

Vastu Shilpa Consultants

IN PARTNERSHIP WITH NATURE

I I M | U D A I P U R

The Indian Institutes of Management (IIMs) were created by the Indian Government with the aim of identifying the brightest intellectual talent available in the student community of India and training it in the best management techniques available in the world, to ultimately create a pool of elite managers to manage and lead the various sections of the Indian economy. IIMs play a leadership role in the nations managerial manpower development and carry out research in emerging areas. These Institutes are recognized as premier management institutions, comparable to the best in the world for teaching, research and interaction with industries.

IIM Udaipur, the youngest IIM, aims to set new benchmarks in management education by delivering high quality education and building and disseminating knowledge.

Competition Brief

Indian Institute of Management Udaipur (IIMU) envisaged developing its academic campus in about 121 hectares of land allotted for the purpose at village Balicha on the Udaipur-Ahmedabad Expressway on the outskirts of the city of Udaipur. As a part of the process of selection of the Consultant, Expressions of Interest were invited. Request for Proposal for stage-1 was invited from shortlisted EOIs. Four (4) out of the sixteen applicants were selected for stage-2, jury for which included IIMU Director Janat Shah and architects-planners Ajoy Choudhary, K. B. Jain, Kavas Kapadia and Brinda Sowmaya. Vastu Shilpa Consultants emerged as the winner of the design competition with high appreciation for the Campus Master Plan and Architectural Design envisaged.

Site & Campus Planning: Its potentials and limitations

Udaipur is known as the City of Lakes mainly because of its picturesque location of the palaces and *havelis* along the shore of lake Pichola. However the lakes don't only add to the beauty of the city; the area being arid, they are essential for its survival. For hundreds of years these man-made lakes have been the lifelines of Udaipur. The city's founders were

Taking lessons from the historic development of the city of Udaipur, water and its catchment and storage in lakes were the focus of this proposal for IIM Udaipur campus. The need for water to sustain life on site is recognized and provided for with check-dams placed at strategic locations, based on the average annual rainfall and on the analysis



aware of the importance of water and the necessity of collecting it during the monsoons and storing it to sustain the city during dry seasons. Thus water security became a major focus of the development of the city.

The architectural design of the island palaces maximizes on the climatic advantage bestowed by the lake; the courtyards, terraces, verandas, pavilions and *chattris* are the built forms ideally suited to optimize the cool breeze. These built forms have become the organizing principles for architectural design in the region because of the way they have responded to the environment and the socio-cultural living patterns.

of the natural watersheds of the contours, to hold a maximum amount of rainfall. The treatment and recycling of sewage has also been considered to make the campus a self-sufficient and water sustainable campus. Moreover the lakes benefit climatically in cooling the buildings as well.

The IIM-Udaipur campus site is situated 8 kilometers on the outskirts from Udaipur on the eastern side of NH8. The land is highly contoured and has virtually no flat areas. It can be divided into two parts due to a valley of more than 50 meter deep running across, which forms a natural barrier between eastern and western campus site.

ABOVE | View of the central valley of the site



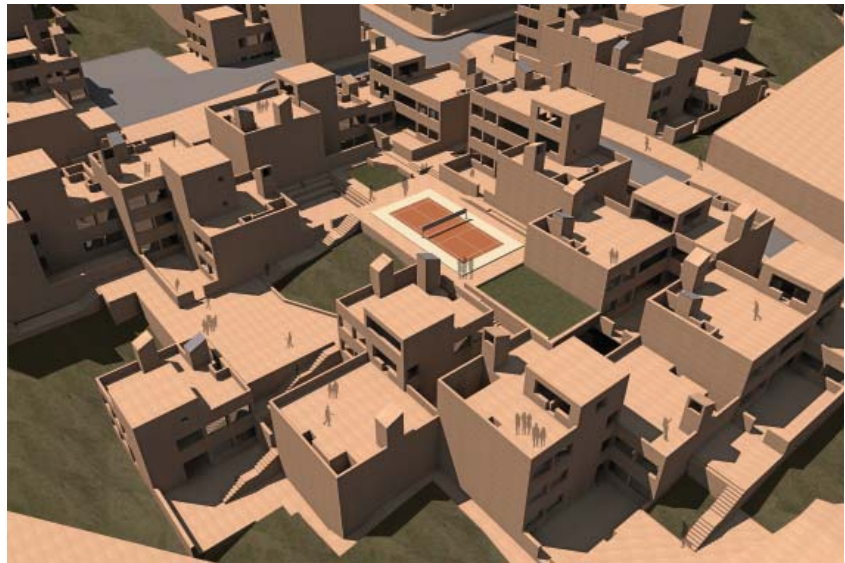
MASTER PLAN – IIM, Udaipur

- LEGEND
- 1. Site Entry
 - 2. Security Check
 - 3. Entrance Foyer
 - 4. Academic + Administration Block
 - 5. Grand Plaza
 - 6. Library
 - 7. Auditorium
 - 8. M.D.C
 - 9. Amenities
 - 10. Dining
 - 11. Amphitheatre
 - 12. Students Housing
 - 13. Faculty Housing
 - 14. Director's Bungalow
 - 15. Club House
 - 16. Indoor Sports
 - 17. Elevated Water Tank
 - 18. Garden + Nursery
 - 19. Cricket field
 - 20. Football + Athletic field
 - 21. Water Reservoir
 - 22. Check Dam
 - 23. Parking
 - 24. Reserved Green (Orchards)
 - 25. Secondary Entry

Master Plan

The Master Plan proposes to utilize the western part for the first phase of the campus. A series of dams in the heart of the land's western part is forming cascading lakes, which become the focus point of the campus. All academic and administrative buildings are built around these big water bodies. The student housing and the faculty residences are clustered around it. The total land area being 299 acres, the footprint of the entire built form amounts to only 15.5 acres which is 5.3 % of the total land area.

The eastern part of the site is kept as is to form a buffer and the Master Plan proposes to use it as a resource for the campus. Over the next few years this fertile land; lacking water and currently barren, will be transformed into usable land with rich biodiversity. Planted with dense groves of orchards and fields it can help to achieve food security, making life on the campus truly self-sustaining.



THIS PAGE | *Students' Hostel Courts*

FACING PAGE |
Water balance diagram

Students Housing

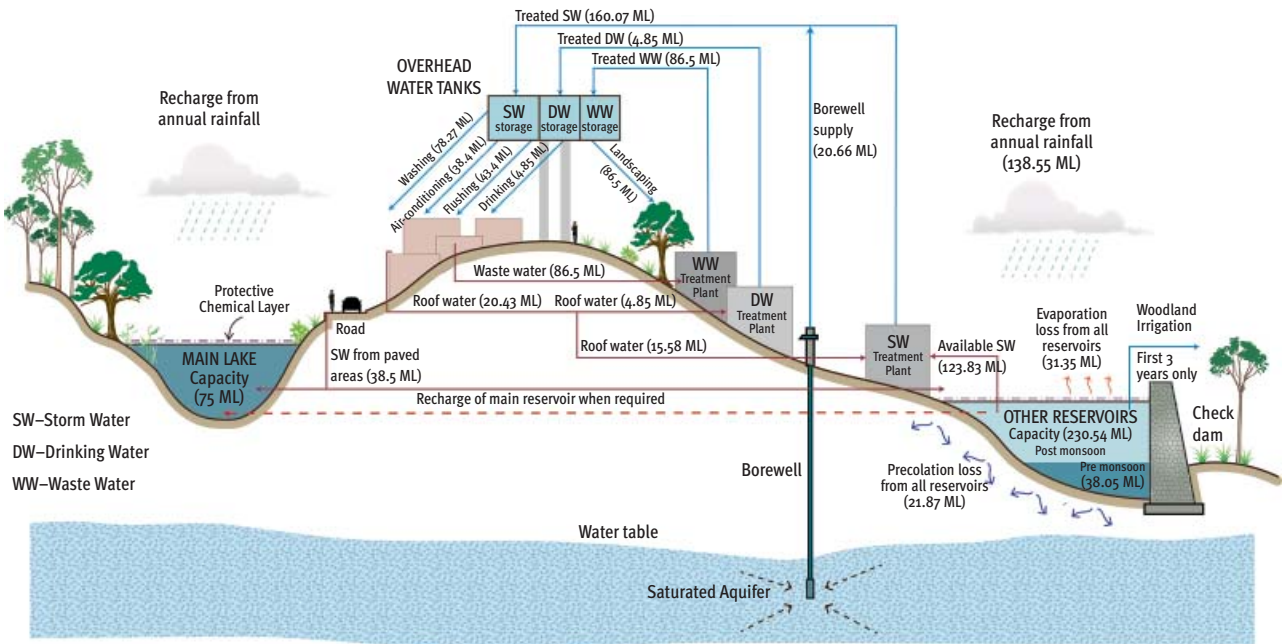
With an emphasis at mitigating the predominantly hot climate of Rajasthan, students are housed in clusters of low-rise courtyard houses. They are of a rather small grain and follow the terrain, much like villages are clustered below and around the palaces and forts of Rajasthan. They form a strong contrast to the academic buildings and are made out of local materials using local skills.

One housing unit accommodates 20 to 28 students in single rooms, clustering in two to three stories around small courts and verandahs. Besides creating a cooler microclimate and increasing the comfort level for the students, these shaded spaces are meant to accommodate various recreational areas with table tennis tables, common rooms and lounges with televisions and such. The height of 9 to 12 meters allows the housing to remain within the ambit of the trees, a quality that helps in controlling the severe climate. 10-

15 student houses form a main cluster, which is linked to a shared open space with provisions for canteen facilities. Recreational facilities, outdoor sports-fields and a large Amphitheatre are woven into the fabric of the hostel clusters. Despite the low-rise arrangement used, the density achieved can compete with that of standard hostel typologies.

Faculty Residences

In a similar manner the Faculty Residences are envisioned as a series of low-rise developments. They consist a mix of single storey and duplex units, clustering around private courts and larger shared public squares. The emphasis is to provide a variety of human scale of spaces, the experience of walking through it akin to what we feel in our heritage precincts. Each cluster is designed to have 30-36 families of units varying from 100 to 225 square meters.



Landscape Strategies

Temples of learning – Stewardship of natural resources

The site is hilly with a large part of the site having steep slopes of the order of 45 degrees and above, creating several local ridges and depressions. Existing landscape consists of exposed laminar rock covered by straggly scrub, which denotes advanced stages of forest degradation due to grazing and other human impacts. High runoffs generated from barren steep slopes in the site drain into a seasonal stream that dissects the site from North to South forming a 50 meter deep central valley and dividing the site into two distinct parts.

Landscape Planning

In a region having low rainfall and no current surplus water reserves, water becomes the primary constraint for any development including landscape up gradation. Hence, the first step aims to develop a resilient water balance that

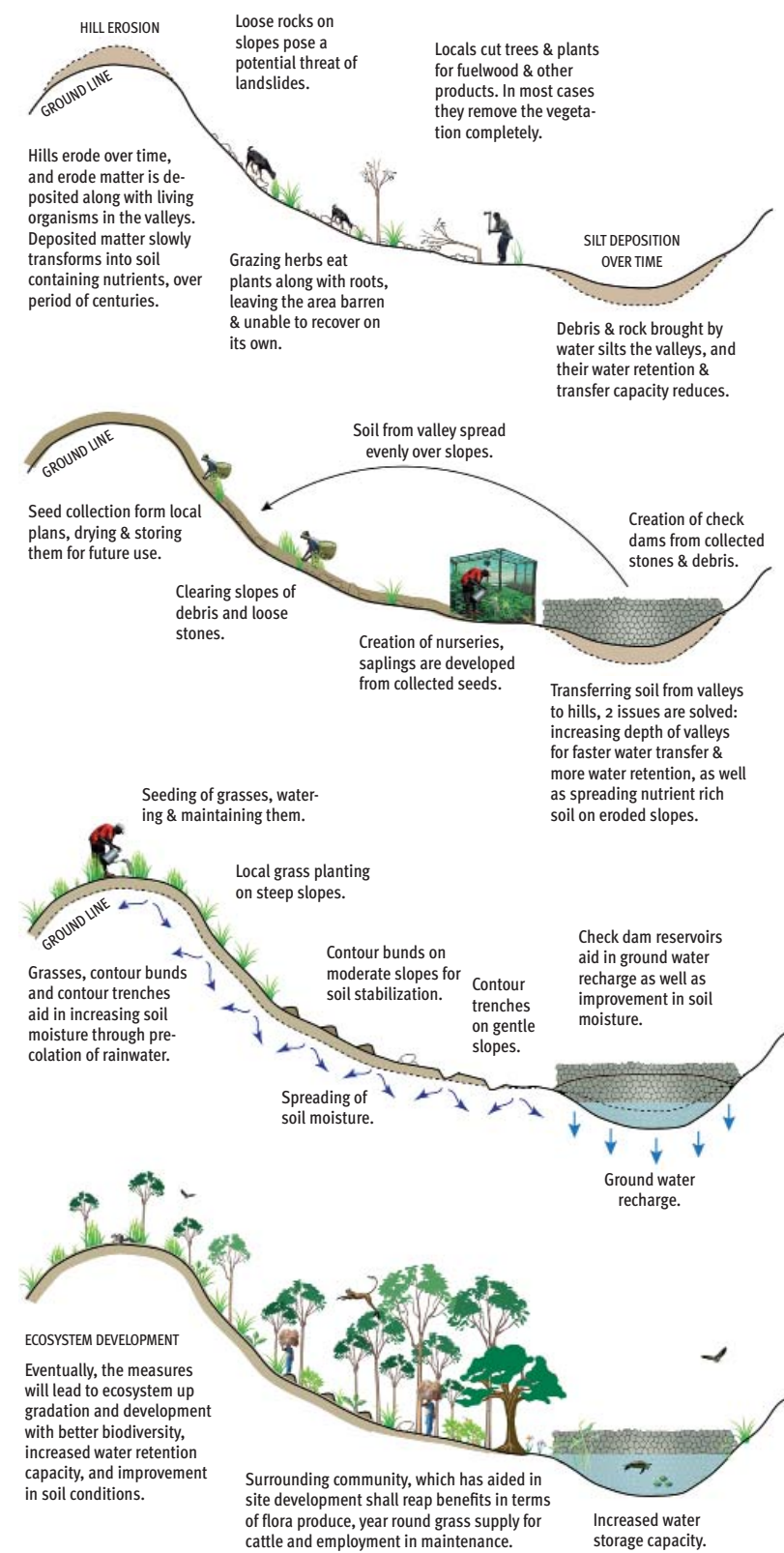
will allow the campus to sustain and develop itself. The next step is to examine the status of biodiversity in the region, and allow IIMU to steward the development of a climatically suitable climax forest in the long run, which will increase biomass, provide adequate renewable resources and enhance the regional ecosystem. The final step looks at integration of society within the landscape envelope, not just by creating physical resources for consumption, but also generating a landscape imagery that integrates the campus intrinsically with the region.

Water Systems – Keystone of development

The campus water budget allows management of water resources for initiating landscape up gradation processes immediately, followed by diversion of

surplus water from established landscapes to human needs as the campus is populated. Balance reverses and rain-water are diverted for human consumption while treated wastewater is supplied to landscape. Storage of rainwater is a critical factor since no natural water body exists on-site while the aquifer cannot facilitate such large quantities of annual injection and withdrawal. An uncommon direction is being explored by excavation of lakes in valley beds in lieu of check dams, and balancing it with the earthwork filling required for construction on the hilly site.

Lake development for each macro catchment will be supported by critical erosion control measures like contour trenches, contour bunds, pitching and vegetative barriers to prevent silting of these reservoirs. Another line of defence against silting shall be creation of



THIS PAGE | Landscape Upgradation

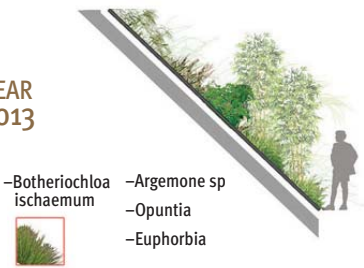
smaller gabion-*bund* based check dams in each micro-catchment, which will filter silt, spread soil moisture in micro-catchments and allow seepage of rainwater to macro-catchment lakes over a period of few months. The final part of this scheme links all reservoirs to central lake by means of a solar pumping system. Resilience has been achieved in water balance by using only 36% of last 50 years' average annual rainfall even on steep slopes, and augmenting capacity through slow runoff from silt barriers and micro-catchment reservoirs.

Flora – Ecosystem up gradation

Once lakes are activated, each catchment will be further strengthened by establishment of pioneer vegetation, contour *bunds* and trenches that will reduce the runoff velocity and prevent surface erosion. A strong maintenance cycle supported by employing local people will ensure vegetation establishment in a decade or so. Outreach areas shall be dedicated to growth of fruit and minor forest produce bearing plants as well as fodder grasses that sustain the local community. The site was mapped for slope gradients, aspect, areas exposed as well as protected from wind and sun during each season. A planting palette is being developed for each of the mapping parameters order of natural succession for each ecosystem. Ecological resilience is also being factored in by including drought hardy plants and those having minimal evapotranspiration losses, wind-breaks, fire-breaks, plants capable of growing on rocky-gravelly areas along with a rich mix of plants with varying speeds of growth and life-cycles to enable self-healing in times of stress or natural aberrations.

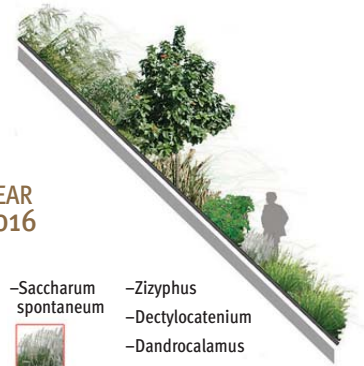
Overall, the proposed Master Plan strategies will allow users to balance their life inside and outside buildings, experience and appreciate the idea of sustainable natural neighbourhoods, and very importantly – imbibe values of partnership with nature for future development.

YEAR 2013



- Botheriochloa ischaemum
- Argemone sp
- Opuntia
- Euphorbia

YEAR 2016



- Saccharum spontaneum
- Zizyphus
- Dactyloctenium
- Dandrocalthus

YEAR 2020



- Croton bonplandianum
- Acacia Senegal
- Aegle

- Chloris gayana
- Echinochloa colomum
- Heteropogon contortus
- Vetiveria zizanioides

STEEP SLOPE

IIM UDAIPUR

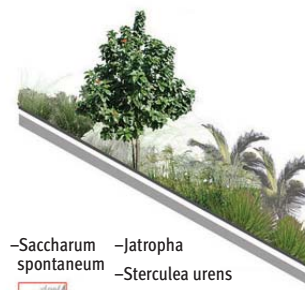
CLIENT
Indian Institute of Management, Udaipur

SITE AREA
121 Hectares

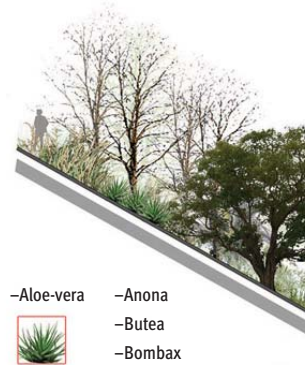
TOTAL BUILT UP AREA
1,12,000 sqmts



- Argemone
- Stylosanthes
- Leucas



- Saccharum spontaneum
- Jatropha
- Sterculia urens
- Acacia Farnesiana



- Aloe-vera
- Anona
- Butea
- Bombax

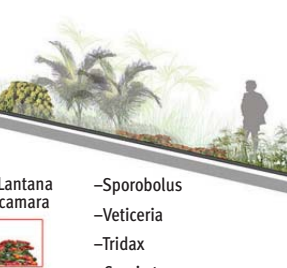
- Heteropogon contortus
- Echinochloa colomum
- Chloris gayana
- Bothriochloa ischaemum

MODERATE SLOPE

PRINCIPAL ARCHITECT
Rajeev Kathpalia, Vastu Shilpa Consultants, Ahmedabad

DESIGN TEAM
Vijay Patel, Anand Sonecha, Kanishka Suthar, Pratik Devi, Nishant Mittal, Juichi Iida, B.N.Panchal

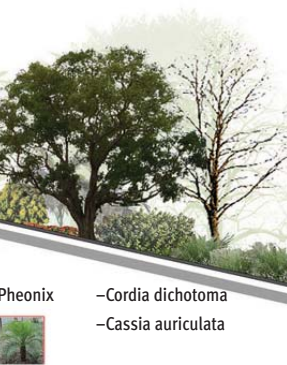
LANDSCAPE CONSULTANT
Sandip Patil, Earthscapes Consultancy Pvt. Ltd., Ahmedabad



- Lantana camara
- Sporobolus
- Vetiveria
- Tridax
- Cassia tora



- Agave harvardiana
- Aloe
- Calotropis
- Capparis



- Phoenix
- Cordia dichotoma
- Cassia auriculata

- Euphorbia
- Saccharum spontaneum
- Chloris gayana
- Heteropogon contortus

GENTLE SLOPE

THIS PAGE | Planting Succession

All images & drawings courtesy Vastu Shilpa Consultants.

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