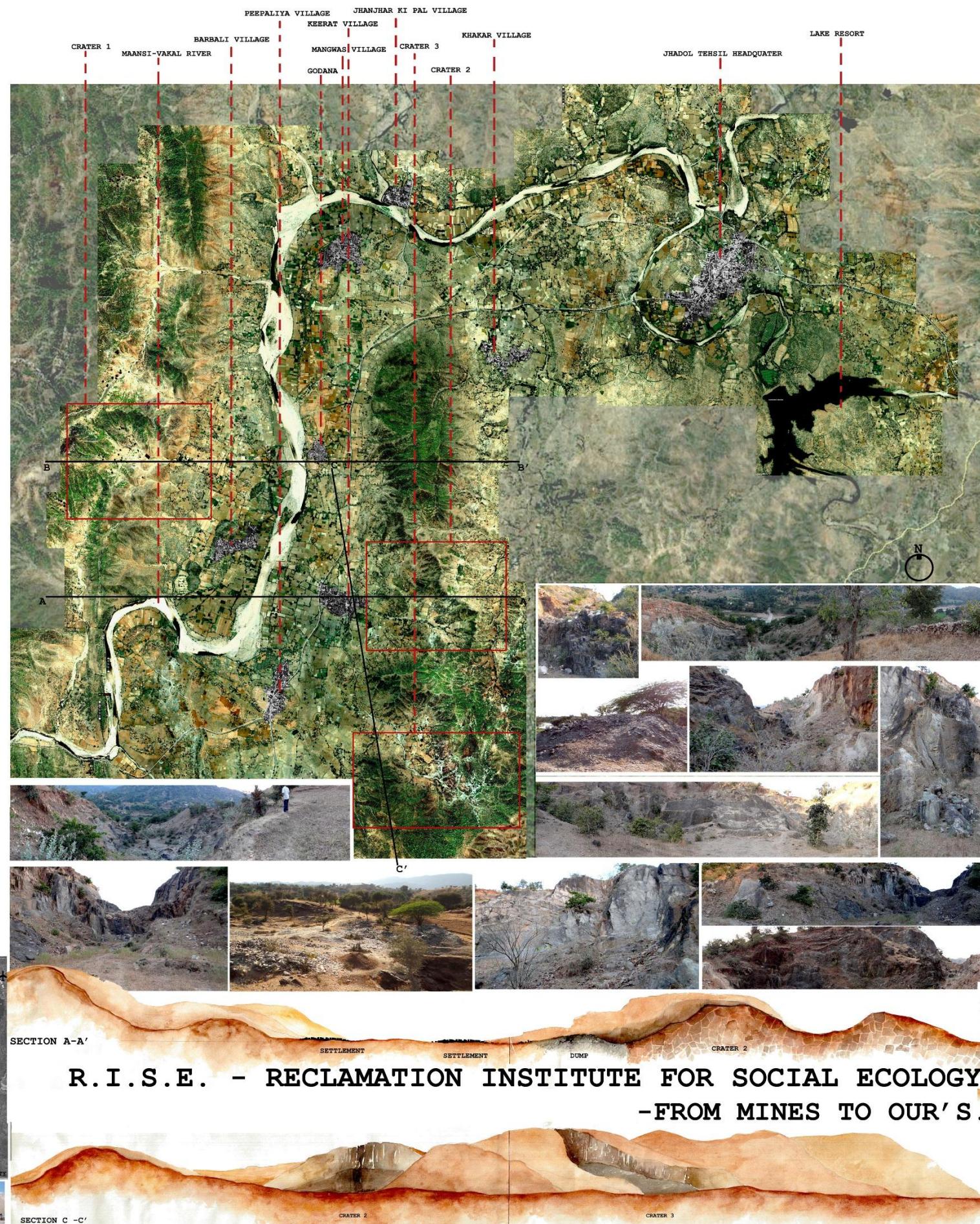
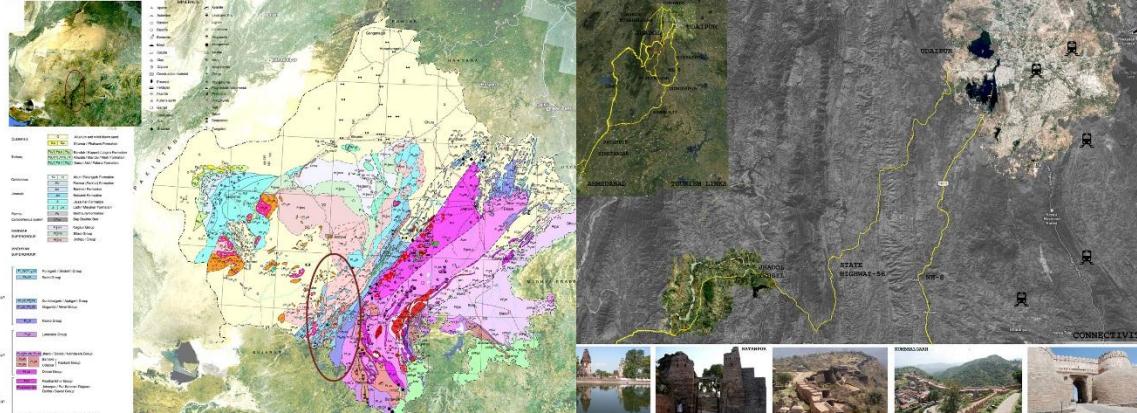
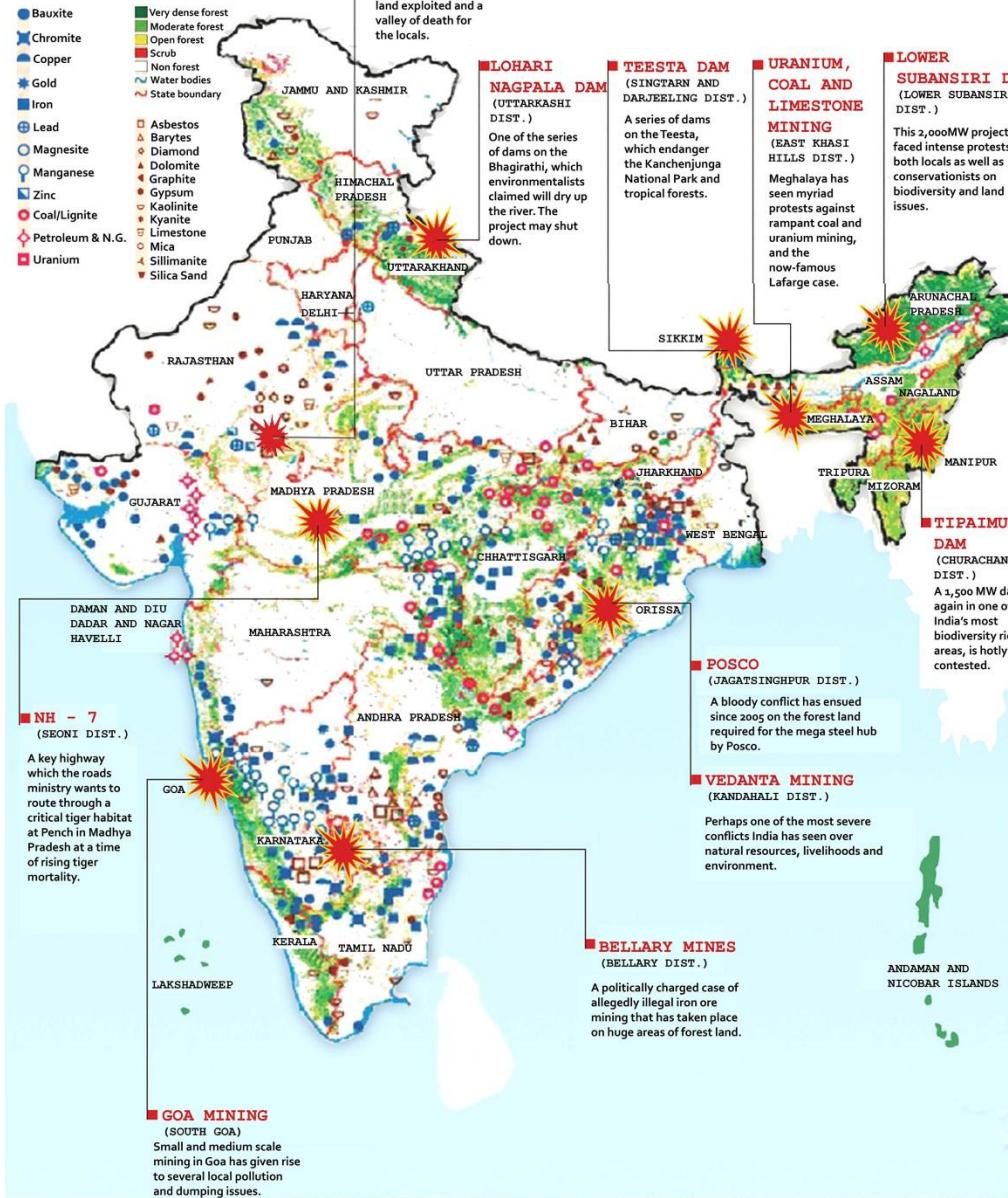


# ZONES OF CONFLICT

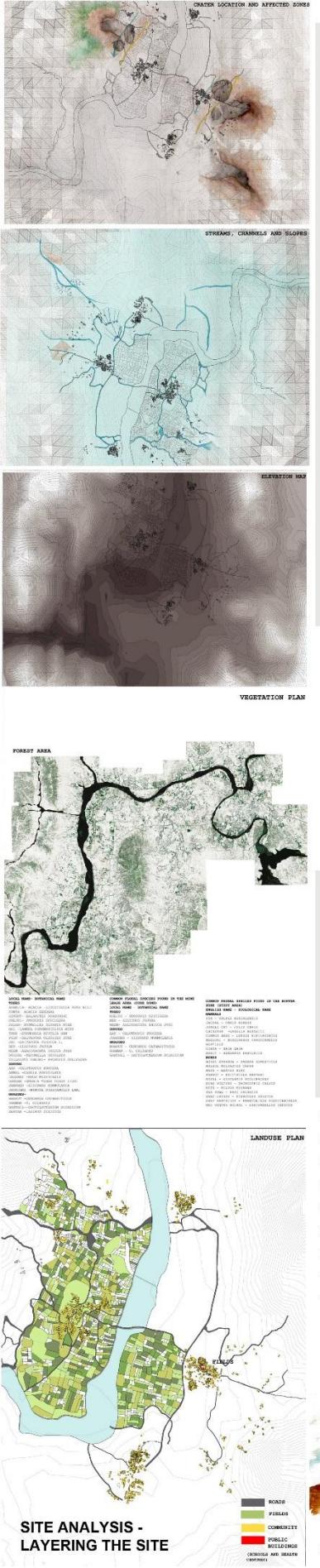
The map of India's green conflict zones clearly shows development pitted against the environment. These hotspots induce hydroelectric projects, mining projects, factories and infrastructure development as the intensifying search for resources consistently squares off against supporters of the environmental cause. Critically, most of India's recoverable mineral reserves are in heavily forested land, which is located in the poorest, most backward districts. The battle then takes on political overtones as in the swathe of land encompassing the Maoist insurgency-affected states of Jharkhand and Chhattisgarh, manifesting itself as a constant struggle involving land for resources, subsistence, livelihoods and environmental conservation.

India's mineral deposits are largely beneath its remaining forests



## CASE STUDY

## PROGRAMME



**E C O O L O G Y**

**EXISTING**

**PROJECT TURIN, ITALY**

**SYNOPSIS**

**IN TOTAL THE REVEGETATION EFFORT INCLUDED:**

- 450,000 M<sup>2</sup> OF HYDRO-SEEDING,
- 15,000 SHRUBS,
- 7,300 TREES AND
- 267,000 LIVE CUTTINGS.

**PROCESS METHODOLOGY+TECHNIQUES**

- Minimize dusting.
- Limit air pollution.
- Control the geotechnical stability of a large area.
- Control the area water runoff guiding collected water across steep cross slopes
- Give strong and immediate support to new vegetation on sterile soils area.
- Runoff control procedure: Deep gullies, had formed in the upper part of the slope.
- Transfer of the collected water towards the toe of the slope by four main "vertical" channels located along the slopes.

**LESSONS LEARNED**

Designers' multidisciplinary group led to a well-balanced and environmentally sustainable project allowing the gradual recovery through natural processes.

**REFLECTIONS AND INSPIRATIONS**

Trucks for removing waste from dumps were discarded due to environmental risks and aerial trams were used to haul the dirt. Vegetation was done by hydroseeding, using the local species to sustain it for longer.

**VERTICAL CHANNELS**

**RECLAMATION INSTITUTE FOR SOCIAL ECOLOGY**

**MINING MUSEUM - EXPLORING THE C'ORE'**

**ENTRANCE TEMPORARY EXHIBITS RESTAURANT LIBRARY COURTS GALLERIES FOR VIEW READING AND SOUVENIER CULTURAL CENTER TRIBAL ART DISPLAY AND SALES**

**PASTURE LANDS FORESTRY FARMING, AGRICULTURAL CROPS AGRO-FORESTRY ECOLOGY BALANCING**

**RECLAMATION INSTITUTE FOR SOCIAL ECOLOGY**

**TOURISM**

**PROJECT BASALT QUARRY, TIMBA**

**PROCESS METHODOLOGY+TECHNIQUES**

Natural succession was encouraged after establishment of groundwaters, seeds from nearby areas were developed

**REFLECTIONS AND INSPIRATIONS**

The time that the natural vegetation takes to grow and inhabit a place must be carefully monitored and watered and manured during alternate seasons, for the most hardy and suitable species to survive.

**PROJECT MINING MUSEUM, JOSINGFJORD, NORWAY**

**REFLECTIONS**

The siting of the building, against the rock edge, frees up the former industrial site to create a landscaped park, addressing the river and providing external exhibition space. The architecture samples particular moments, connecting intimately with the environment.

**STRUCTURE OF COURSES TO BE INCULCATED**

1. MINERAL RESEARCH
2. MINERAL AND GEOLOGY RESEARCH CENTER
3. CENTER FOR MINED LAND
4. CENTER FOR WATER IN MINERAL INDUSTRY
5. CENTER FOR SOCIAL RESPONSIBILITY IN MINERAL INDUSTRY
6. MINERAL INDUSTRY SAFETY AND HEALTH CARE CENTER
7. MINERAL INDUSTRY AND RECLAIMING THE EXPLOITED LAND

**PRATIC**

**PROJECT SMI, QUEENSLAND**

**ENVIRONMENT**

**SAFETY AND HEALTH**

**SOCIAL RESPONSIBILITY**

**WATER MANAGEMENT**

**MINERAL PROCESSING**

**MINING AND GEOLOGY**

**ENERGY**

**CSRMC**

**JKMRC**

**BRC**

**CMLR**

**CCSG**

**PROJECT MINING MUSEUM, EUSKADI, BILBAO**

The location is at the edge of the mine, the building will be over the huge hole and will have large glass walls that will offer an impressive point of view of the opencast mine.

**INDIA SCENARIO**

**STUDENTS AND OPPORTUNITIES**

Over 1500 bachelors students, 750 Graduate students and 300 Post graduate students enrol in mining related programmes every year, in various institutes of the country. Courses like, Mineral engineering, Mining machinery engineering, Fuel and mineral study are in majority. A few also have a small research centre for post-mining related research.

**REFLECTIONS**

The need of the hour are in-depth study and research centers to educate and create awareness among professionals of this field so as to inculcate the practice of sustainable mining for less post-mining effects.

**PROJECT**

**RECLAMATION INSTITUTE FOR SOCIAL ECOLOGY**

**TRIBAL ARTS AND LIVELIHOOD CENTER**

1. COMMUNITY GATHERING SPACE
2. TRIBAL ART REVIVAL CENTER
3. AGRICULTURE INSTITUTE AND FARMING THINK-TANKS
4. SELF-SUSTAINANCE LIVELIHOOD CENTERS
5. MEDICAL SPECIALITY CENTERS
6. EDUCATION CENTERS FOR CHILDREN AND WOMEN

**SECTION B-B'**

**THE PROJECT** is a break away from the Indian social-work tradition, which had an urban, middle-class and academic orientation, to create a programme that respected local skills, providing training and upgrading to help people help themselves. Over the years, the centre has worked with local teachers, health-care providers, solar engineers and hand-pump mechanics in a comprehensive development plan, implemented with the rural poor for the rural poor.

**MUNI**

**THE Barefoot College began in 1972 with the conviction that solutions to rural problems lie within the community. The College addresses problems of drinking water, girl education, health & sanitation, rural unemployment, income generation, electricity and power, as well as, social awareness and the conservation of ecological systems in rural communities.**

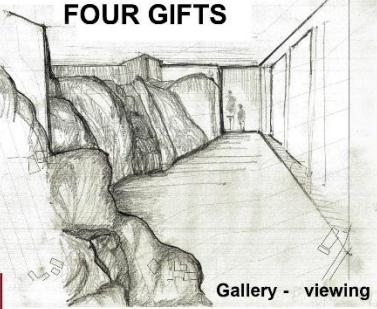
**PROCESS -METHODOLOGY+TECHNIQUES**

The College was entirely built by local people. The campus spreads over 80,000 square feet area and consists of residences, a guest house, a library, dining room, meeting halls, an open air theatre, an administrative block, a ten-bed referral base hospital, pathological laboratory, teacher's training unit, water testing laboratory, a Post Office, STD/ISD call booth, an internet data (cafe), a puppet workshop, an audio visual unit, a screen printing press, a dormitory for residential trainees and a 700,000 litre rainwater harvesting tank. The College is also completely solar-electrified.

**REFLECTIONS AND INSPIRATIONS**

The college has had a tremendous amount of impact on influencing the rural settlements in every aspect of their life. Water resources and solar energy have been used to the maximum and have been conserved for making the campus and the village self-sufficient and sustainable.

## FOUR CHALLENGES-FOUR GIFTS



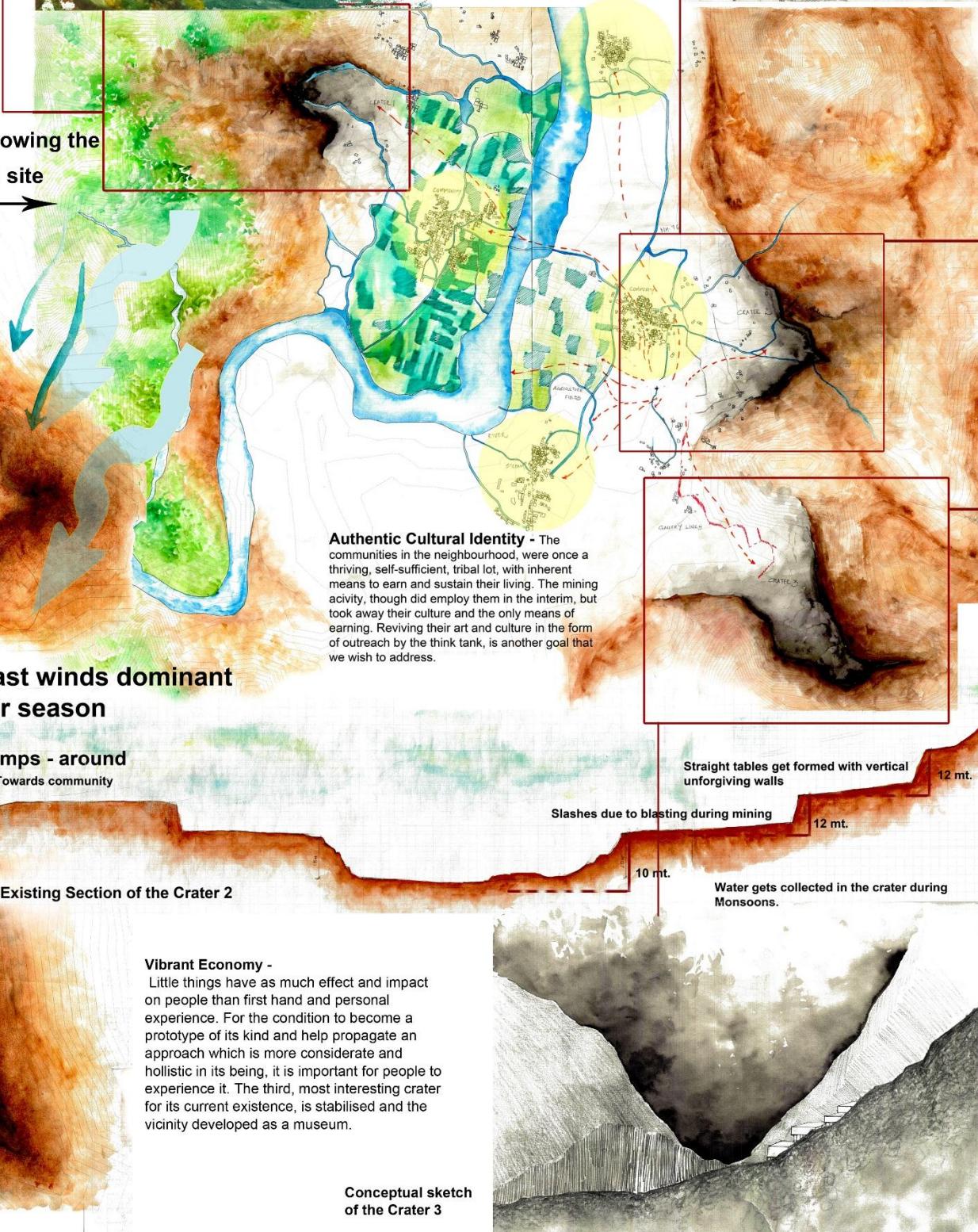
Gallery - viewing

**Social Equity** - The crater closest to the community and in close proximity to their everyday living, is a hazard due to the loose dumps lying around as well as a symbol of death and scarcity in the neighbourhood. Reviving the community, equipping them with skills and providing with the technological think tank, to introduce better systems and methods to alleviate their condition and make them self-sufficient.



**Ecological Renewal** - The crater in the forest of the Aravalli ranges has disrupted the ecology at all levels. Revival of the forest and reclamation of the exploited land in appropriated phases is the most suitable. This, hence becomes a prototype for the various other abandoned mined sites around the site and the other in the country.

Masterplan showing the  
VISION for the site



**Vibrant Economy** - Little things have as much effect and impact on people than first hand and personal experience. For the condition to become a prototype of its kind and help propagate an approach which is more considerate and holistic in its being, it is important for people to experience it. The third, most interesting crater for its current existence, is stabilised and the vicinity developed as a museum.

Conceptual sketch  
of the Crater 3

CRATER 3

CRATER 2

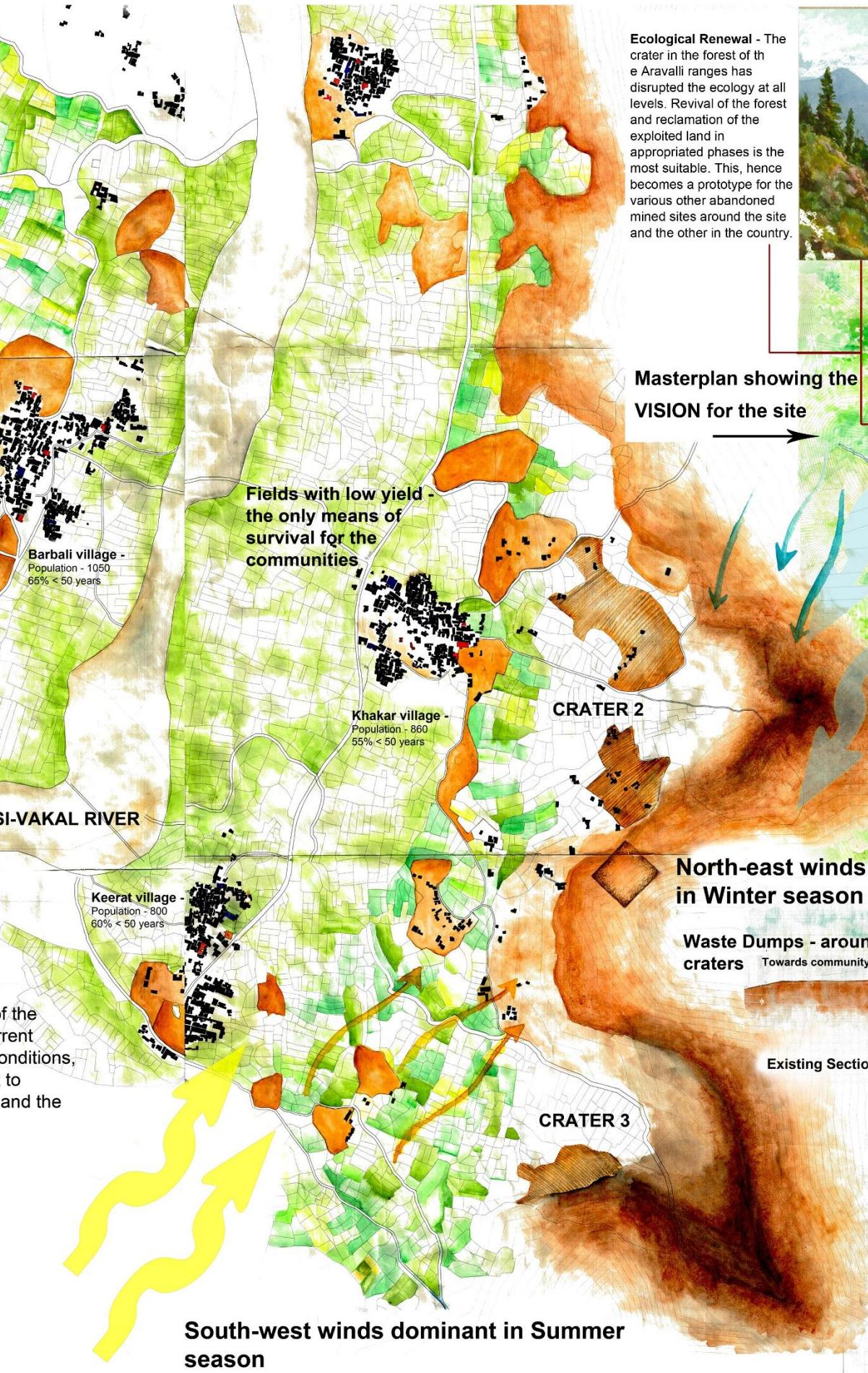
MANSI-VAKAL RIVER

### Study of the Site -

According to the demographics of the villages in the vicinity and the current economy generators and living conditions, a four-point strategy is derived at to holistically address the situation and the exploited site

- LEGEND
- School
  - Temple
  - Clinic
  - Waste Land
  - Agricultural Farms
  - Asbestos waste dumps

South-west winds dominant in Summer season



*"When you build a thing, you can't merely build that thing in isolation, but must also repair the world around it, and within it, so that the larger world at that one place becomes more coherent and more whole."*

- Christopher Alexander

## Architecture as a derivative of Pedagogy

### Center for 'Mined' land regeneration

The department and its curriculum focuses on the rehabilitation of the mined land and exploited soil. Soil building, cleaning of soil and rendering it useful, back to its ecological state are some of the areas of focus. The disturbed ecological state of mined land becomes a huge concern for the locality around and in the larger context also.



### Mineral and Geology Research - Sustainable methods

The techniques and methods of mining of all types of materials, is the major area of focus. Post mining rehabilitation techniques and the pre-mining preparation is of prime importance to make the mining activity least harmful.

### Innovation and redesign department

The area of focus here is to innovate and support research for newer materials so that mining is not required for harmful materials like asbestos. Also, newer machinery and tools and safety methods for workers and to gain maximum efficiency is the area of study.



### Health care, safety and security

Mining can have severe ill effects on the workers and the communities dependent on the land around it. As an example, dealing with the local community, asbestososis as a disease and its cure is major area of concern. Also health care of the communities around and their upgradation shall be focussed.

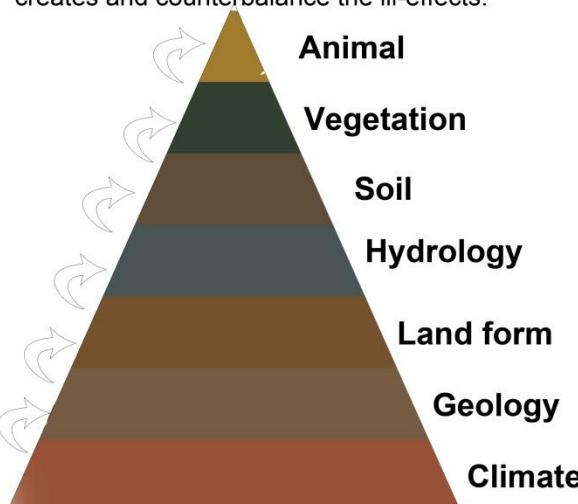


### Social activism and justice

The people once employed, in the mines, are left abandoned, with no or minimal employment opportunity and no means of livelihood. The hygiene, education, health and living standards in general are very poor and require policy decisions to be incorporated. Through this education, they become aware, self-reliant and literate.

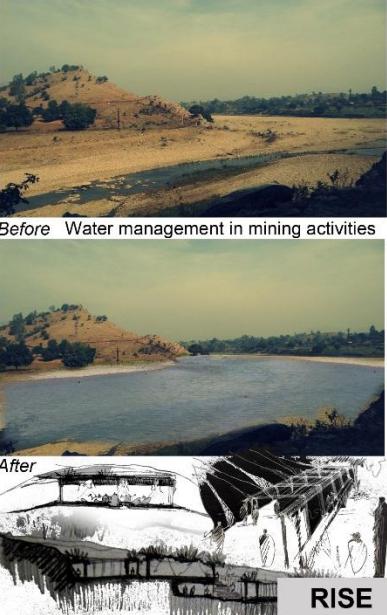
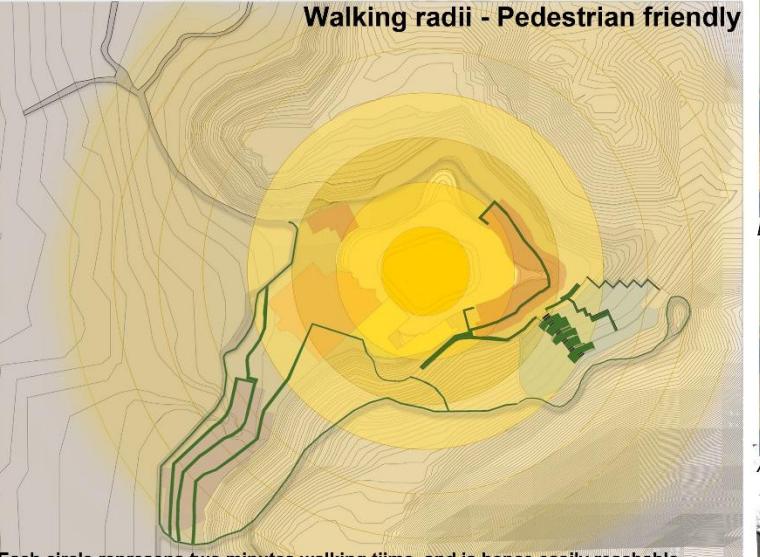
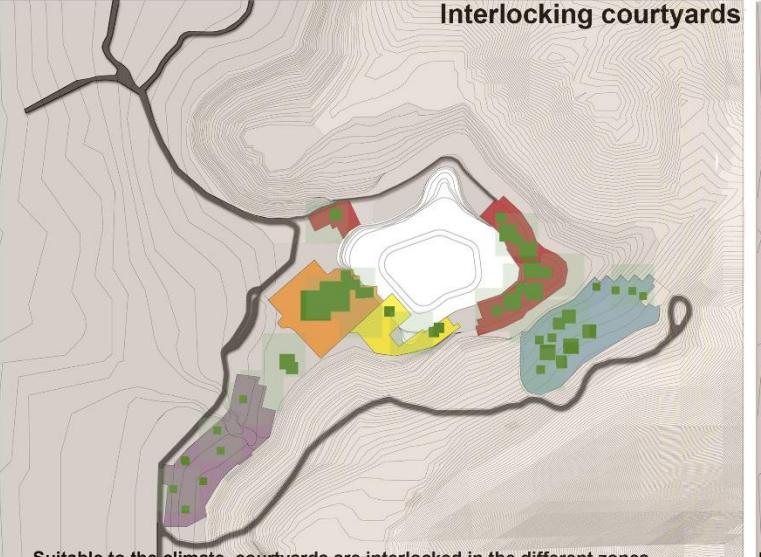
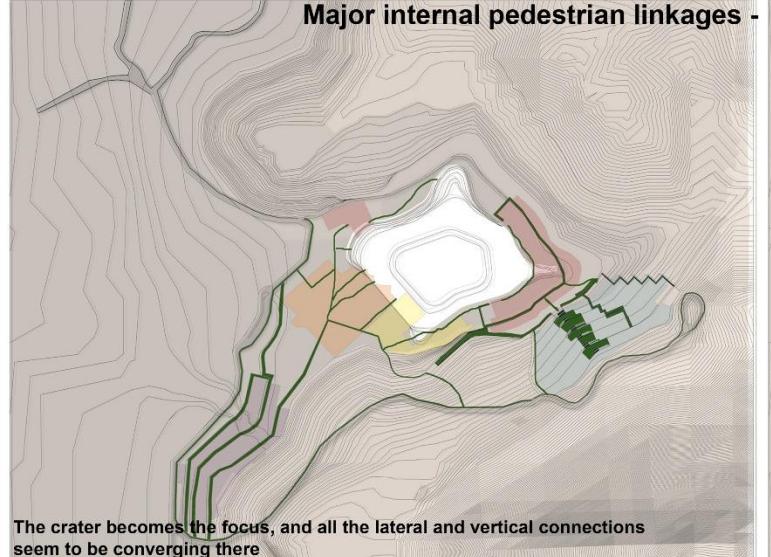
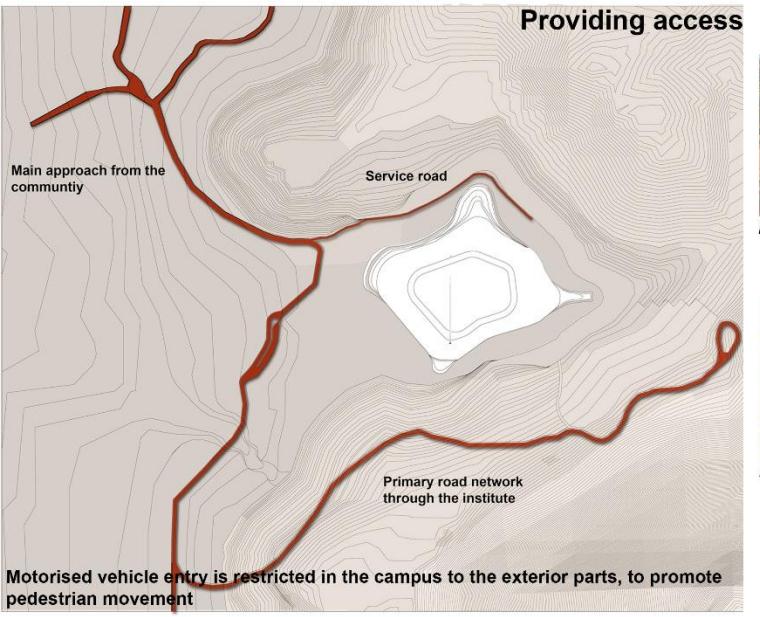
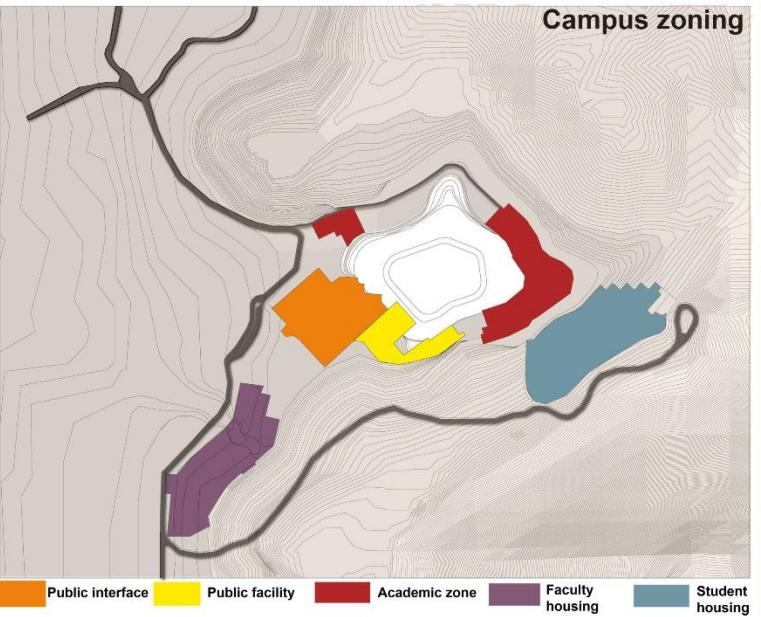
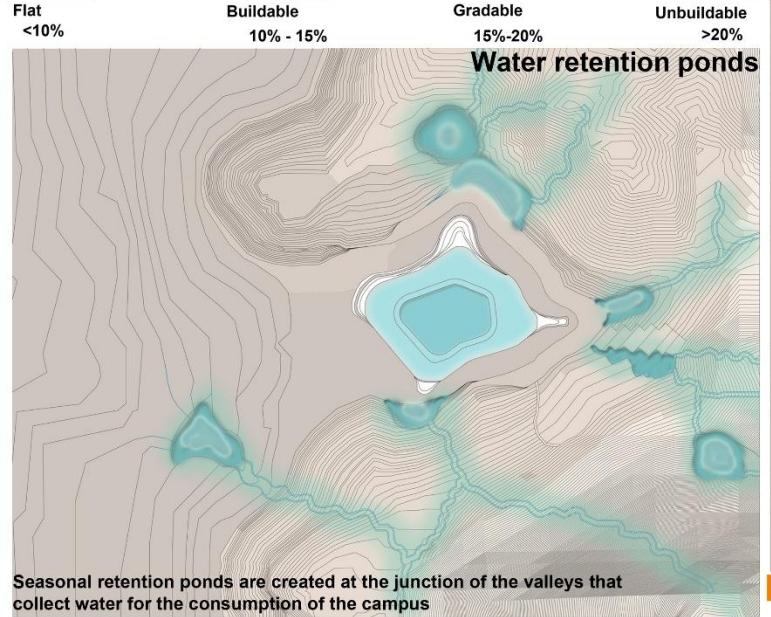
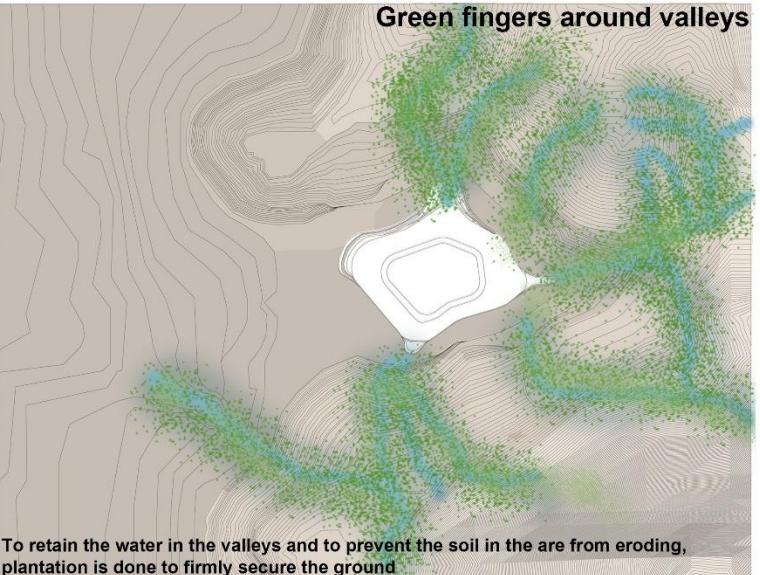
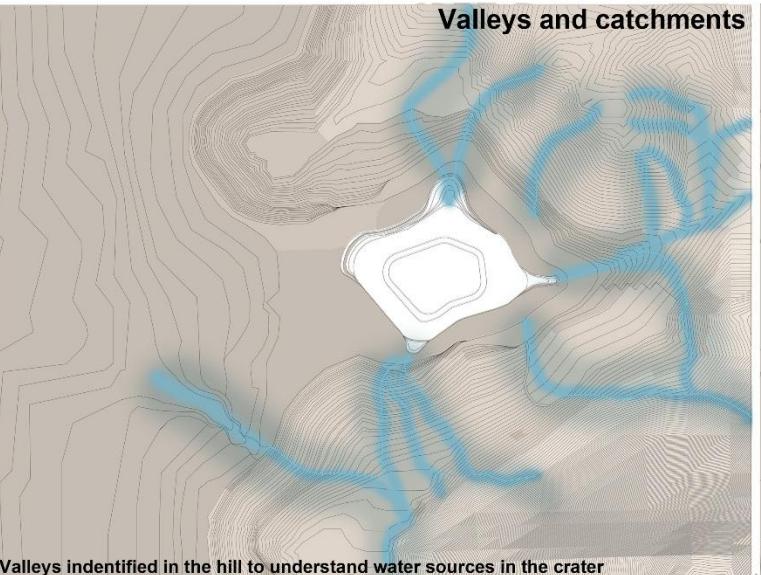
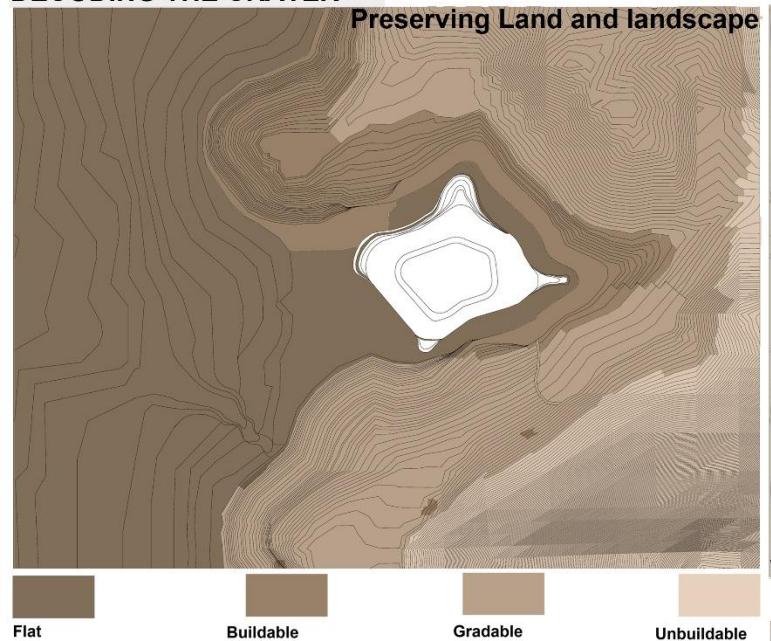
### Climate and micro-climate

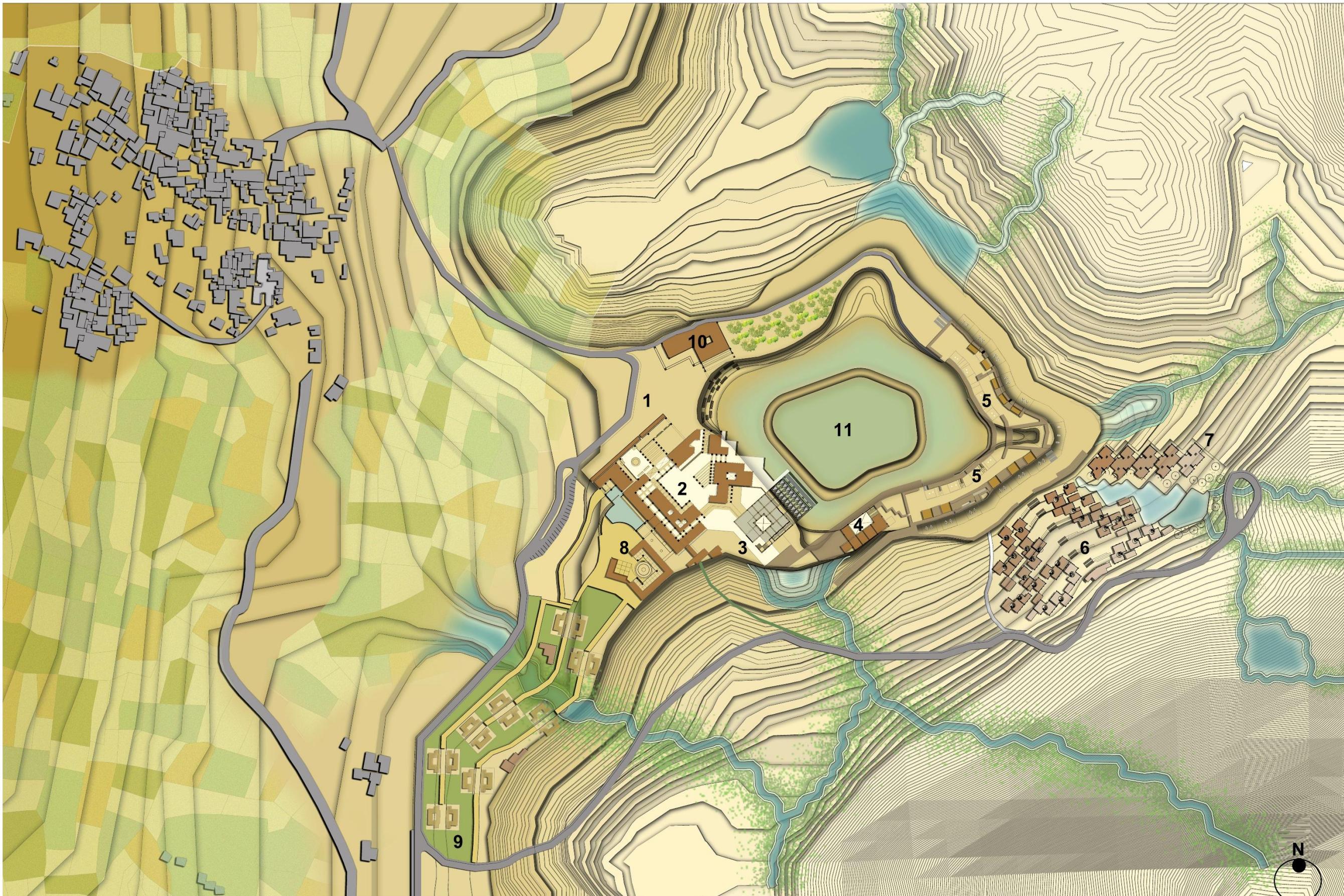
Mining and exploitation of ecology leads to major changes in the micro-climate and eventually to the climate. The study and in-depth analysis of the local level and for general cases should help fight the major issues it creates and counterbalance the ill-effects.



Water and Soil are a major concern in Udaipur and the main focus of the architecture. Water through the water gathering slopes in the site are gathered in a catchment pond and utilised in the institution and the agriculture around. Vantages across the hilly terrain are spectacular and have been tried to be incorporated in the experience. The climate of Udaipur with the unforgiving heat and cold is best accommodated with the clustered form for self-shading.

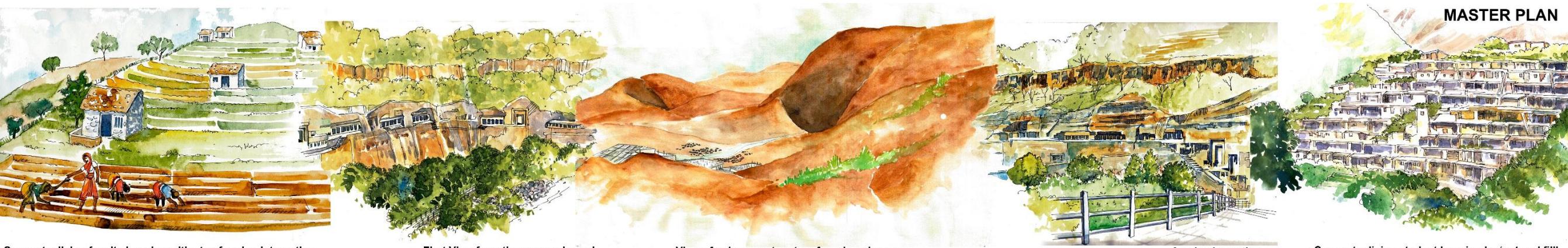
## DECODING THE CRATER





1. First view    2. Administrative block    3. Library    4. Dining Facility    5. Academic block    6. Student housing  
7. Married students's housing    8. Amenity center    9. Faculty housing    10. Outreach of academic section    11. Lake

M LAYOUT  
0 10 20 30 40 50 100  
RISE



Conceptualising faculty housing with step farming integration

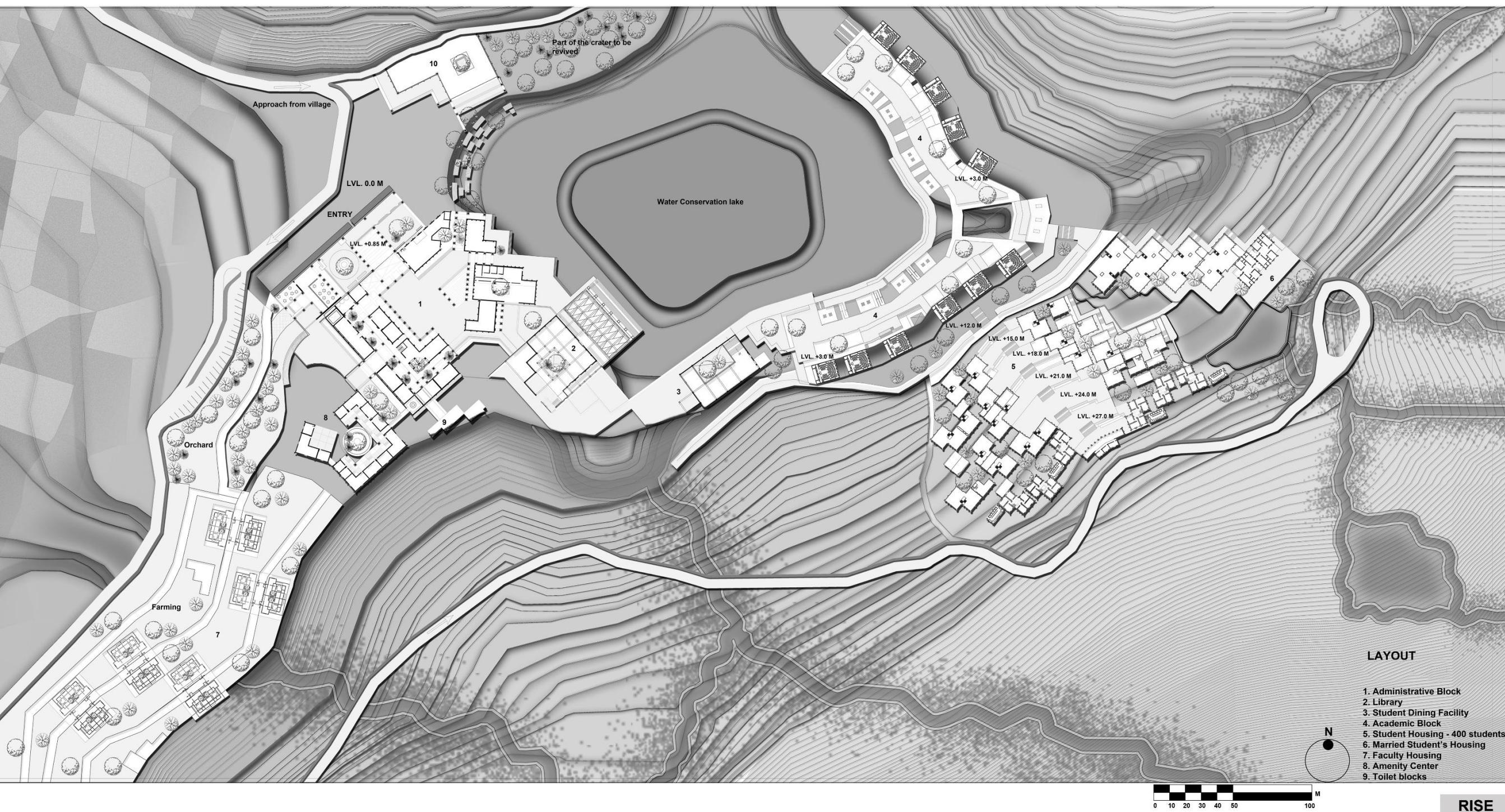
First View from the approach road

View of subsequent craters from housing area

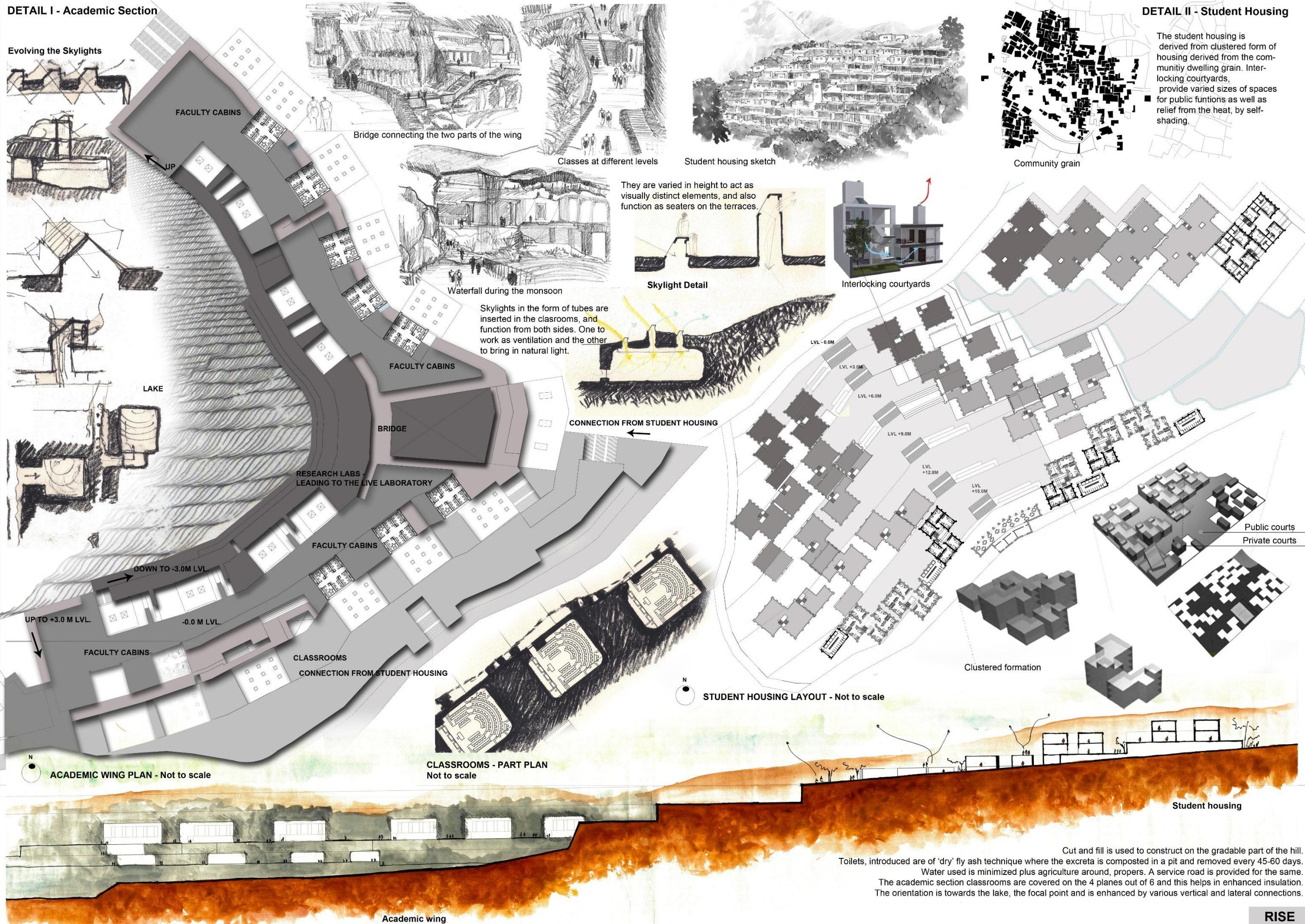
Academic section

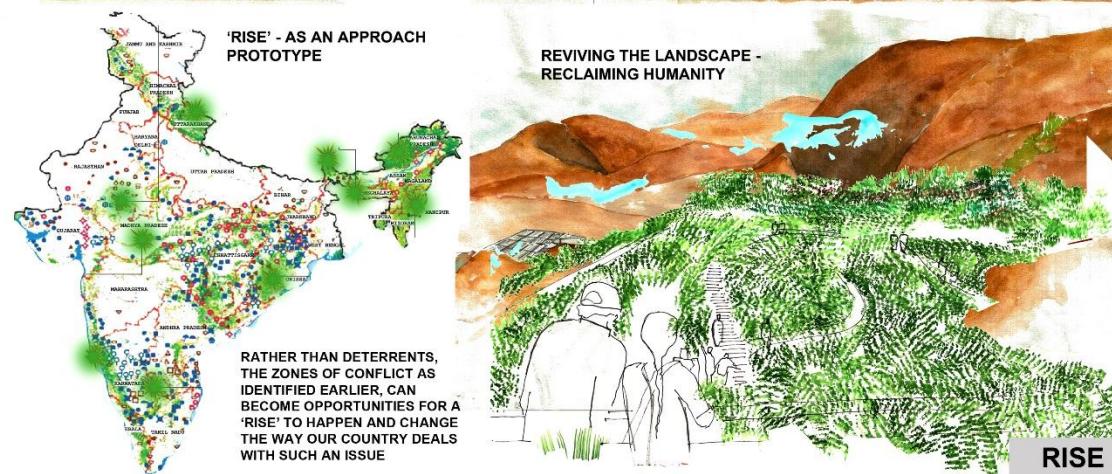
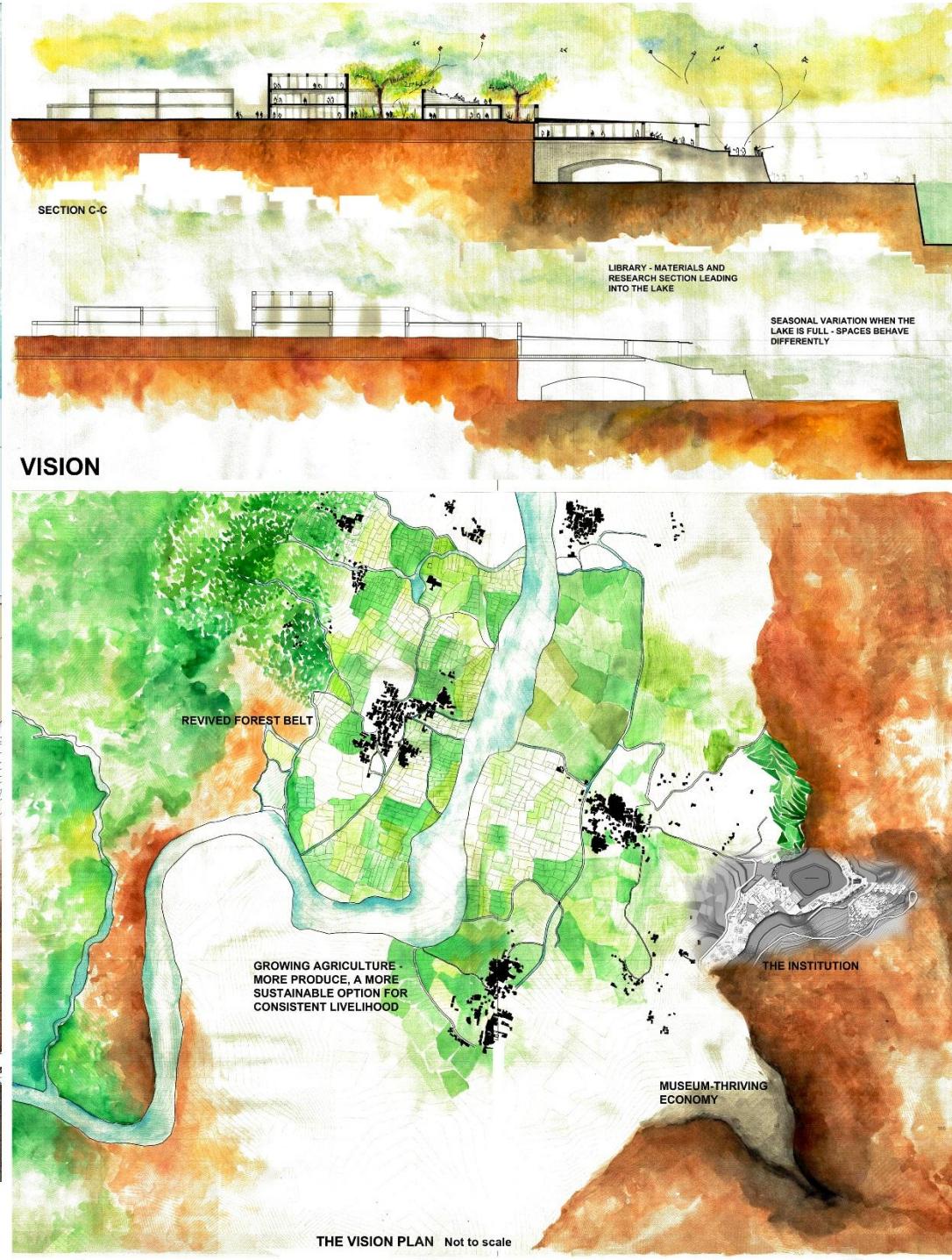
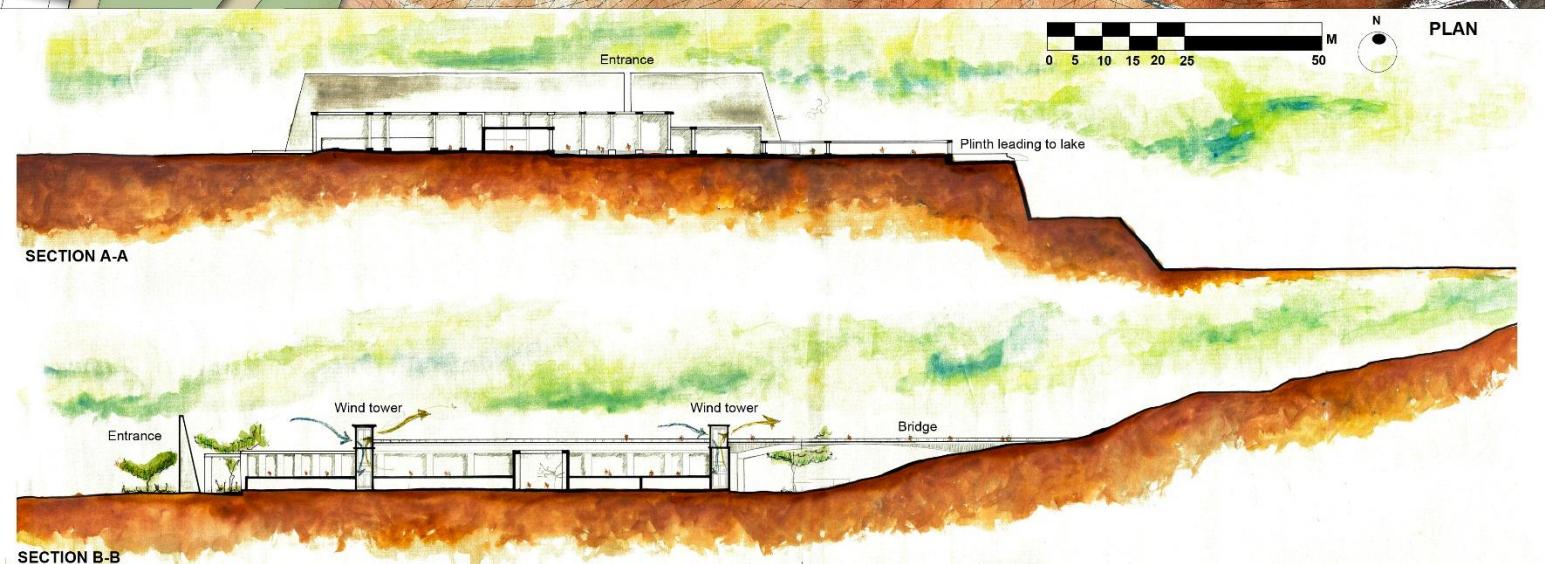
Conceptualising student housing by 'cut and fill'

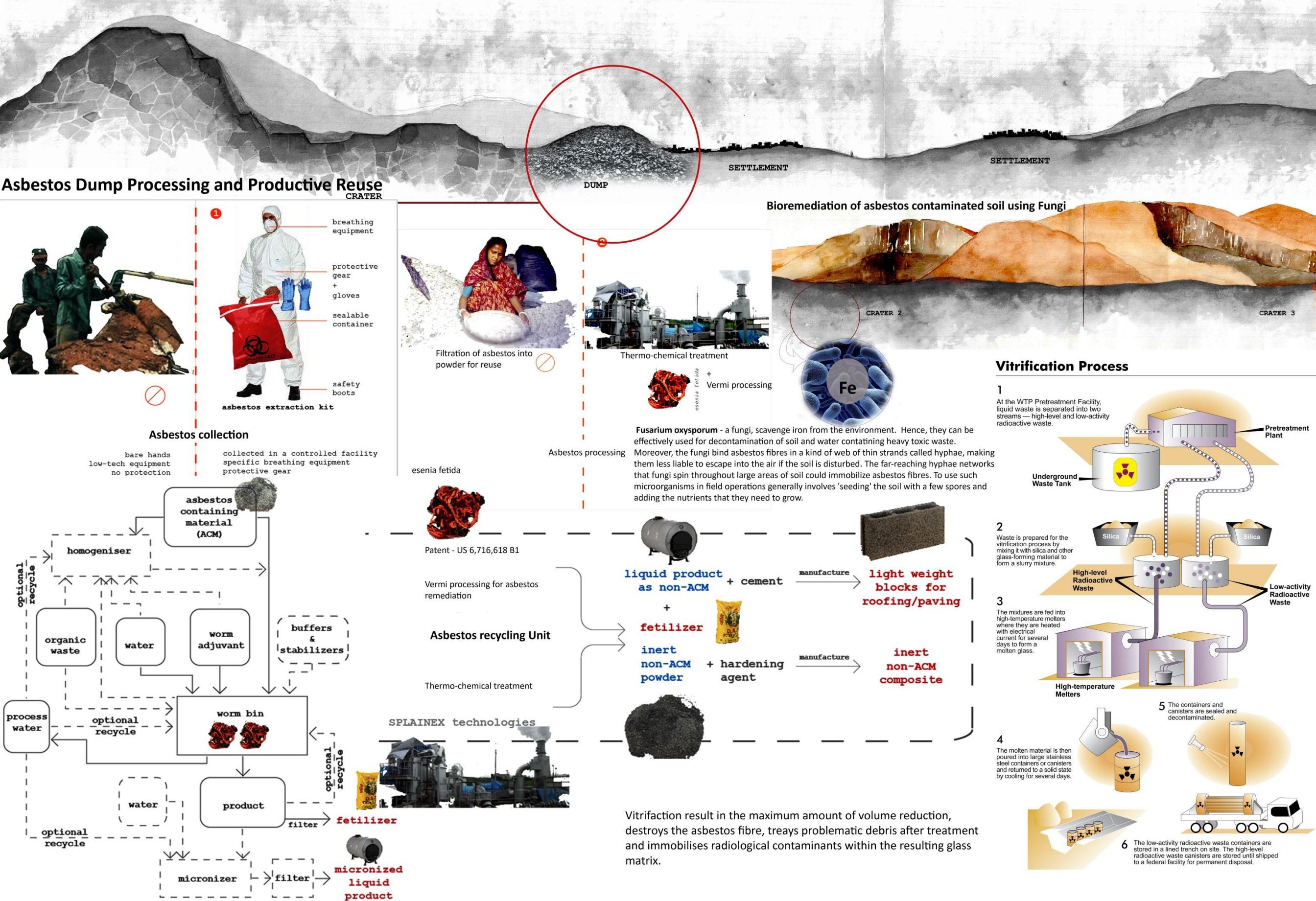
## MASTER PLAN



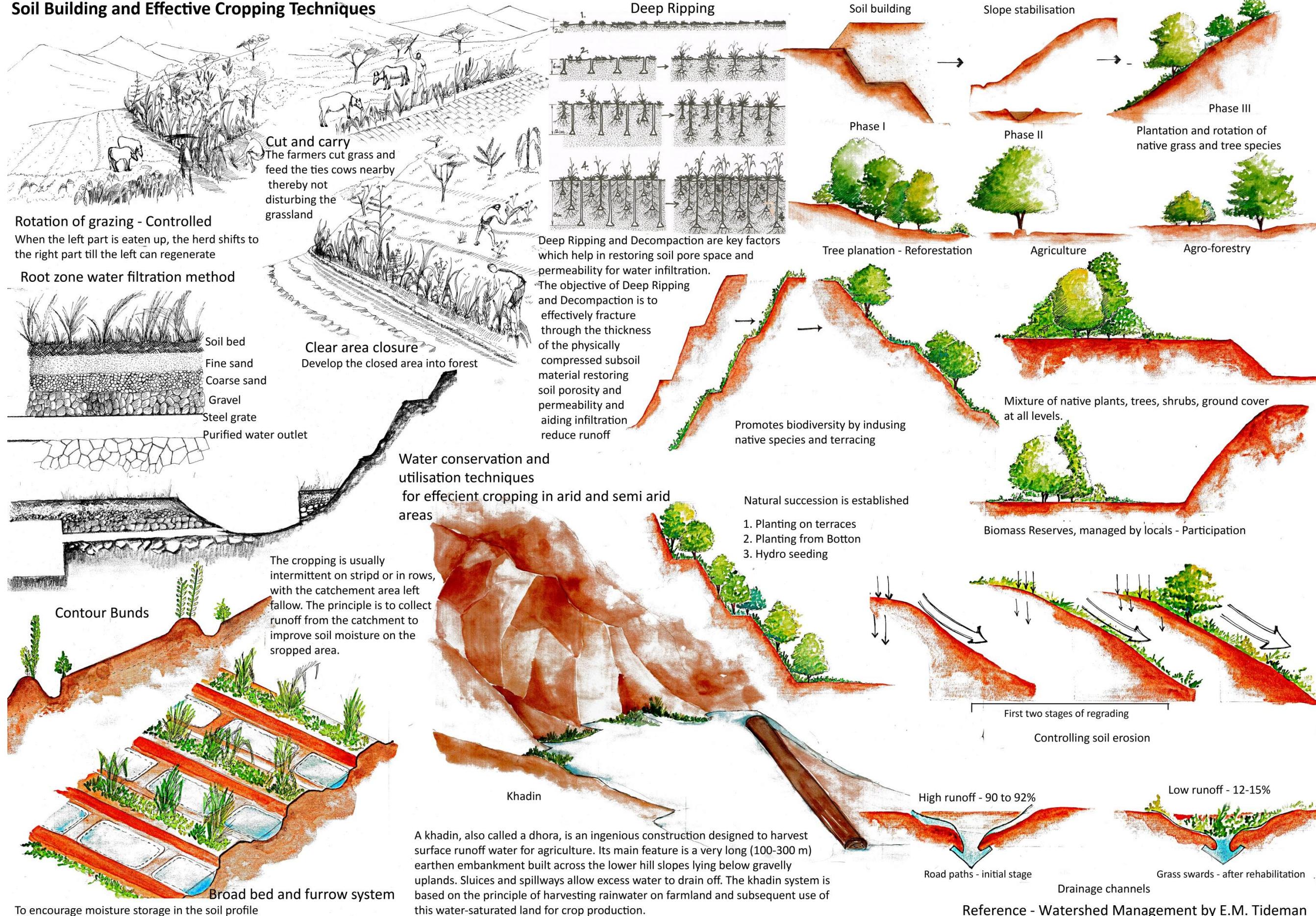
## DETAIL I - Academic Section







## Soil Building and Effective Cropping Techniques



## SOIL BUILDING AND REJUVINATION

Dump treated as depicted in methods

Soil contaminated with asbestos waste

PRESENT CONDITION

PHASE I

Scraping off top soil, Fungi treatment to make asbestos inert, Growing native legumes to repair soil. Organic nutrient supplements to rejuvenate

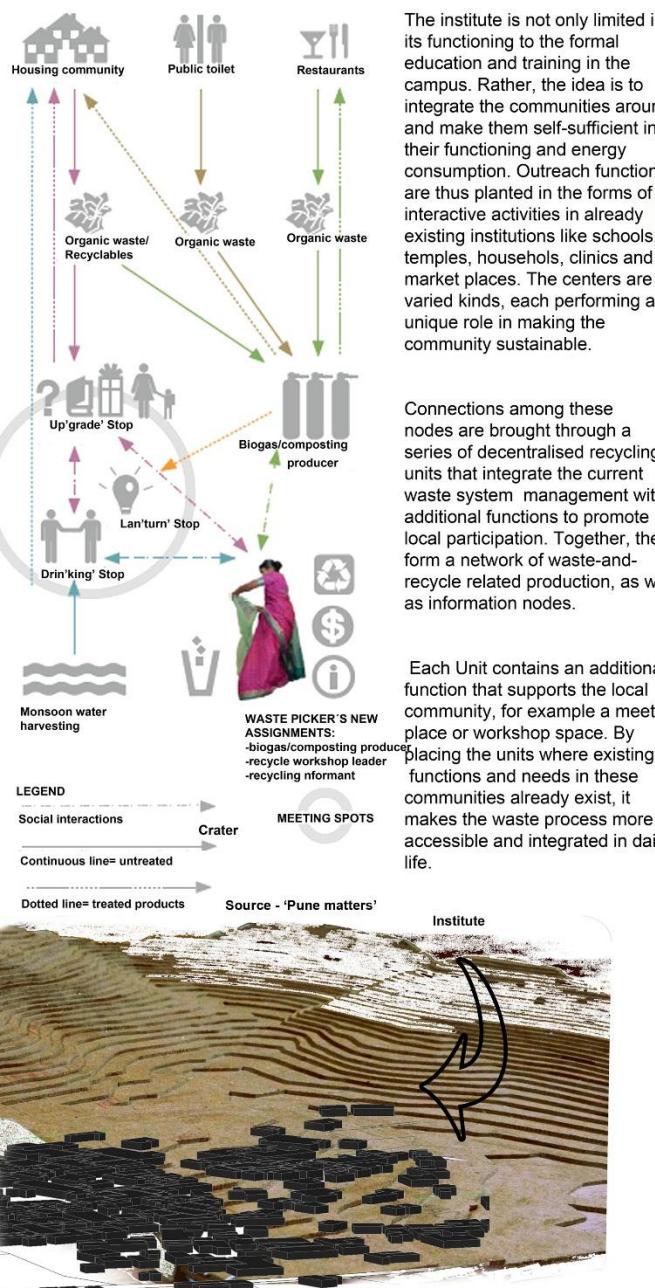


AGRO-FORESTRY WITH NATIVE GRASS AND TREE SPECIES  
(KHEJRI, BABUL, NEEM, TAMARIND, MAHUA CROPS - BHINDI, CORIANDER, BARLEY  
GRASS - CENCHRUS CILIARIS, DICHANTHUM ANNULATUM)

# The Outreach of the Institute

## - A Holistic Approach

### FLows of Production and Services



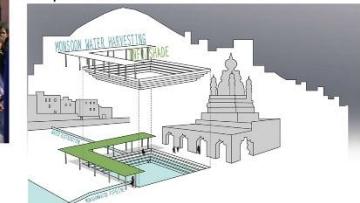
### Up'grade' Stop



### Recycle Workshop

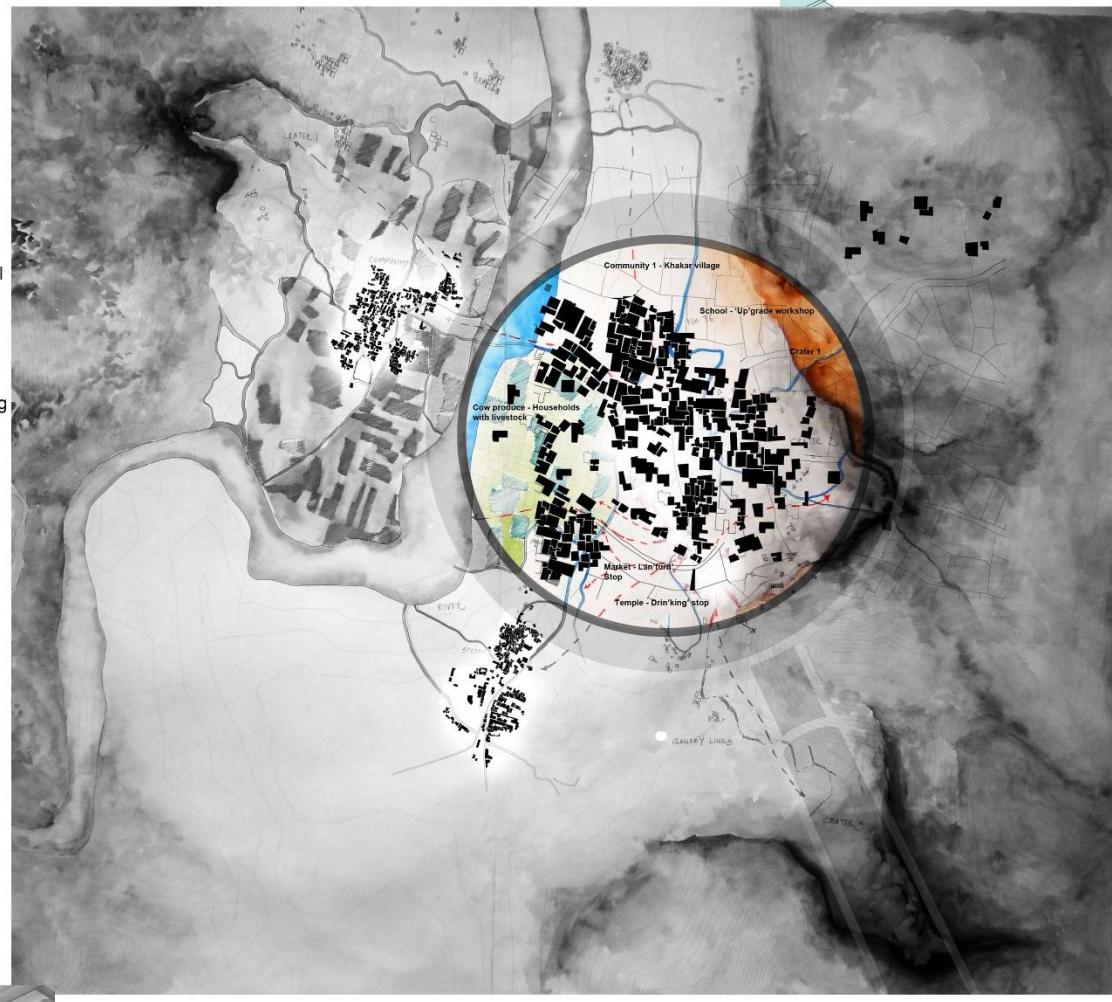


The Up'grade' stop combines a recycling unit with the schools in the locality. It functions as a shed for sorting, recycling and re-selling waste. Through workshops, the city employed waste picker teaches the children how to sort and construct new things made from scrap materials.

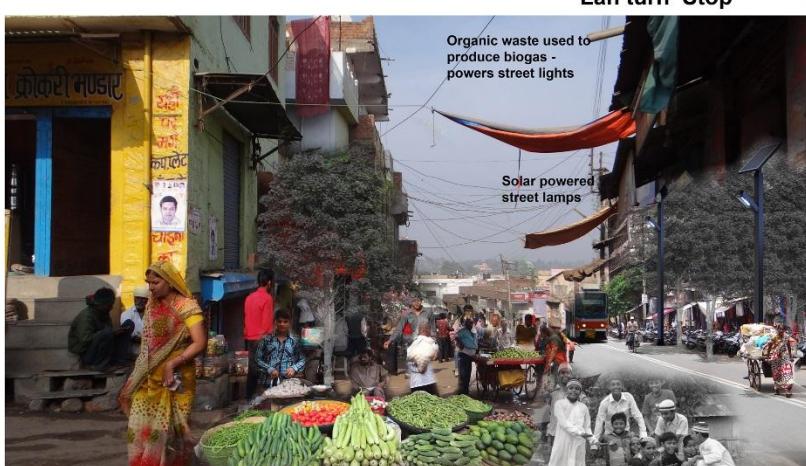


### Drin'king' Stop

The Drin'king' Stop is in close proximity to a temple. It is a cool, public resting place that combines information on water harvesting with a water storage tank. The tank stores the monsoon water and redistributes it to the surrounding neighbourhood during the dry season.



### Lan'turn' Stop



### Cow produce

The cows are a part of almost every household in these communities and for an integral part of the food intake and waste generation. Introduction of small units of biogas producers can be done so as to make the communities self contained in terms of the energy production. Their waste can be recycled into biogas. Hence, a win-win situation for the society.

