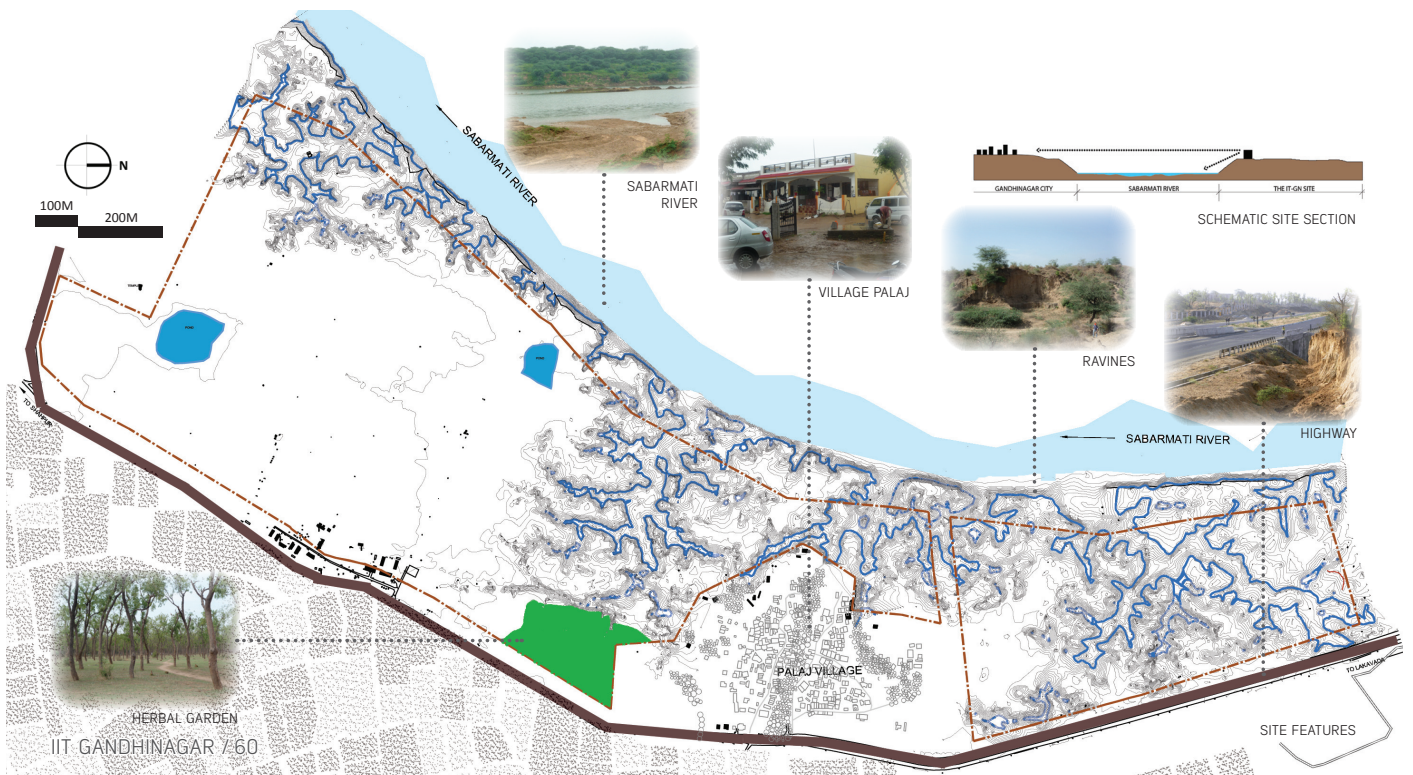
Land Use

On a 400 acre site that lies between the river Sabarmati and a highway, the first phase of the project is designed for 2400 students, second for 4800 students with expansion to 6000 students. 40% of the land is eroded and ravenous, parts of it being below the Highest Flood Level of the river.. The southern pocket has a large contiguous area suitable for the main campus. The northern pocket will be used only in parts leaving a substantial portion as a habitat for 'neel gai' and other existing fauna.

Climate

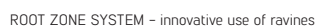
Gandhi Nagar is hot and dry for 6 months and hot humid for 3 months while 3 months are relatively comfortable. Cooling is required for most of the year. During the dry summer months humidification is also required.

During the monsoon months June to September, especially in July and August, rainfall is heavy and rain protection is required for pedestrian walkways. In the final analysis, the climate is hot and without cooling systems the buildings cannot be made comfortable only through passive structural arrangements.





LOW ENERGY COOLING



The site plan illustrates the campus layout with various buildings and green spaces. Key features include:

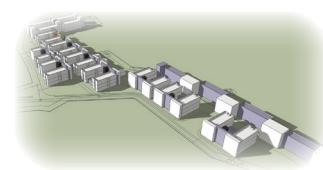
- VEHICULAR MOVEMENT:** Indicated by a solid red line along the western edge of the campus.
- PEDESTRIAN SPINE:** A central corridor marked by a dashed red line, connecting the South Campus to the North Campus.
- CIRCULATION - ADVANTAGE PEDESTRIANS:** A network of paths shown as thin red lines, primarily following the pedestrian spine and connecting to the river view.
- EXISTING PONDS:** Several small, irregular shapes representing water bodies are scattered throughout the campus, particularly in the central and northern areas.
- RIVER VIEW:** A large, irregularly shaped area on the eastern side of the campus, likely a river or a large pond, with a view line pointing towards it.
- SOUTH CAMPUS:** The southern portion of the main campus area.
- CENTRAL CAMPUS:** The middle section of the campus, containing many of the buildings.
- NORTH CAMPUS:** The northern portion of the main campus area.
- VISITOR'S ENTRY:** A specific point of entry marked with an arrow at the bottom center of the plan.
- Orientation:** A compass rose in the top right corner indicates North (N) is towards the top right.



DAY LIGHTING



E-RICKSHAW -internal transport



SOCIAL EQUITY – permanent labour housing



SOCIAL EQUITY- outsourced workers housing



GROWING FOOD FOR RESIDENTS



JALMANDAP
celebration of rainwater collection

The master plan envisions a Campus on the River Sabarmati, determined by its river bank location and by the use of existing ravines. It is planned as a green campus with pedestrianised movement, largely free of vehicular traffic. The layout has been designed to maximize views along and across the river and to retain two existing natural depressions as important visual and functional elements. The visitors' entrance to the campus is located on the river bank and visitors will get to it by a scenic drive through a major ravine.



ARRIVAL COURT



RIVER VIEW



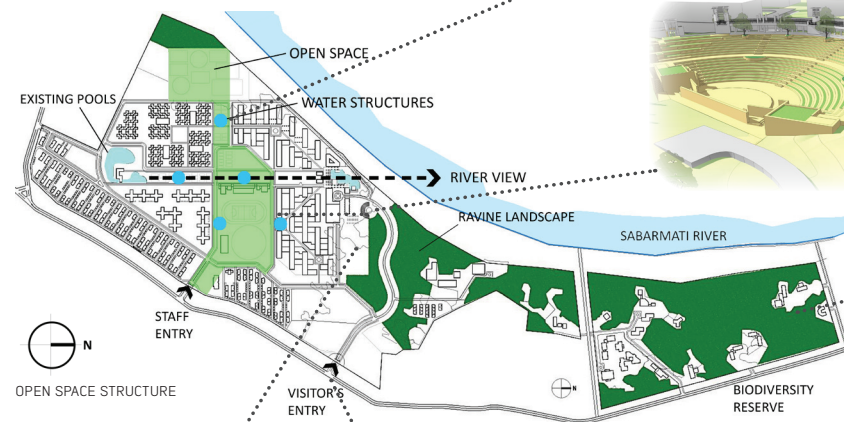
RAVINES



RAVINES



HERBAL GARDEN



BIOLOGICAL TREATMENT OF SEWAGE



NIL GAI HOME



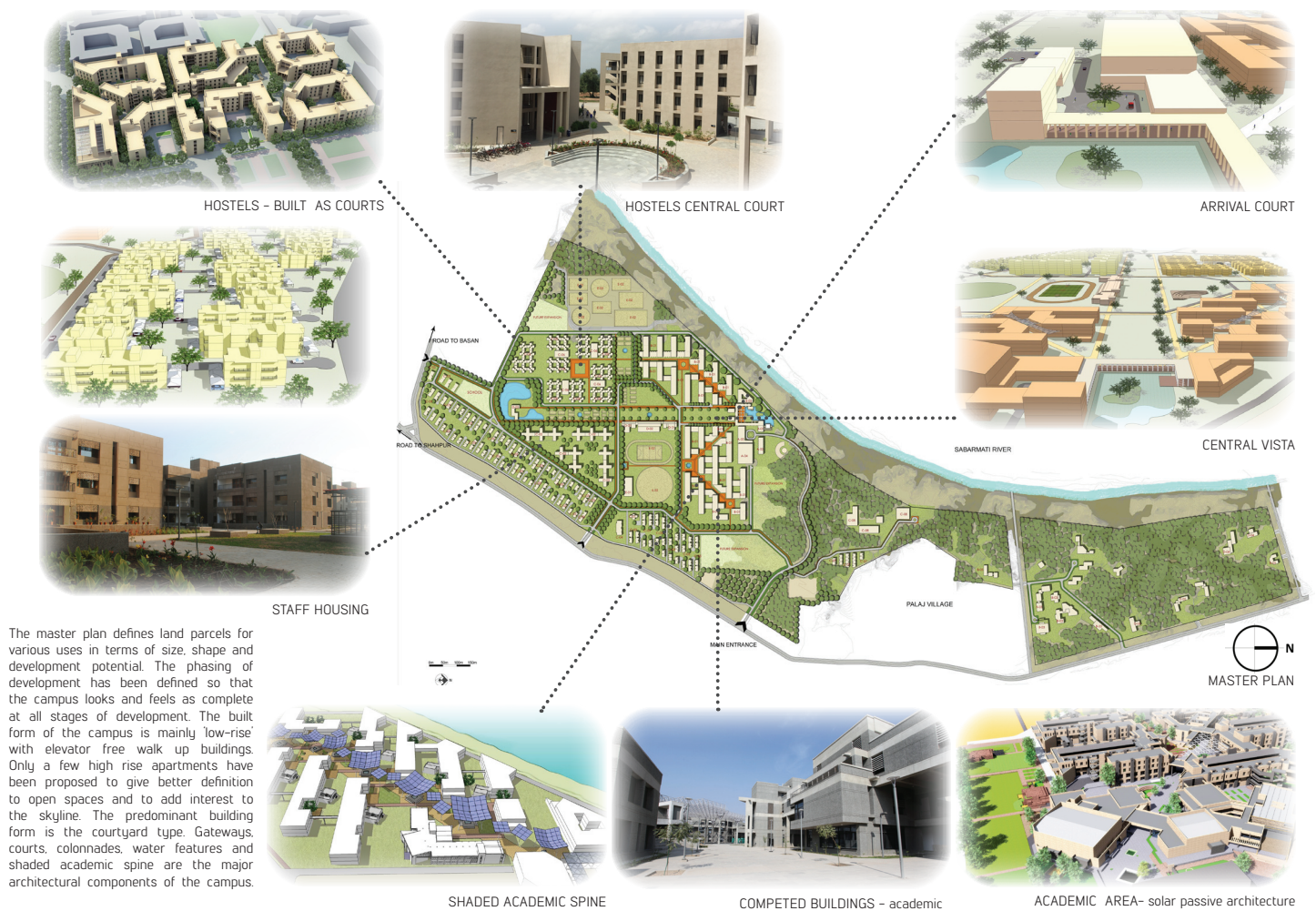
AMPHITHEATRE



NIL GAI HOME



NIL GAI HOME



Sustainable Design

The campus has been designed to be largely free of cars and other motorised transport. Pedestrians and cyclists have special scenic routes separate from vehicular roads, through the campus. While

vehicular access has been provided to all housing blocks, parking at the academic blocks has been restricted mainly to cycles. For internal mobility, the campus provides environment friendly electrical vehicles for universal access and as a means of public transport. The plan ensures zero discharge of waste water. Onsite harvesting of rainwater and solar energy. Waste water is used for growing food and fodder plants.



Moringa cultivation



E-rickshaw



Pedestrian friendly campus



GRIHA certification

Project Details	
Project Category	: Urban Design & Master Planning
Project Name	: IIT Gandhinagar
Completion Date	: July 15, 2015
Location	: Gandhinagar, Gujarat
Plot size	: 400 acres
Area	: 5600000 Sq. Ft.