

**OF SPIRITUAL AND NATURAL:
REVITALIZING THE RELIGIOUS AND NATURAL TOURISM IN
SITAKUNDA THROUGH ARCHITECTURE AND LANDSCAPE**

By

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A thesis submitted to the Department of Architecture in partial fulfillment of the
requirements for the degree of
Bachelor of Architecture

Department of Architecture
Brac University
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Declaration

It is hereby declared that

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2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
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A handwritten signature in black ink that reads "Tarannum Mahmud." The signature is written in a cursive style with a large initial 'T' and a trailing dot at the end.

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Approval

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Abstract

Among the many religiously significant sites in the country, the largest Pilgrimage for Hindus takes place in the Chandranath hills of Sitakunda, Chattogram in the Bengali month of Falgun. Hindus are a minority in Bangladesh comprising only 8.5% of the total population (population census 2011). Even though lacs of people gather in this site from home and abroad during the Pilgrimage, the quality of the trail and the facilities involved are not up to the mark. The site, apart from being religiously significant, offers magnificent natural setting with Hills, Water springs, view of the Bay of Bengal, making it a popular tourist destination. Thousands of tourists/ trekkers go to this destination in order to go to the top of the hills where the Chandranath temple lies but little do they know about the great Hindu Legends that the hills hold. The Project mainly deals with the Religious Tourism that takes place in a natural setting. It includes designing the whole journey of a pilgrim or a tourist and rejuvenating the hundreds of years' old pilgrimage trail along an undulating topography punctuated by restored historic buildings. This Project also offers new sensitive facility additions with a scope to make people aware of the legends that the hills hold. It starts with the place from where one starts his/ her journey after getting down from the highway or the railway station to the very end of the trail i.e. the final destination, Chandranath temple peak and every necessary facility that falls in between.

Keywords: Religion, Nature, Mythical, Tourism, Pilgrimage, Religious Tourism, Hindu Legends, Pilgrimage Trail

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List of Acronyms

DAP	Detailed Area Plan
BSRM	Bangladesh Steel Re-rolling Mills Ltd
PHP	Peace, Happiness and Prosperity
VSF	Vastu Shilpa Foundation

Chapter 1: Introduction

1.1 Background

Religious Mythology and its importance:

Architecture is the means by which religious legends and mythologies are given a physical shape and are brought to the highest level of emotional participation of devotees. This is how the intangible is made tangible, often through building a house for prayer where one can hope to come in contact with the divine. Mankind has been practicing this since ancient times and therefore this has become an integral part of our culture.

Religious tourism in the Chandranath:

The Chandranath hill being a place of such historical and religious importance has overtime become a major pilgrimage site for the Hindus. The hill has the highest peak (1152 ft.) of Chittagong with a temple on top. This temple along with 2 others, the Birupakshya and the Swayambhunath temple, are the three main temples where every year during “Shiv Chaturdashi Mela” in Bengali month Falgun lacs of Hindus come to perform pilgrimage from home and abroad. People climb the peak of 1152 ft on foot to make a wish after bathing in the waters of Byashkunda. The pilgrimage happens for three days and the mela extends till 10 days in total.

Natural tourism in the Sitakunda:

Sitakunda is very blessed topographically sandwiched between the hills on the east and the sea on the west. The hills have many beautiful springs and hence has become a much hyped trekking site. The sea and the hills being so close (within 10 km) to eachother has made Sitakunda a prime site for natural tourism in Chittagong. Other than these, there is a botanical garden and eco-park near the Chandranath trail in the hills.

1.2 Hypothesis:

Revitalizing Religious and Natural Tourism in Sitakunda through Architecture and Landscape.

1.3 Aims and Objectives:

The main goal of this project is to create awareness about not only the natural beauty of the hill but also the spirituality and the history associated with it. This project aims to cater facilities to pilgrims, tourists, trekkers, young enthusiasts who will come here to go through an experiential journey. The goals of the project will be met by:

- Promoting this area as a desired natural and spiritual tourist attraction through providing proper facilities.
- Creating an experiential journey through architectural interventions.
- Enlightening people about the glorious past that the hill and Sitakunda itself is associated with.
- Taking the religious aspect of the place to its deserved glory, beyond the borders.
- Constructing a proper platform for young students who are seeking religious knowledge.
- Constructing ashrams for age old people who wants to spend their last years in meditation, close to the house of gods.
- Creating economic opportunities for the locals.

1.4 Project Rationale:

- Through promoting tourism economic growth and revenue can be achieved.
- Most of the people in the country including many Hindus are unaware of such a gem of a pilgrimage site that this country possesses and hence they are unaware of the history that it holds. Therefore, a platform of Enlightenment (A museum) will help travelers know about the place they are travelling to.
- Greater exposure will attract young researchers and enthusiasts as a result to which the place will be well documented and will get the deserved fame in home and abroad.

- Having proper facilities for tourists and students will keep the place lively year long and the management will be benefitted.

1.5 Methodology:

For the study, many relevant literature regarding the subject has been reviewed. The data collection has been done in mixed method, both quantitative and qualitative. The data has been collected from governmental and non-governmental documents of relevance. Blogs by famous travel enthusiasts was a great source. To analyze the situation some online surveys, interviews of relevant persons (Purohiths, Moharaj, Pilgrims, tourists, locals) and observation in site has been conducted.

Chapter 2: Background Study

2.1 Religious Tourism/ Pilgrimage in Sanatana Dharma:

Touring, generally, is an outer journey in any significant geographical location which is done for having a getaway and for seeking pleasure. Touring is very important for human beings in order to re-energize themselves by taking a few days off from their hectic schedule. This rejuvenates their body and soul. Like outer tourism, inner tourism is also very important for oneself. The inner tourism here is the religious tourism or pilgrimage which deals mostly with spirituality and is considered a media to come in contact with the divine. It is a religion- induced- travel and the travelers who have religious motivations usually go for pilgrimages or visits to religiously significant places (Kim, Kim & King, 2019). The desires, the vows, the activities that one performs during a pilgrimage are all centered on faith and performing pilgrimage is how one attempts to understand the cosmos around them (Singh, 2006).

Pilgrimage or Tirtha Yatra ('tour of the sacred fords') has been practiced in Santana dharma since ancient times. Even according to *Mahabharatha* (13.111.18), the places where pilgrimage is performed are sacred because of the power of the soil and the virtue of the water and also because those places were visited by sages who made it holy (Bhardwaj, 1973, Sharpley and

Sundaram, 2005). By going through these journeys and performing certain rituals they make a wish and obtain what is called 'fruits' as a transformation of themselves. This whole process makes the pilgrimage sites sacred places or sacredscapes and for Hindus this tirtha yatra means the spiritual crossing of the sacredscapes in order to be transformed (Singh, 2006). Pilgrimage is a spiritual quest, a process to attempt to come in contact with the intangible (the divine/ the cosmos) by the manifestation of symbolic and tangible psyche elements. There are three stages in hindu pilgrimage: Initiation (the beginning of the journey), liminality (the experiences in the journey) and re-aggregation (the homecoming). The human goal is to find peace in the process (Singh, 2005).

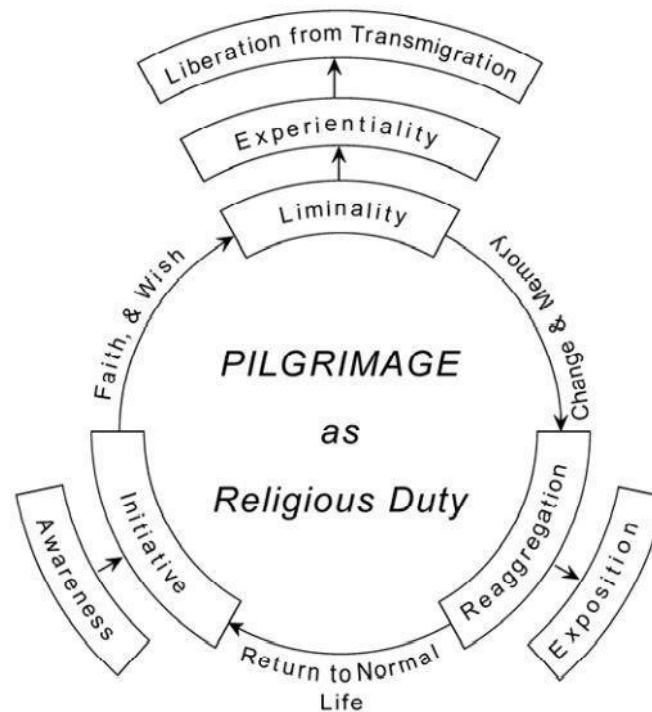


Figure 1: Pilgrimage as religious duty (Source: Collected)

2.2 Tourism and Environment:

One of the very important sectors that has a very significant role to play in the economic dynamism of a country is Tourism. It is a travel for pleasure seeking, religious, leisure, business or family purposes, usually for a short amount of time. UNWTO has defined tourism as “Tourism comprises the activities of persons traveling and staying in places outside of their usual environment for not more than one consecutive year for leisure, business and other purpose.” Tourism can be domestic or international and it can earn foreign currency in large amount. It creates more employment opportunities and opens doors for cultural exchange (Roy and Roy, 2015).

The tourism that involves natural environment mainly is called ecotourism. The International Ecotourism Society defines ecotourism as- responsible travel to natural areas that conserves the environment and improves the welfare of local people. Another definition by the Australian Commission on national ecotourism strategy is- nature based tourism that involves education and interpretation of the natural environment and is managed to be ecologically sustainable. Hence ecotourism does not only mean touring in a natural setting. It has three main components. They are: Environmental, social and economic components. (Mosquera-Laverde, Vasquez-Bernal and GomezEspinosa, 2018). The following diagram has a clearer picture.

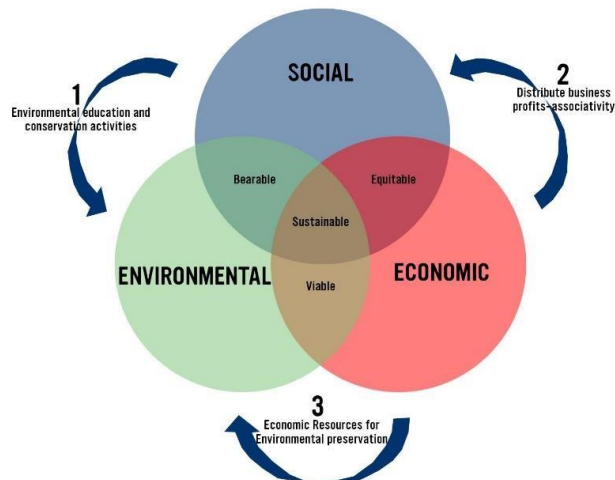


Figure 2: Components of Ecotourism (source: Green Engineering that focuses on ecotourism as an environmental strategy, 2018)

Hence Ecotourism is something that will not only benefit the tourists or the tourism organization but will also benefit the local community and conserve the natural elements. If all three components are positively met, then a sustainable ecotourism can be achieved. Through tourism revenue is earned which contributes to the economy and is used for environmental preservation. The locals are involved directly through employment opportunities and the economy is boosted through distribution of business profits associatively. Environmental education and conservation activities provides social learning.

2.3 Ecotourism in Bangladesh:

Bangladesh is a very blessed nation topographically. Due to the Himalayas on the north and the Bay of Bengal on the south major rivers flow through Bangladesh carrying alluvial soil with it, making Bangladesh a riverine country and the largest Delta in the world. Naturally, to protect the southern region from the cyclone disasters from the Bay of Bengal, Bangladesh has the largest mangrove forest, the Sundarbans, in the Khulna region which is a world heritage site. Other than these Bangladesh is filled with natural blessings hither and thither with off shore islands, haors and wetlands, small mangrove forests, largest sea beach- Cox's Bazaar, mountain range of the east and the flora and fauna associated with these. All these together makes Bangladesh a place with great potential for ecotourism. Traditional culture, archaeological site and ethnicity can also be a part of ecotourism and Bangladesh has great potential in these sectors too. The ongoing ecotourism in Bangladesh includes Tea plantations in greater sylhet, hill forests of the hill tracts, sandy sea beach in Cox's bazaar, tribal life of the eastern region, village lifestyle and forest wildlife.

There are many potential sites in Bangladesh where ecotourism can be developed and promoted more. The St. Martin's island stands as a great example which has the coexistence of corals, algae, seaweed grasses and mangroves. The world class corals, the sea blue clear water and the many visible marine species in it are great tourist attractions. However, the tourism that is happening there now (mass tourism) have adverse effects that effects the coral, marine life negatively. Hence, ecotourism should be developed there (Howlader, 2013).

Through ecotourism the income and standard of living of the people of a place can be improved. Local arts and crafts, agricultural products, small cottage industries can be associated with the tourism and hence boost their economy and lifestyle. All in all, through ecotourism both the nature and the culture of a place can be revitalized.

2.4 History of the Region:

The civilizational history of Bangladesh goes back to four millennia with Hindu and Buddhist empires being dominant in the country's early History. The Muslims came much later in the subcontinent. Among the many cities Chittagong was mostly home to ancient Bengali Buddhist Samatata and Harikela states. However, the Sitakunda region in Chittagong was mostly occupied by Hindus and almost all the land of the central Sitakunda was owned by them from the early British colonial rule. The Chandranath hill is in Sitakunda and is a mystical place with lots of Hindu legends like being one of the two Shakti peethas in Bangladesh, having the bath place "kunda" of Sita when Ram and Sita were in exile, having the "Patal Bhedi Shiv" in the hills etc.

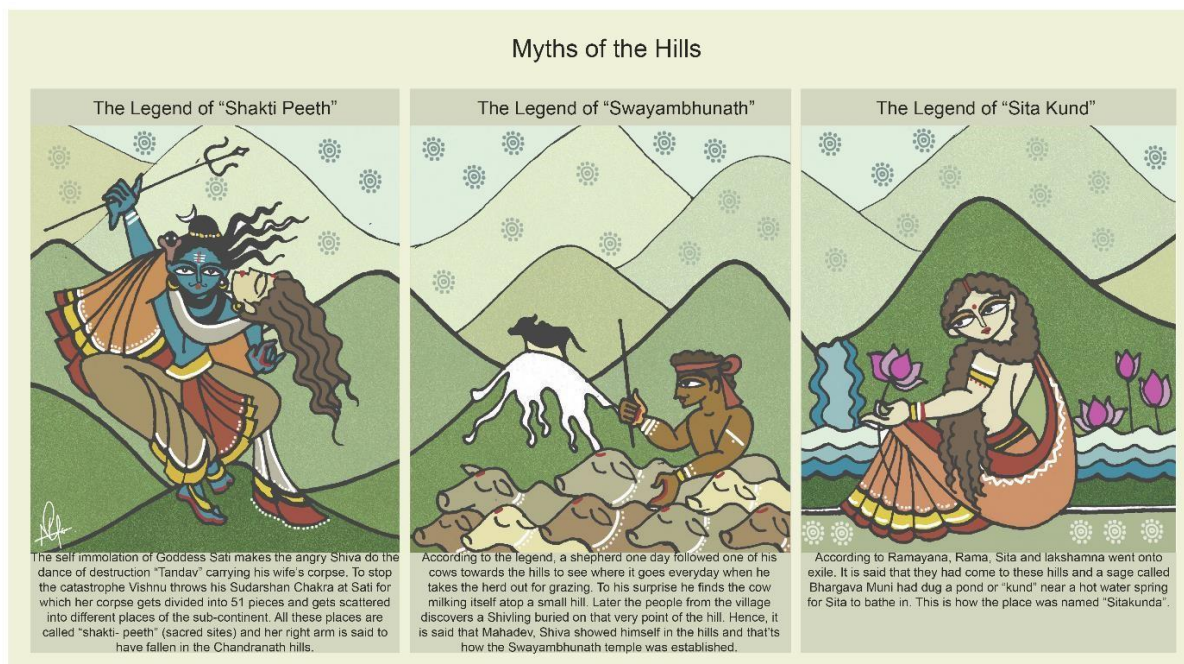


Figure 3: Myths of the hills (Source- Author)

Chapter 3: Contextual Study

3.1 CULTURE AND COMMUNITY:

3.1.1 Site Location: The Chandranath hills is located in Sitakunda and Mirsarai Upazila with the highest peak Chandranath temple in Sitakunda. The area of Sitakunda upazila is 483.97 square km of which 61.61 sq. km comprises of forest area. Sitakunda has mirsarai to the north, Pahartali to the south, Fatikchhari and Hathazari to the east and the Bay of Bengal and Sandwip island on the west. The Sitakunda hill range or the chandranath hills is a 32 km long ridge with the highest peak at 352 m (1155 ft) above sea level.

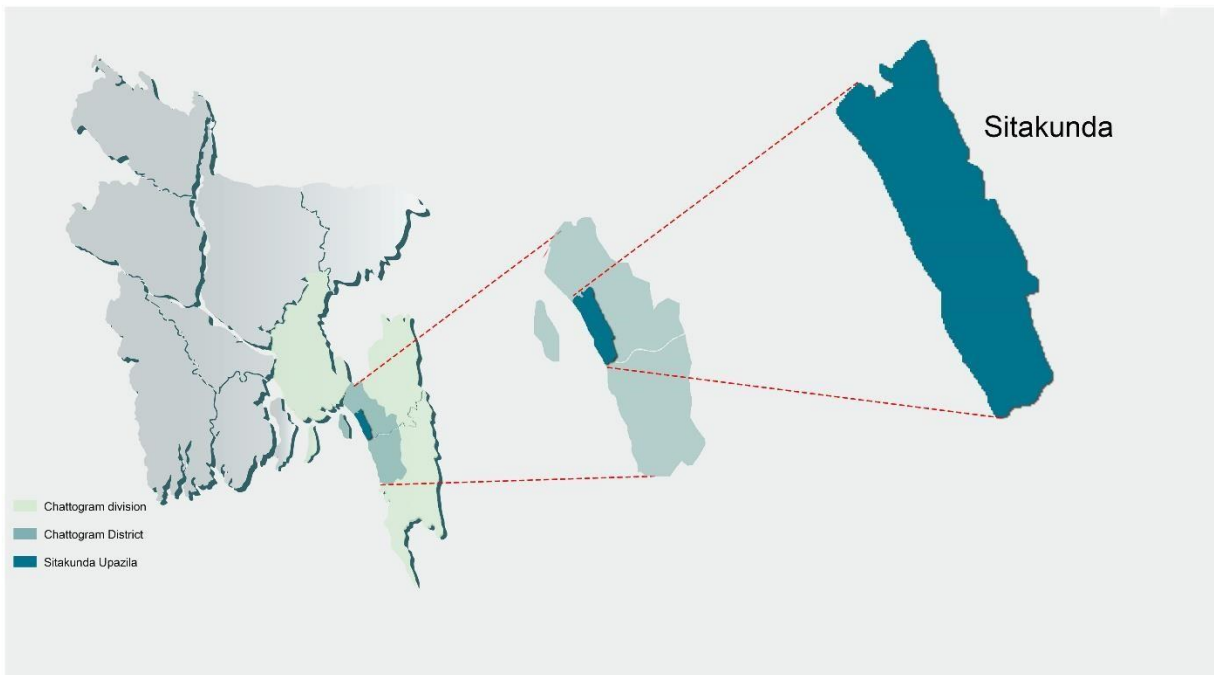


Figure 4: Sitakunda Upazila in Bangladesh Map (Source: Author)

3.1.2 Surrounding land use: Most of the land in Sitakunda is agricultural land. Other than the sandy area the land towards the west (sea) is fallow land and mangrove forest.

The sitakunda hill forest is towards the east with the urban area (Upazila headquarters, Bazaar area, College area) 32 km north of Chittagong city.

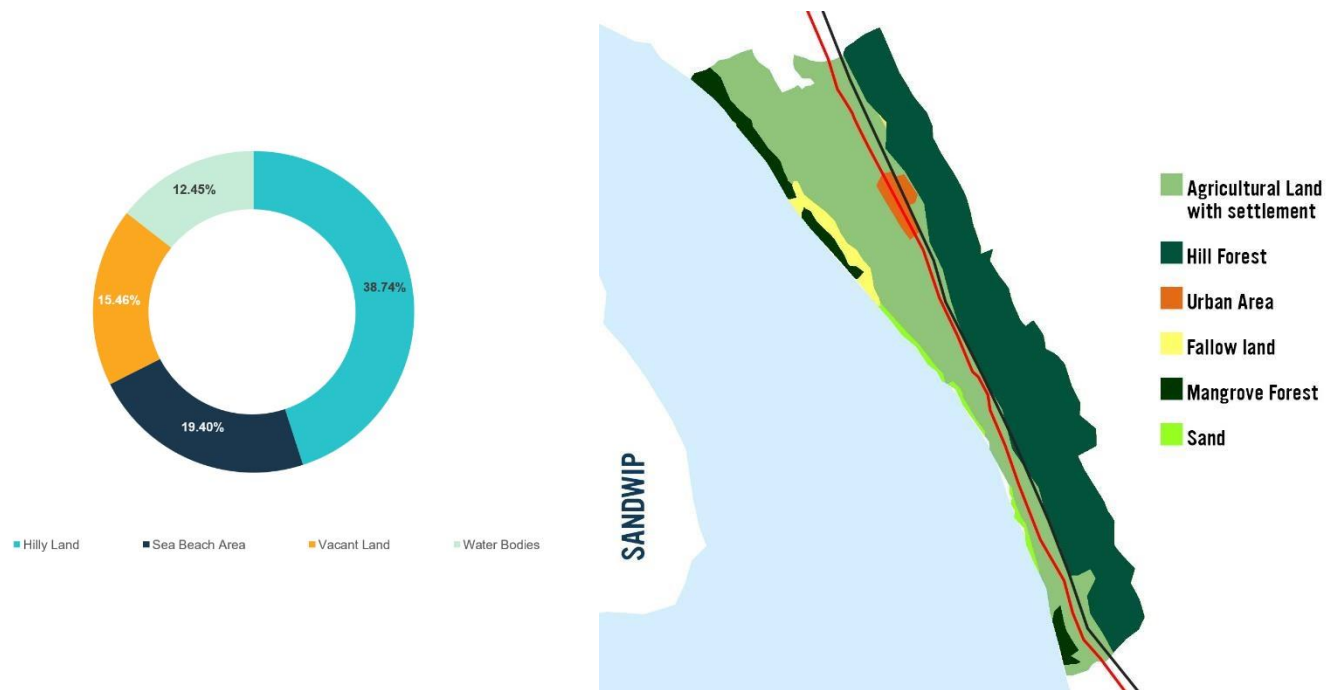


Figure 5: Land use pattern of Sitakunda Upazila (Source: Author)

A more detailed land use pattern around the urban area includes Hindu religious facility area (Mohonto estate, ashrams and temples) besides the aforementioned land use. The Chandranath Trail is a major pilgrimage site for the Hindus due the presence of its rich Hindu legends.



Figure 6: Land use map around Chandranath Trail (Source: Author)

3.1.3 Surrounding Building type: The area between the highway and the railway in the urban area is the densest area with the Upazila and union headquarters, commercial buildings, shops and retails and many institutions. The area after the railway is mostly comprised of buildings with homestead, street side shops and temple facilities with very few

schools. The building type on the hill forest comprises of temples and tourist stops (refreshment stalls, food stalls, etc.).

Figure 7: Building type map (source: Author)



3.1.4 Hindu Temples on the trail: Among the many temples situated on the trail the most important ones which are directly associated with the pilgrimage are situated on top of the hills. Going to the peak, Chandranath temple is the ultimate destination for the pilgrimage.

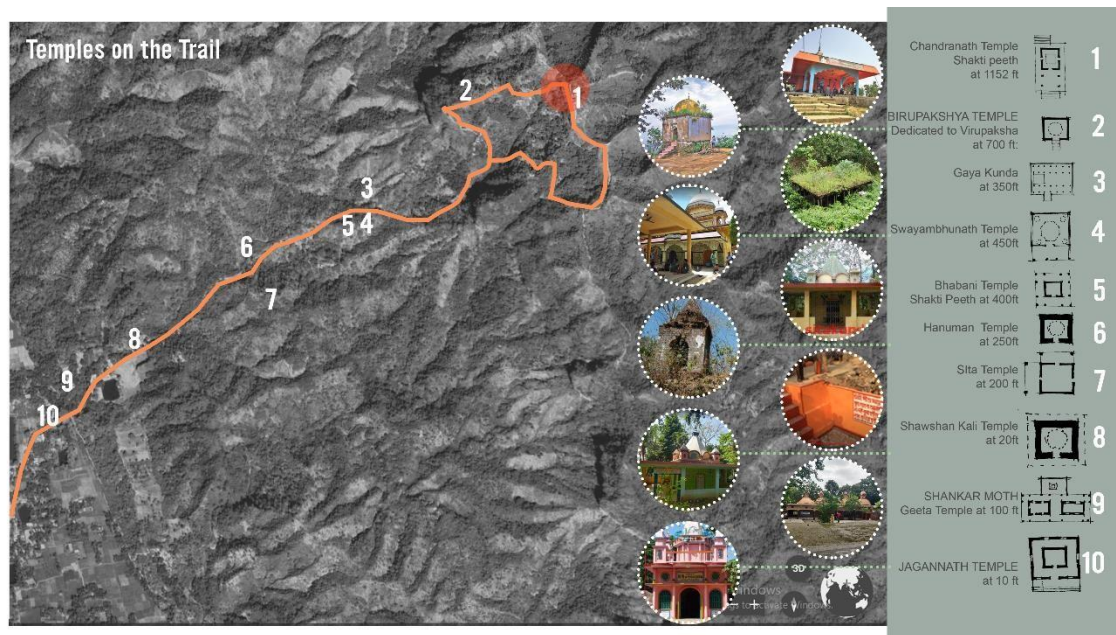


Figure 8: Temple's location (source: Author)

3.1.4 Socio Economics: The economy of Sitakunda is largely driven by the Dhaka Chittagong Highway which goes right through the middle of the upazila in north south direction. Chittagong has always been an ancient sea port due to its natural harbor and is now known as the port city. The Portuguese termed Chittagong as 'Porto Grande de Bengala' meaning the grand harbor of Bengal. The major economy from Chittagong comes from the

ship building industry and the major portion of economy in sitakunda evolves around the ship breaking industry. The locals of Sitakunda has been engaged in different ways with the ship breaking industry. Many industries like Abul Khair Steel industry, BSRM, PHP ship breaking and recycling industry are directly involved in this business and many locals are employed in this business.

The Mirsarai economic zone is being implemented taking a vast area of land in Mirsarai. The port-link road will be directly connected with a new bypass road through embankment and the economy of the place will boom in the region in future.

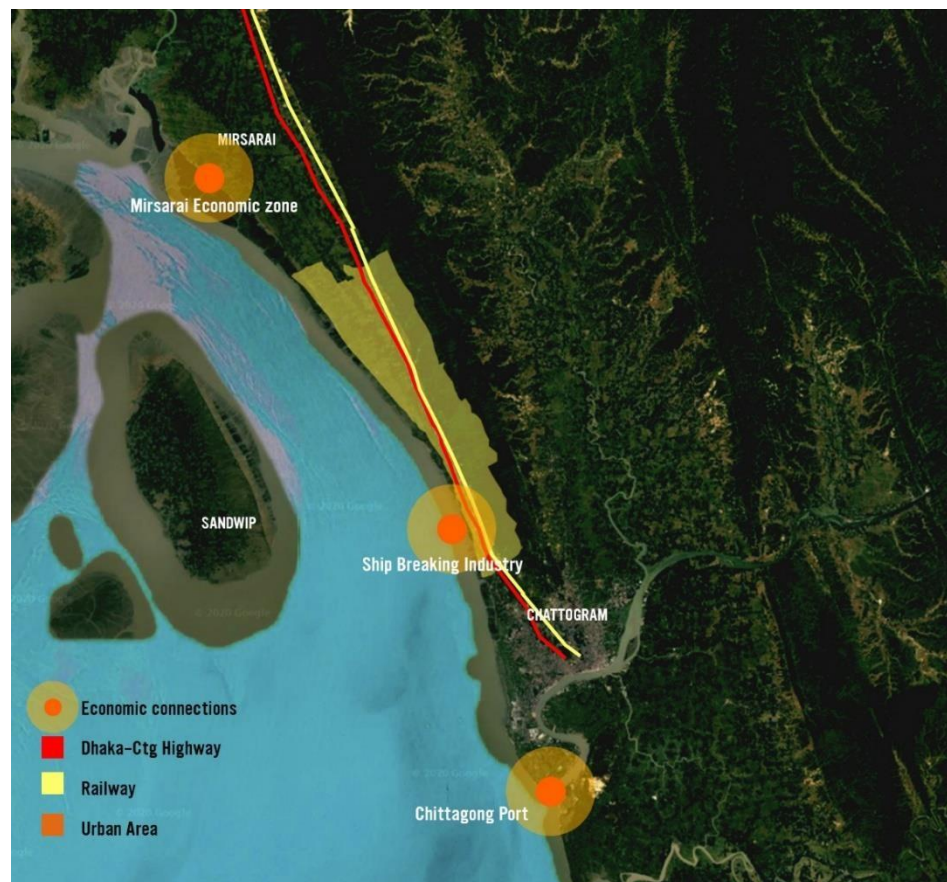


Figure 9: Economic zones (source: Author)

Agriculture and Economy:

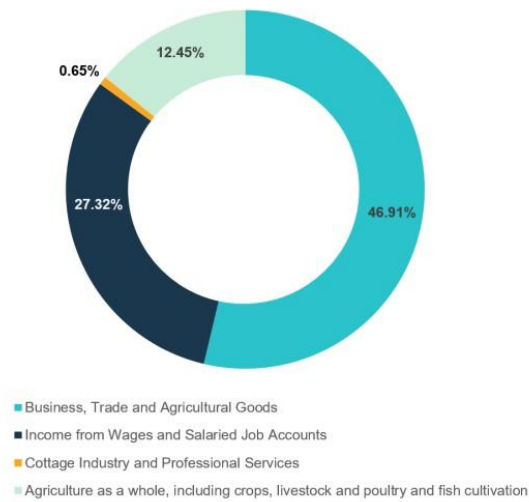


Figure 10

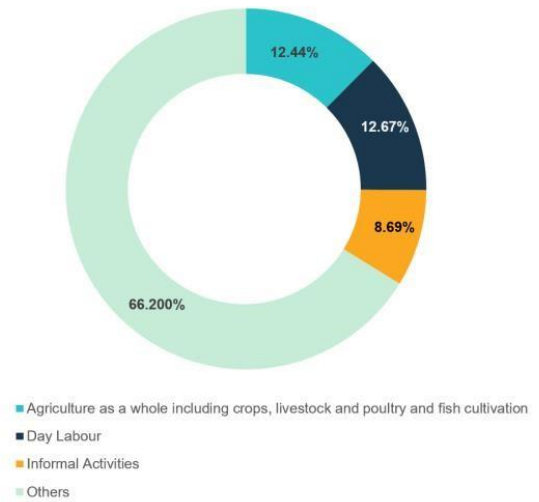


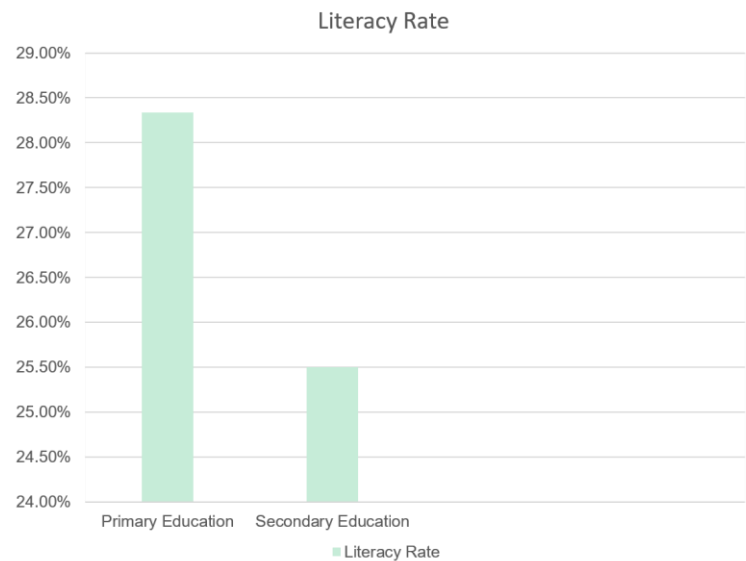
Figure 11

Figure 10 shows sources of household monthly income. According to the socio-economic survey report of DAP project 2007 it is seen that the dominant source is the business, trade of agricultural goods with 46.91% of total household monthly income. So it can be said that the household income comes mostly from agriculture sector since most of the land type is agricultural.

Literacy Rate: Sitakunda is not very far from Chattogram city. It is 32 kms away and is an emerging satellite city for Chattogram. As developed as it should be, the literacy rate is not upto the mark. Only 28.34% have

Completed primary education and 25.50% have completed secondary Education. (DAP socio economic Survey report, 2007)

Figure 12: Literacy rate (source: Author)



3.2LANDSCAPE

3.2.1 Natural Topography: Sitakunda is topographically very blessed. It has the Chittagong Hill tracts on the east with the highest peak at 1152 feet and the Bay of Bengal to the west. Naturally there are many springs and waterfalls that flow through Canals and onto the sea. Towards the sea there are mangrove forests too with special roots called pneumatophores.

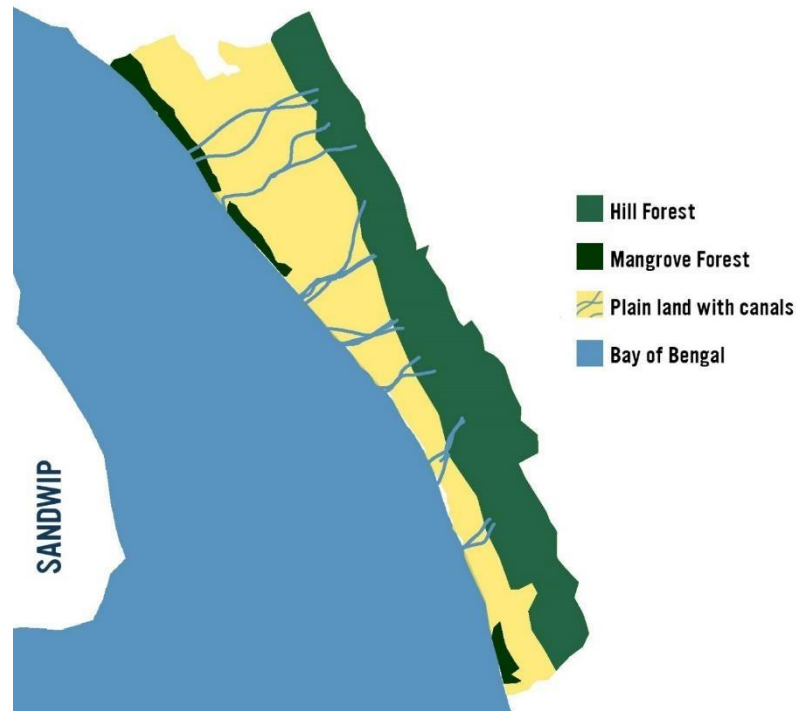


Figure 13: Natural topography of Sitakunda (Source: Author)

Due to the presence of serene Nature on both sides of the land Sitakunda stands as a potential site for ecotourism. It also has the sandwip Island (25 mins boat ride away) to the west.

3.2.2 Geography and Climate: The area of Sitakunda Upazila is 483.97 sq. km. out of which 61.61 sq. km is forest area. The altitude of the hills is 1152 feet highest. And the Sandwip channel and the Bay of Bengal lies in the west. There are many water springs on the hills too. All in all, Sitakunda has a specific micro climate. For example, it rains more in there than the Chittagong city, winter is colder there than the city.

Due to having the Bay of Bengal so near this area is prone to cyclone surges. But the mangrove plantation was done in the 80's to minimize cyclone effect.

ANNUAL AVERAGE TEMPERATURE: Between 32.5 degree Celsius and 13.5 degree Celsius.

ANNUAL RAINFALL: 2687 MM (106")

ANNUAL WINDSPEED: 1.8 knots (2 mph) recorded between 1991-2001

3.2.3 Ecology: The Chinese traveler poet Hiuen Tsang called the city “a sleeping beauty emerging from mists and water” in his 7th century depiction of Chittagong. He clearly was talking about the many springs flowing in the hill tracts of Chittagong.

The forest region is of Evergreen Deciduous type. Garjan, Telsur, chapalish chundul and Koro are the deciduous species of trees here out of which many are used as timber. Bamboo Cultivation is done varying in many species in this region. Other than these there are many kind of fishes found in the waters in this region.

The first eco park of the country was made here in 2001 called Sitakunda Botanical Gardens and Eco-park. It was built to facilitate biodiversity conservation. This park is rich with natural Gymnosperm trees that are now conserved there.



Figure 14: Flora and Fauna (Source: Author)

3.3 MOVEMENT AND INFRASTRUCTURE:

3.3.1 Infrastructure:

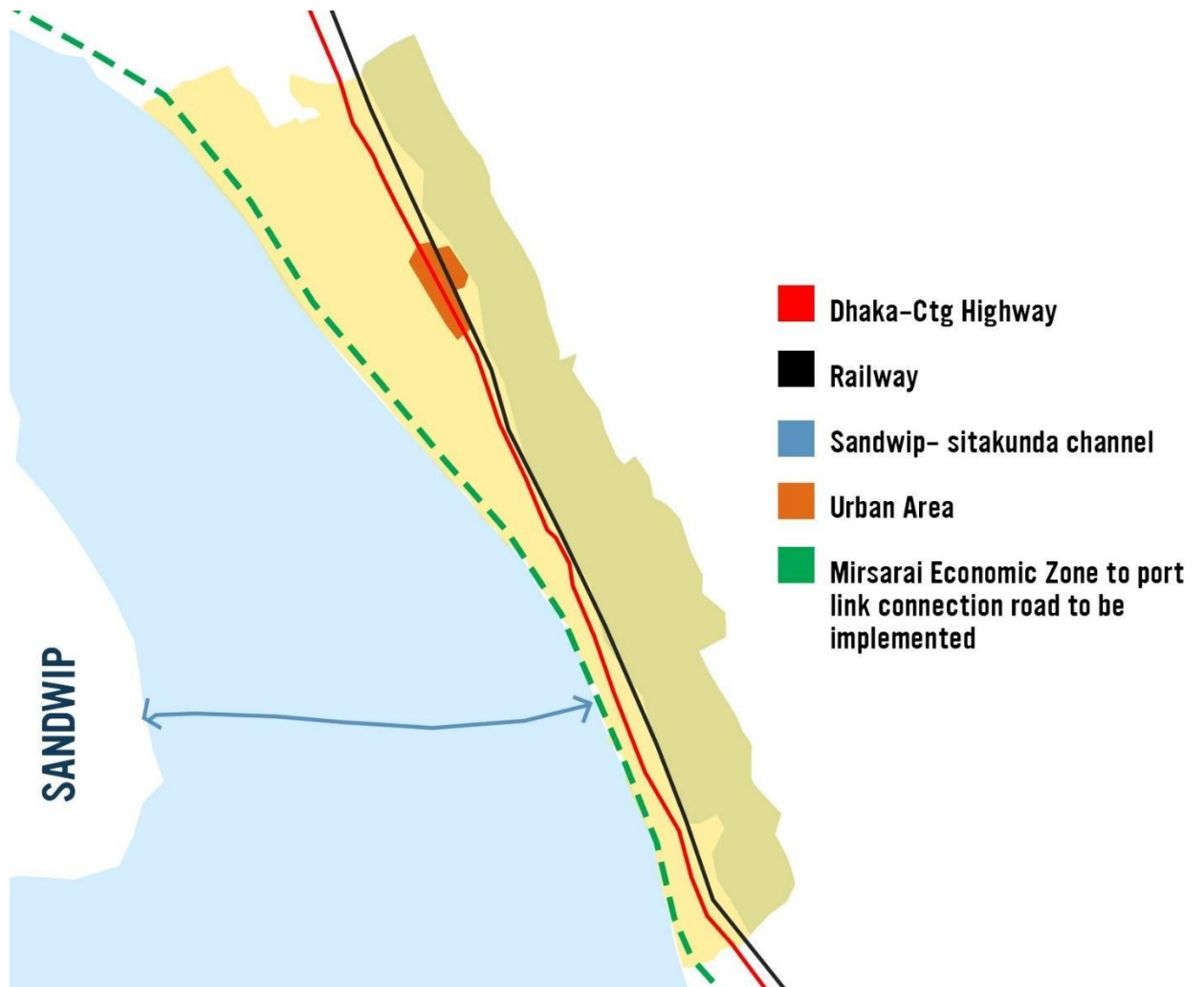


Figure 15: Major movement and Infrastructure (Source: Author)

3.3.2 Road Hierarchy of Sitakunda Urban area: The Sitakunda urban area starts right from the Dhaka-Chattogram highway. Right after the railway starts the forest area.

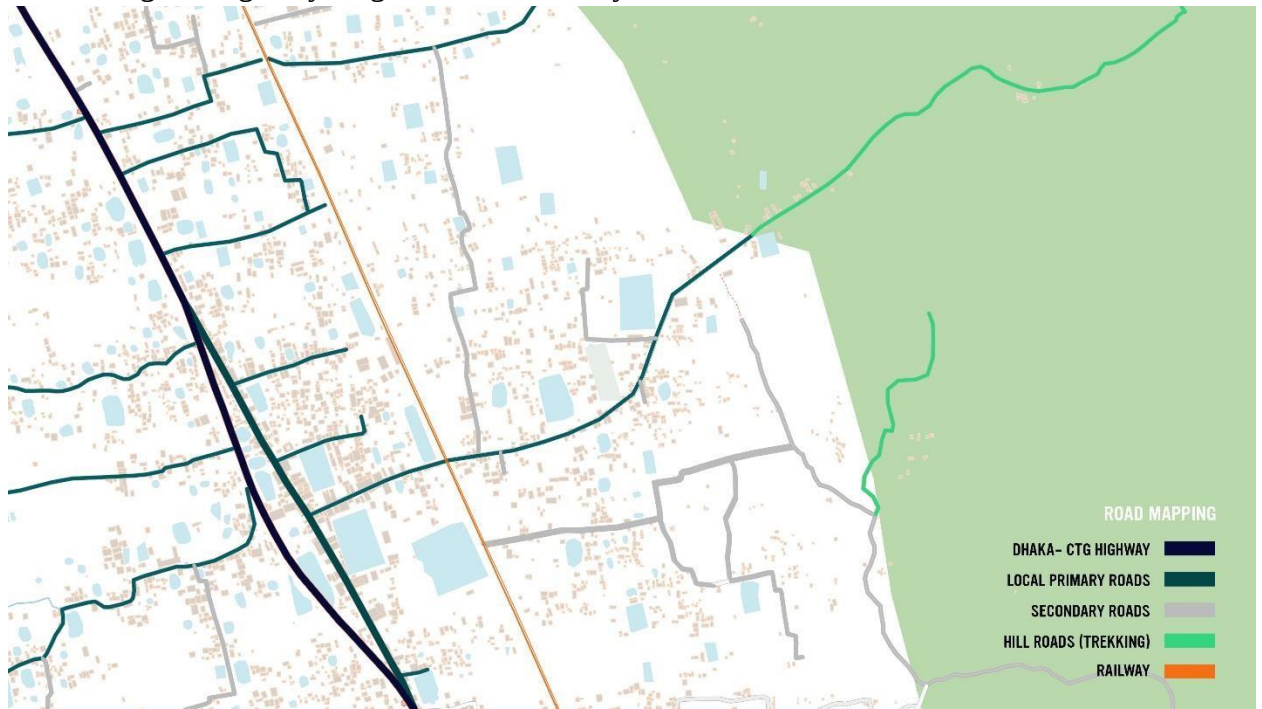


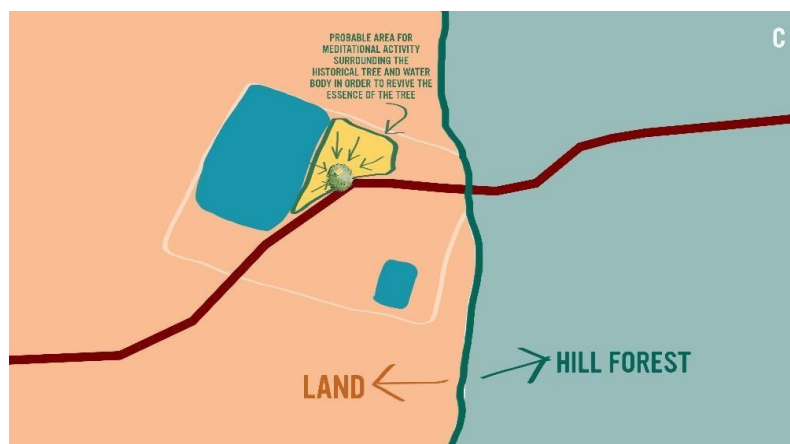
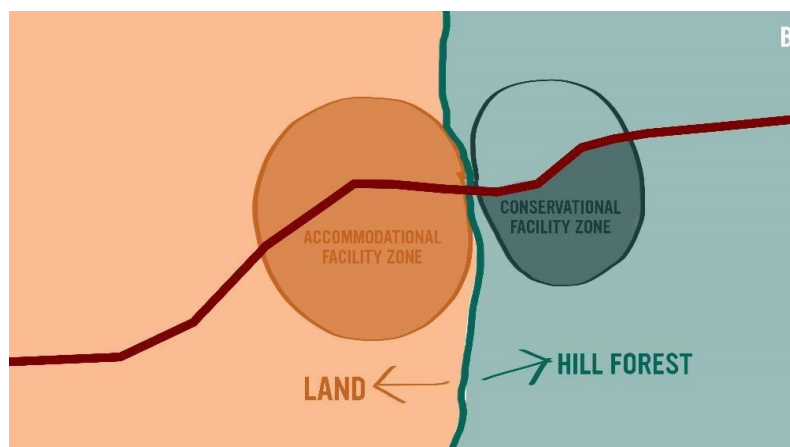
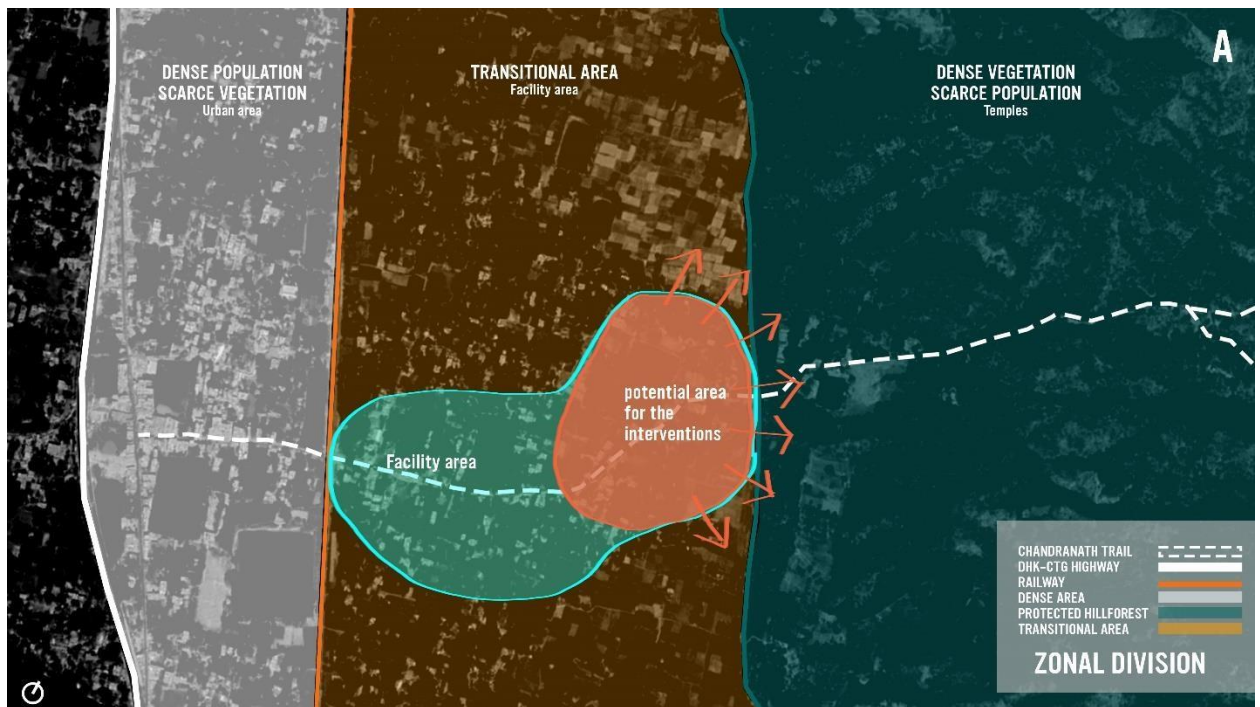
Figure 16: Road Network of Sitakunda town area (Source: Author)

3.3.3 Intercity Transport:



Figure 17: Public Transport (Source: Author)

3.4 ANALYSIS- DIAGRAMS



The Chandranath trail starts after the Rail line. Entry to the site is through the urban Area college road.

Most of the Facility area lies in the transitional area between the dense urban land and the forest land.

After many site surveys, interrogations and study the probable areas with potential for specific function has been found

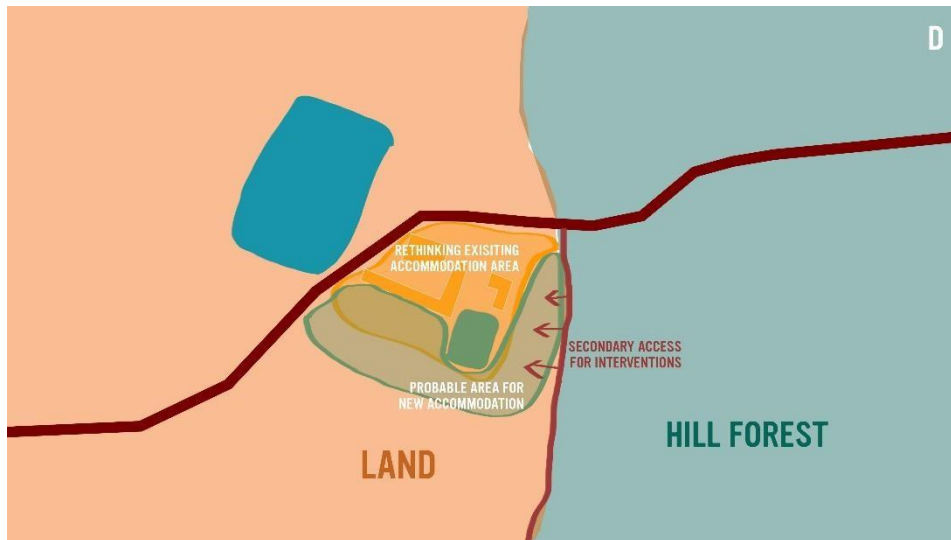


Figure 18: Probable area for

Accommodational functions.

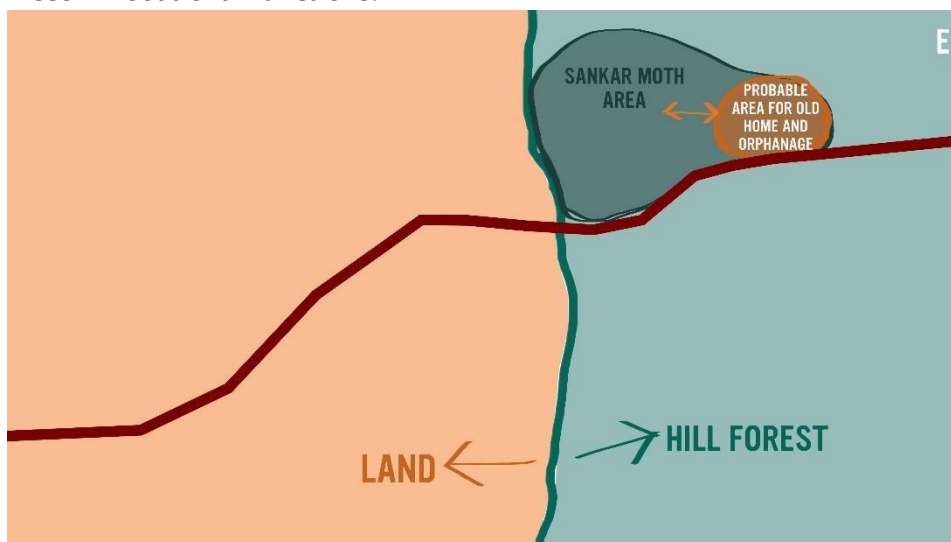


Figure 19: Probable area for Old home and orphanage.

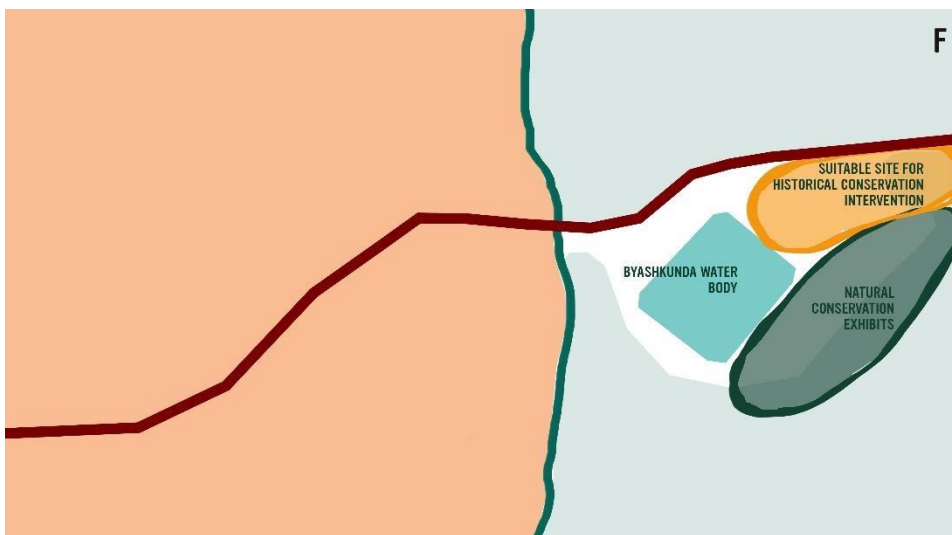


Figure 20: Probable area for conservational Activity

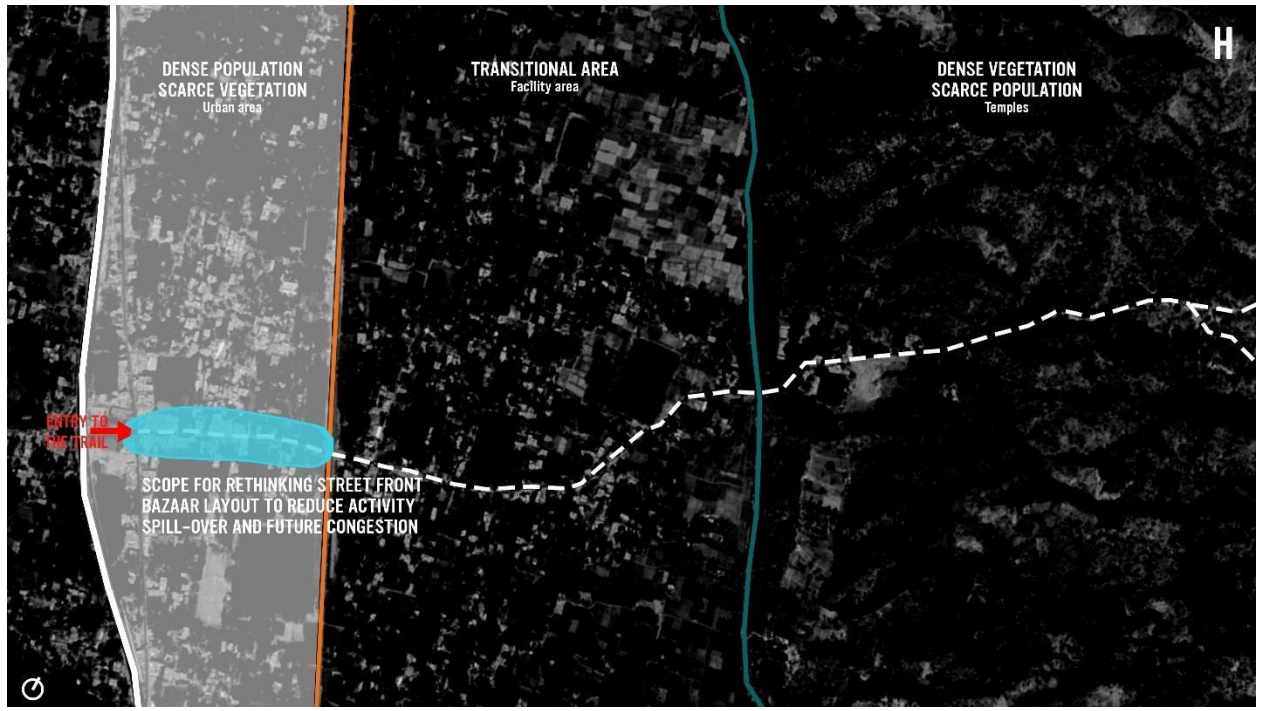


Figure 21: Bazaar area

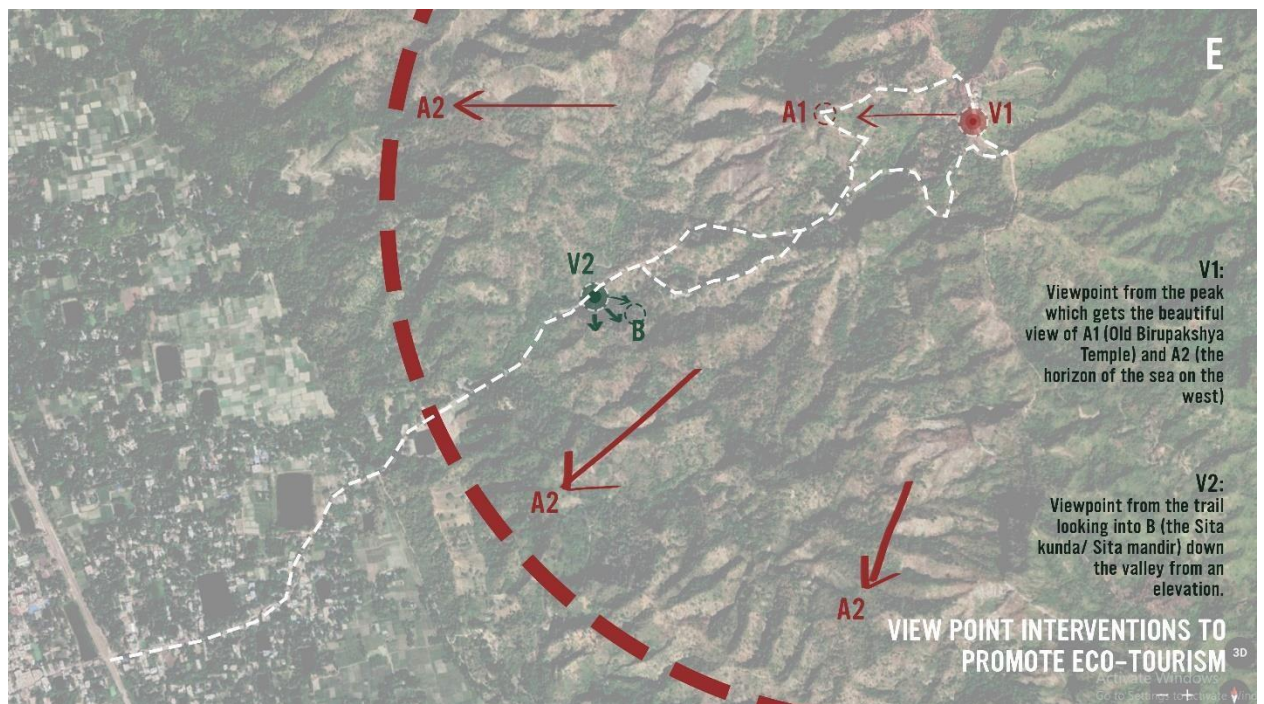


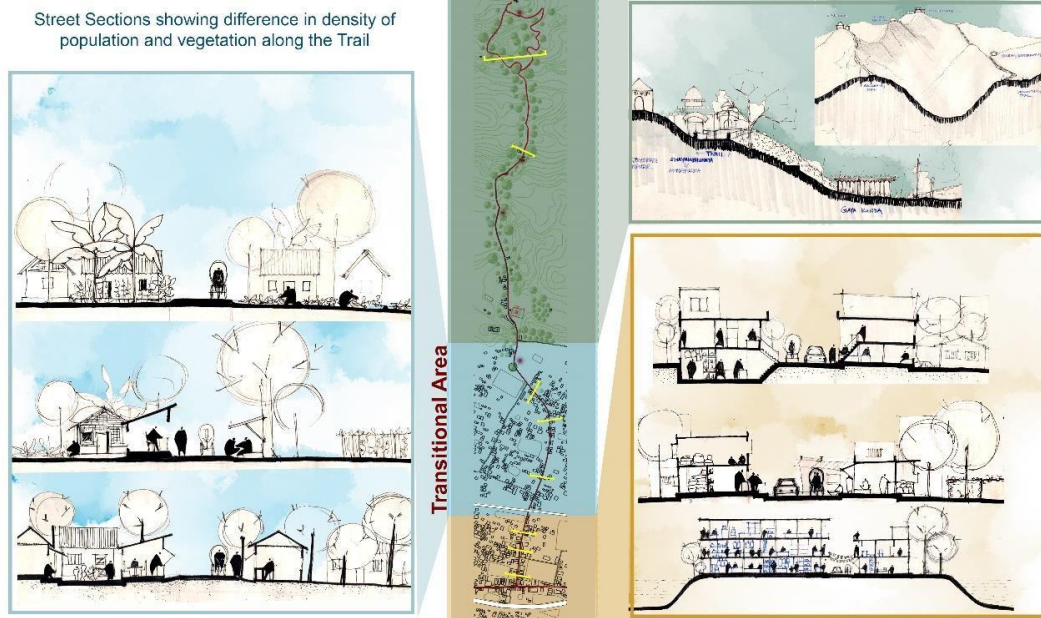
Figure 22: Viewpoints to promote Ecotourism

ANALYSIS

Trail Sections:

To understand the change in pattern of natural and built environment along the trail starting from the Bazaar area to the hills some street sections were taken. This shows the gradual decrease of built environment and increase in natural environment as one goes deeper into the trail due east.

Figure 23: Trail sections (source: Author)



Why this is a Pilgrimage Site: Many Hindu Festivities occur all year around in the hills a diagram of which is given below: Figure 24: Hindu Festivals Around the year



The trail during Pilgrimage and at other time of the year:

The Shiv Chaturdashi Fair scenario changes the whole activity pattern in the area. The image given below shows the area that is used for fair and the change in activities.

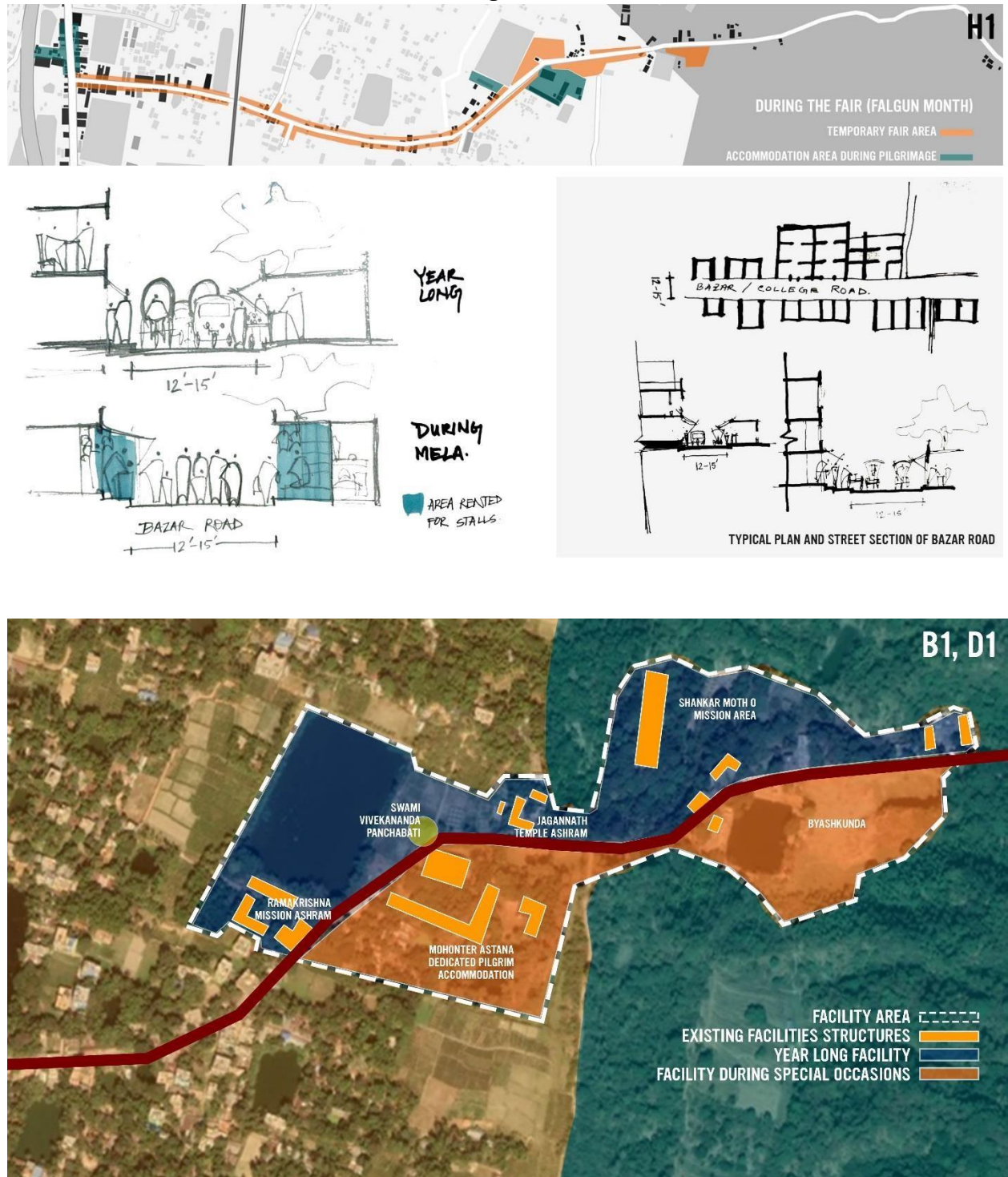


Figure 25: Facility areas and their period of usage.

Figure 26:
Showing the
historically
significant tree

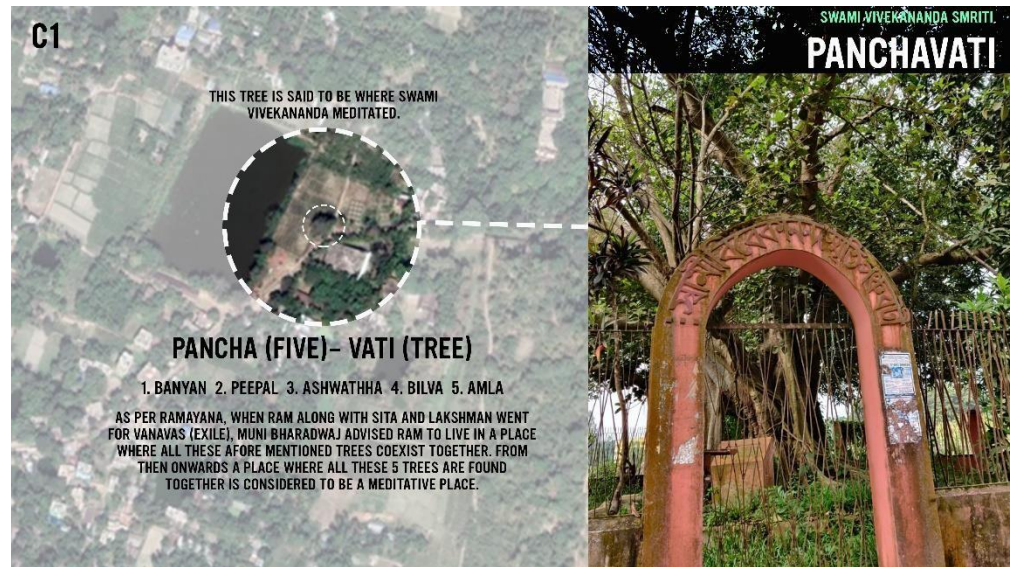


Figure 27: Site and program information of Sonkor moth

The pictures below shows the main temples on the trail that are a significant part of both the Religious and natural tourism.

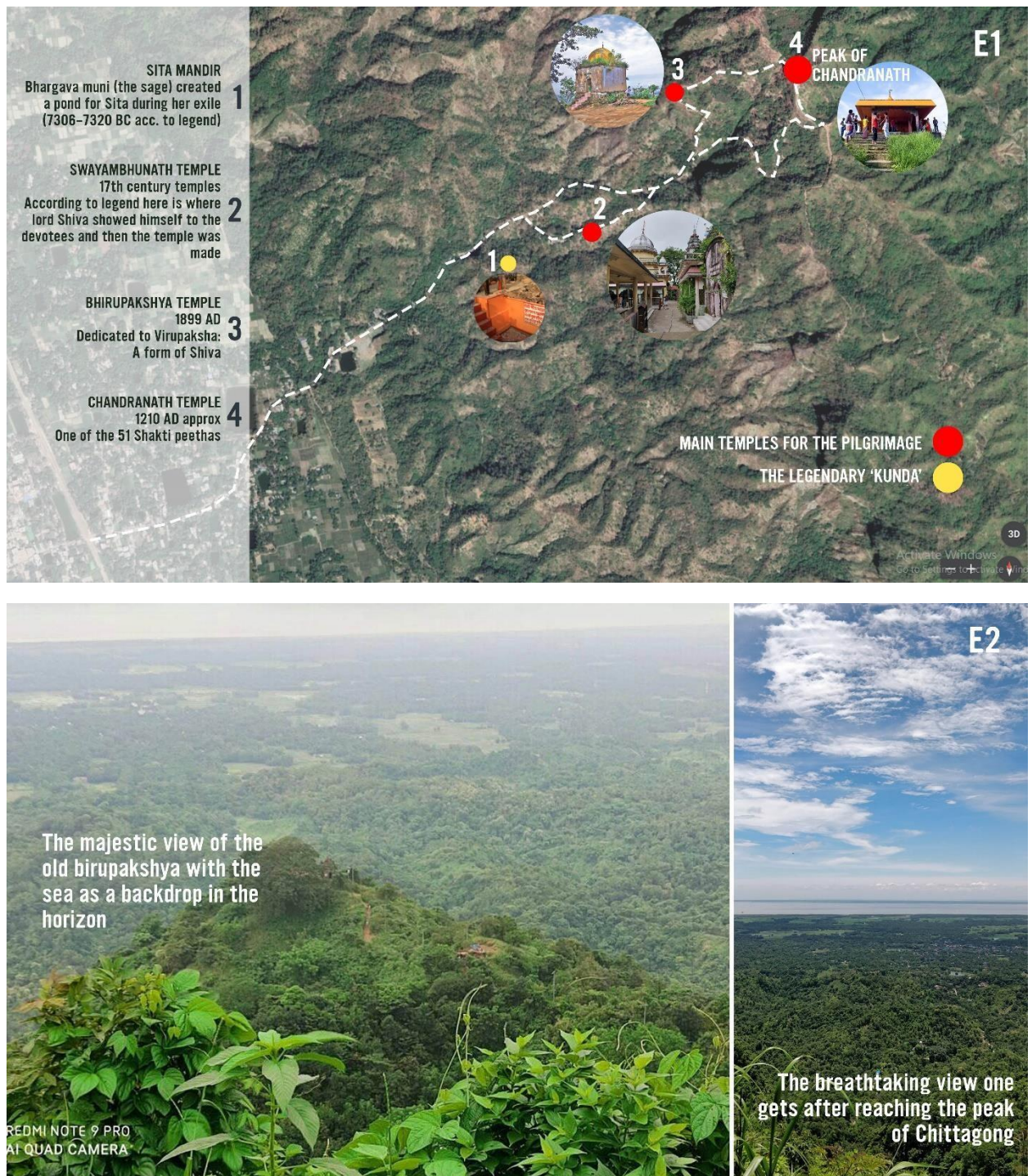


Figure 28: Viewpoints from the hills (Source: Author)

One can see the sea on the far west from the top of the hill and this is where the final destination of both the pilgrims and the trekkers lie. Pilgrims climb this 1152 feet tall hill on foot to make a wish and the trekkers/ tourists climb to get this majestic view.

Chapter 4: Case Study

4.1 Smriti Van Earthquake Memorial:

4.1.1: Background

Smriti Van earthquake Memorial is situated in Bhuj of Kutch District in Gujarat in the Bhujio hills. Due to the scarcity of water and a hot dry climate the terrain was once barren. The client of this project wanted to plant 13805 trees each representing one victim of the total 13805 lost lives in the January, 2001 earthquake in Gujarat. Hence this project aims to rejuvenate the barren hill by planting trees and making the soil suitable for the trees to grow in through strategic and sustainable architectural solutions.



Figure 29: Aerial View of Smriti Van Earthquake memorial (Source: Collected)

4.1.2: Project Specifications

Project Title: Smriti Van Earthquake Memorial

Location: Bhuj, Kutch, Gujarat, India

Architect: Rajeev Kathpalia, Vastu Shilpa Consultants

4.1.3: Approach to the Design

The basic philosophy of the architect for this particular project came from the client himself, the very idea of planting trees. In the tragedies occurred due to natural or other disasters relics, museums or memorials has been built but how better it is to commemorate the loss of lives by a regeneration process- giving something a new life? That very something in this project are the trees which represents each and every victims of the earthquake of January 2001 in Gujrat. The plantation of trees in a barren land needed self-sufficient sustainable way of soil regeneration too. Hence check dams were introduced that would retain water and through seepage would make the barren soil suitable for trees to grow over the years.

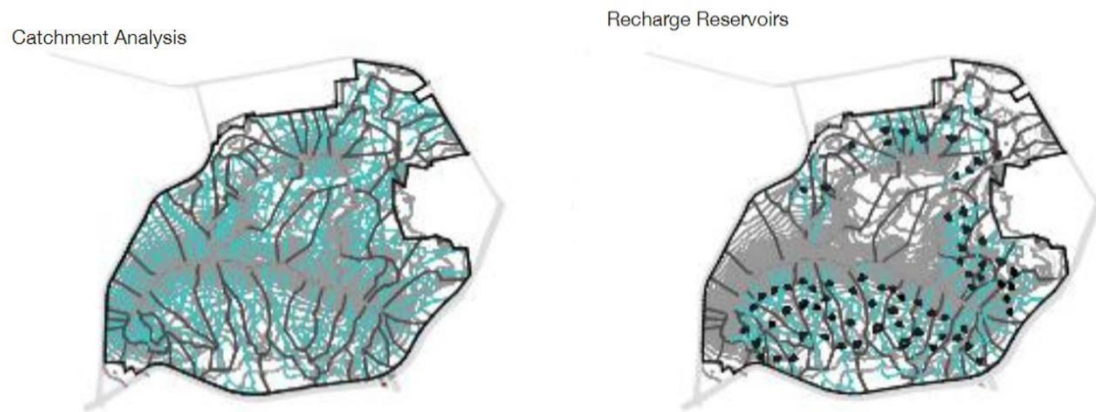


Figure 30: Check dams' placement analysis (Source: VSF)

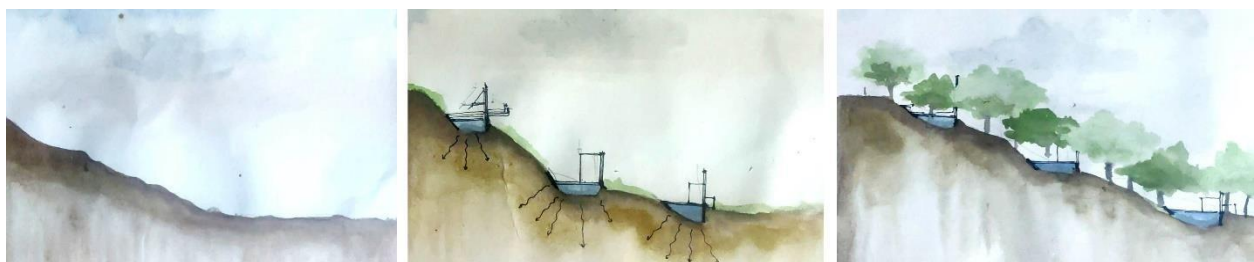


Figure 31: From Barren land to a forest (Source: Author)

4.1.4: Pilgrimage of the loved ones

The idea of the project is to build a memorial for the victims of the earthquake but in the form of planting trees: Regeneration. This project was not only about a memorial but also about creating a journey for the loved ones of the victims who would come here as pilgrims and perform pilgrimage in the memory of their loved ones. In all religion pilgrimage is an essential part of the journey of self-discovery.

4.1.5: Programs:

The project is being conducted in two phases. Phase 1 is near completion which includes the sun point, Museum, Phase one check dams, conference and art facility, solar park, parking etc. Phase 2 includes an Eco park, festival ground, library etc.



Figure 32: Smritivan Masterplan (Source: VSF)

The sun point is towards the west of the site on the south side of the old Bhujio fort wall. The snake like pathway that connects numerous check dams finally leads one to the foot of the sun point from where one ascends through the ramp to the peak sun point. The sun point frames the skyline of Bhuj on its horizon with Indian important calendrical events etched on its walls following the Astronomical patterns with a sun dial on the heart of it.

Figure 33: Sun point



(Source: VSF)

4.1.6: Impact of the design

Although the project has not been entirely complete yet but the regeneration, the very idea of the project has started to happen. Plants have begun to grow in an impressive manner. What once was a barren land is now filled with green and looking at the growth it can be said that architecture in the form of check dams will diffuse and the forest will stand out.



4.2 Dead Sea Development Zone:

4.2.1: Background

This project is situated along the shores of the Dead Sea in Jordan. It encompasses an area of 40 square km along the northern and eastern coastline of Dead Sea with the Sweimeh Village at the centre. It is a vision and a blueprint for fostering a dynamic, robust and sustainable tourism based economy. The plan has a balanced approach between development and conservation. The ecological assets of this place are the Tamarisk grove that serves as a habitat for endangered bird species and the dramatic Wadi lines that gives character to the region.



Figure 34: site

4.2.2: Project Specifications

Project Title: Dead Sea Development Zone Masterplan

Location: Dead Sea, Jordan

Services: Planning and Urban design, Architecture and landscape design

Client: Jordan development zones company

Architects: Sasaki Associates

4.2.3: Approach to the design

The first step of the master planning was identifying the privately owned lands, preserved lands and then ultimately the net usable land for the strategic interventions.

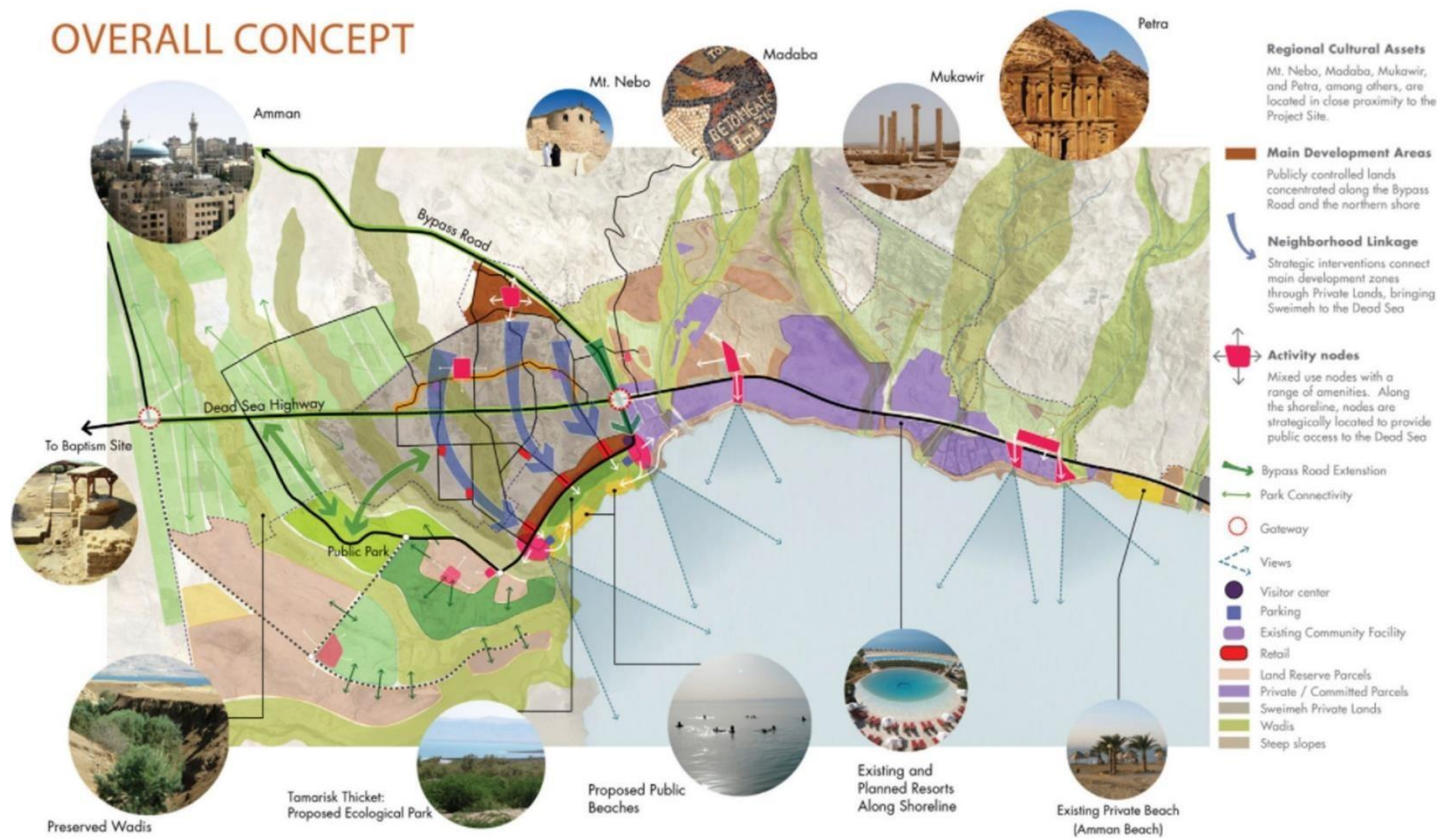


Figure 35: Overall concept (Source: Sasaki associates)

The publicly controlled lands were strategically placed near the bypass road and the northern coastline. The Sweimeh village stands in between the main development areas and these two areas are connected by neighborhood linkage in the private lands of Sweimeh. This is how Sweimeh is brought to the Dead Sea. The bypass road has been extended which terminates in the activity zone to the Dead Sea which ultimately leads to the proposed public beach.

The proposed public beach is on the sea side of the Tamarisk thicket which is the proposed ecological park. A big part of the shore in front of the wadis is occupied by existing private lands, sea shore resorts and private beach. To break the continuity and to give the public access in that part too an activity zone is created there as well. The activity nodes in the shore shows the view points of the sea too making the sea more publicly accessible.

4.2.4: Understanding Topography

The ecological system around the Dead Sea is of unique character and is very complex. The Jordan River along with many other alluvial rivers falls onto the northern part of the sea. The eastern part of the sea has the landscape transitioning from beach to rocky cliff with stiff wadis, a very unique characteristic of the Dead Sea region. Hence it is very important to understand the terrain properly before designing and to preserve this.

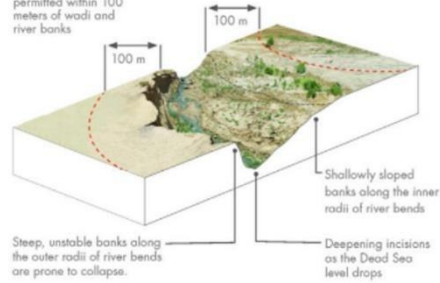
UNDERSTANDING NATURAL HYDROLOGY

The Jordan River and several smaller alluvial rivers terminate at the northern shore of the Dead Sea. Along the eastern banks of the Sea, the landscape transitions into rocky cliffs, through which mountainous wadis cut deep, dramatic incisions. It is critical to protect these complex ecological systems.

- Wadis with Regional Watersheds
- Wadis with Local Watersheds
- Alluvial Wadis
- Project Site Boundary

ALLUVIAL WADIS

No development permitted within 100 meters of wadi and river banks



MOUNTAINOUS WADIS

No development permitted from ridgeline to ridgeline in order to protect watersheds

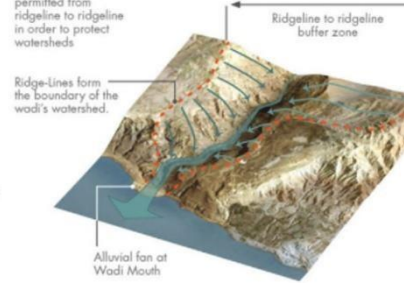


Figure 36: Natural Hydrology of the site (Sasaki Associates)

The proposed landscape system was designed in accordance with the strategy of preserving the natural terrain. The activity spots have been placed in places that does not in any way block the flow of rivers or canals.

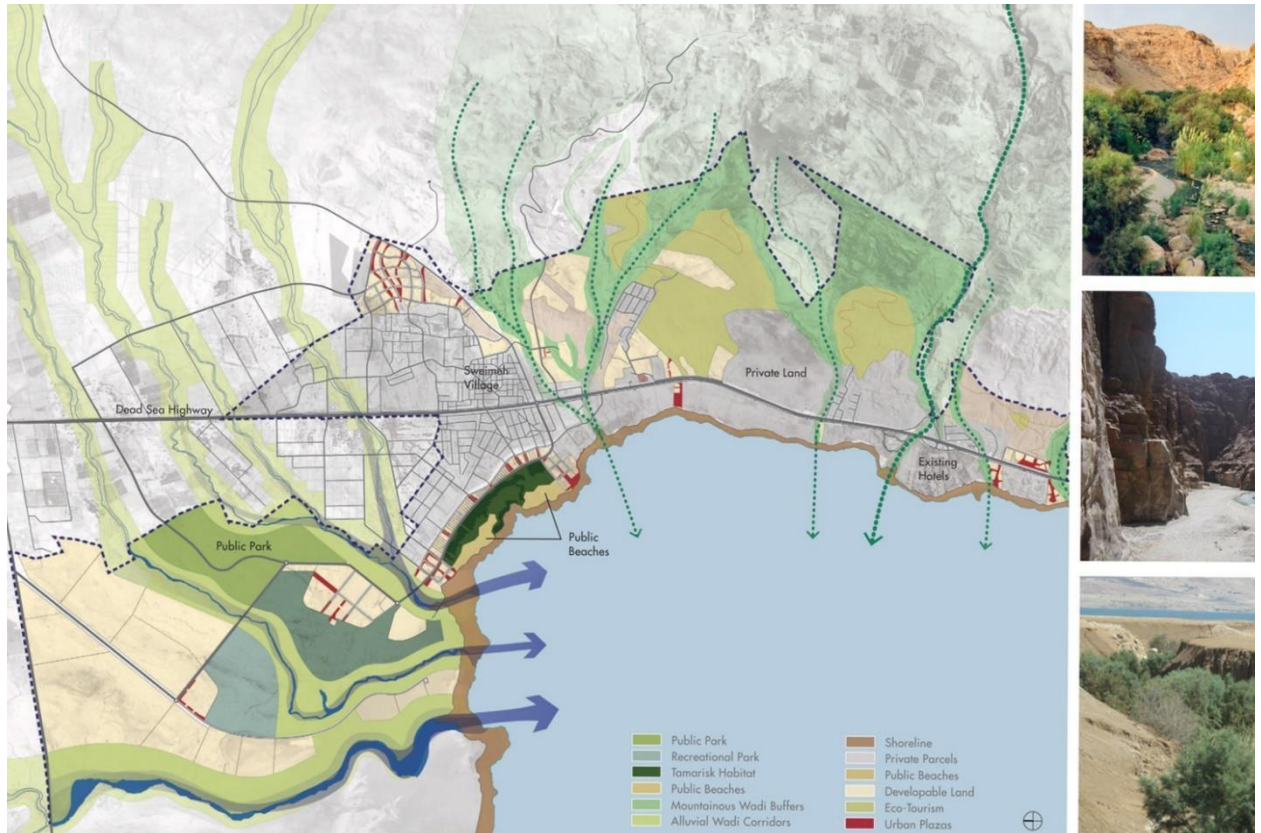


Figure 37: Proposed landscape systems and connectivity (Source: Sasaki Associates)

4.2.5: Tamarisk Area Detailed Conceptual Plan

In the previous existing condition it can be seen that there is no direct connection of the Sweimeh village with the Dead Sea. In the detailed conceptual plan of the tamarisk area and the Sweimeh village we can see neighborhood linkages has been brought through the private lands of the village towards the dead sea making the sea more permeable and open to public. The extension of the bypass road acts as another linkage in between the gateway of highway and the reserved land for future development that divides the retail area and the tamarisk area.

Many mixed used nodes have been created with one being in the Sweimeh village itself along the mixed use spine that connects the community facilities with it. The mixed use essence of the village has been brought towards the dead sea, making it more permeable and a connection between the two has been established.

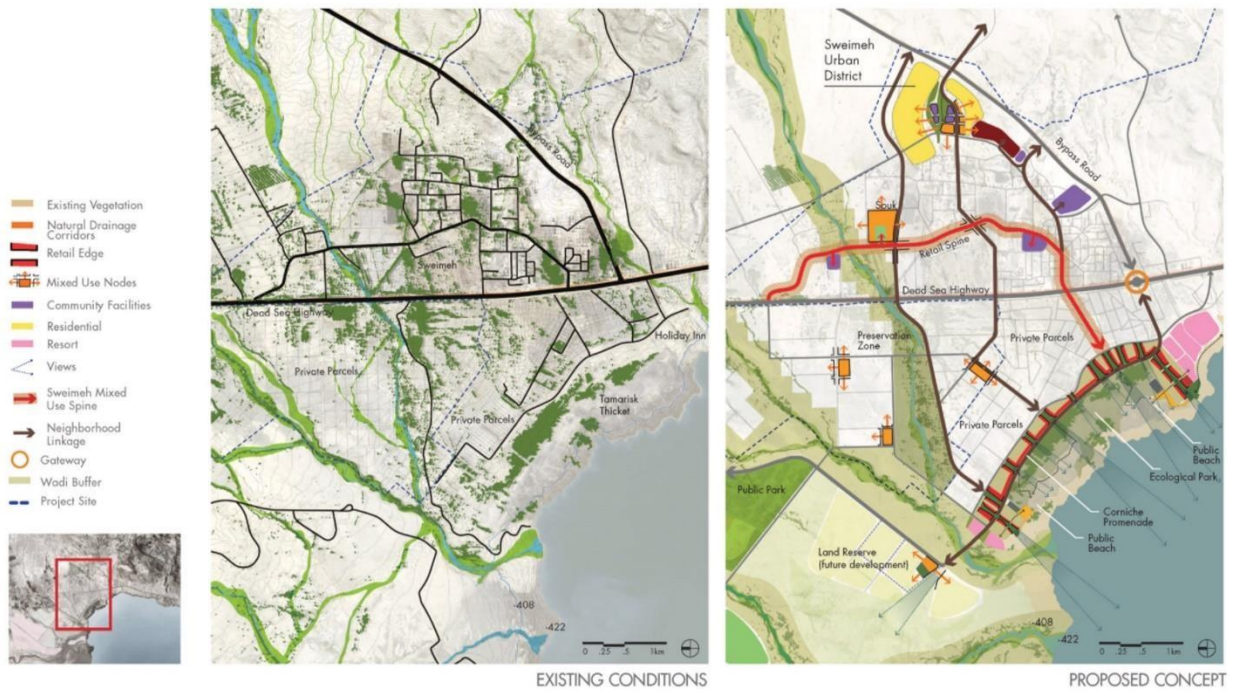


Figure 38: Detailed concept of the Sweimeh village linkage (Source: Archdaily)

4.2.6: Eastern Shore detailed Conceptual Plan



The eastern coast of the dead sea has privately owned resorts and beach beyond which are the Wadi cliff. The figure below shows the strategic interventions to gain public access to the sea through the privately owned lands.

The upper plateau, the eastern side of the highway, is the main area for interventions like boutique hotel, retail, residential, public plaza etc. Through slight spillover of these functions on either sides of the existing development the shore has been made more publicly accessible. The shoreline public spaces include Wadi side waterfront, Cascading terraces with cafes and kiosks.



Figure 39: Linkages to the sea showing public accessibility (source: Sasaki Associates)

What once was occupied by private property (the east coastline of dead sea) is now made permeable for general mass and tourists that gives tourists a closer interaction with the Wadi cliff side and stunning views of the dead sea.

Chapter 5: Functional Analysis and Program Development

5.1 Rationale of the Program:

The Programmatic Requirements of the site was gathered after studying the site in details in two scenarios. One is during Pilgrimage in the Bengali month of Falgun and the other is during the rest of the year where mostly nature based tourism occurs. After consecutive surveys, interviews and data collections a functional flow of the pilgrimage journey was charted down that includes a pilgrim/ tourist's beginning of the journey at the highway junction till the final destination at the Chandranath temple at 1152 feet height.

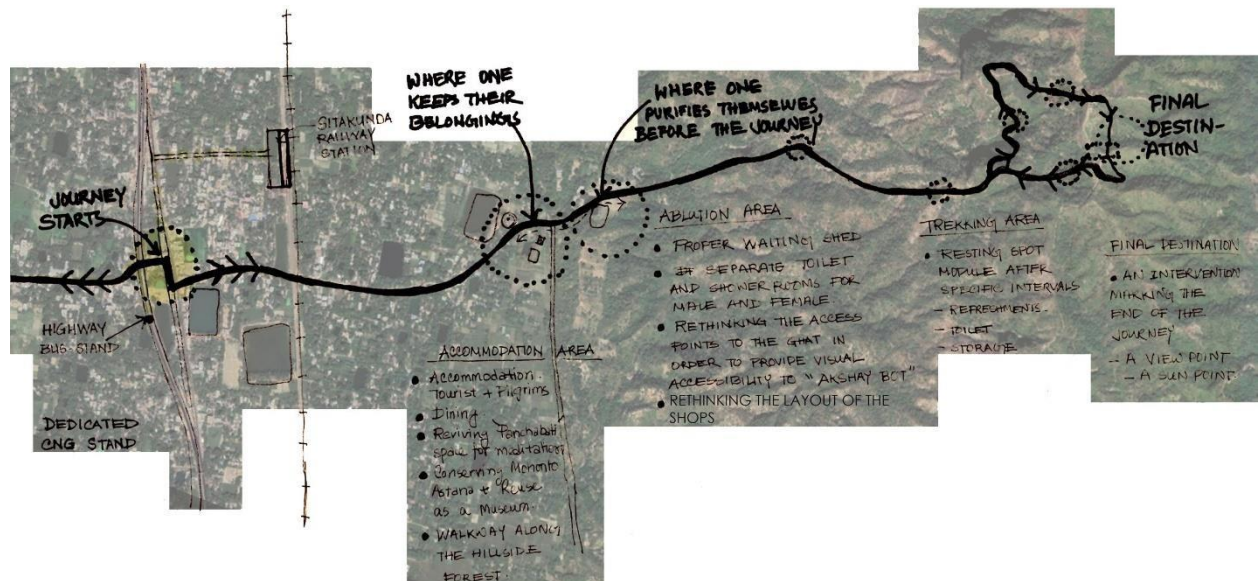


Figure 40: Initial Sketches of Functions and Program distribution along the trail (Source: Author)

5.2 Functional Flow:

The journey of a tourist or a pilgrim requires a consecutive flow of spaces and functions that are listed below gradually from the start to the end of the Journey. Some of these programs are existing but restructured in a more efficient way and some are proposed programs according to the need and desires of the locals and the tourists. The programs are given below:

- Namar Bazaar CNG Parking Area
- Pocket Spaces at activity nodes
- Accommodation Area
- Ablution Area
- Trekking Area with Resting Spot Modules
- Final Destination: Chandranath Temple
- Sunset Point as a final intervention at 1090 ft.

Out of the above mentioned programs the detailed Architectural Intervention that has been designed is the Accommodation Area. The site area for the accommodation zone is 363700 sq. ft. The Programs in the Accommodation area are listed below:

- Entry Court
- Multipurpose Hall
- Admin
- Reception Lobby
- Museum
- Dining Hall
- Kitchen
- Staff Accommodation
- Priests' Accommodation
- Dorm Type Accommodation
- Family Type Accommodation
- Villa Type Accommodation
- Panchavati Contemplation Space

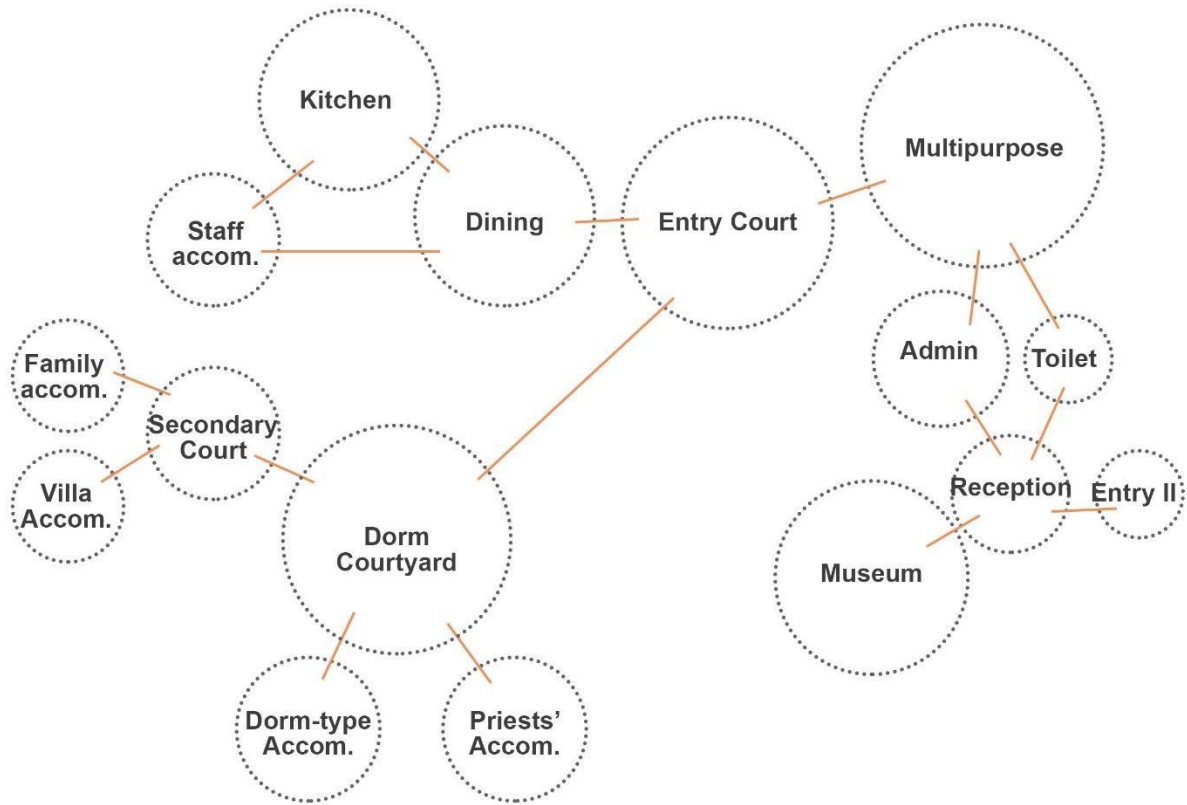


Figure 41: Bubble Diagram of Accommodation Area (Source: Author)

5.3 Area in square feet for the programs in Accommodation Area:

Multipurpose Hall

4400 *2= 8800 sq. ft.

Two story multipurpose hall with a makeshift functionality that works as a hall and Indoor common room all year around other than the 3 days of Pilgrimage when both the stories are used as accommodation hall.

Admin, Toilet and Reception Lobby

3350 sq. ft.

Museum

9000 sq. ft.

Dining Hall and Kitchen

9200 sq. ft.

Staff Accommodation

2300*2= 4600 sq. ft.

Priests '

Accommodation 3600

sq. ft.

Dorm type Accommodation

Ground Floor: 13700 sq. ft.

First Floor: 8300 sq. ft.

Female Dorm: Male Dorm= 1:3. Female Dorm is on First floor and Male Dorm is on Ground Floor.

Family Type Accommodation

9600 sq. ft.

Villa Type

Accommodation 4880

sq. ft.

Panchavati Contemplation

Space 1320 sq. ft.

Shaded Walkway

8600 sq. ft.

5.4 Area for Ground Coverage and Green Area Replaced:

Total Ground Coverage for Built Area: 63690 sq. ft. Approx.

Area of Existing Accommodation that has been redesigned: 30800 sq. ft.

Built area on soak able Green land: (63690-30800) 32890 sq. ft.

Replaced Green area (Total: 28382 sq. ft.)

- i. In the form of roof Garden, Creepers, Edible Garden: 22382 sq. ft.
- ii. In the form of Vertical Green: 6000 sq. ft.

Therefore, 92% of the newly built area has been replaced with Green area in various forms making the buildings more environment friendly and sustainable.

Chapter 6: Conceptual Stage and Design Development

6.1 Understanding the Topography:

Upon studying the Topography of Sitakunda and the surrounding areas, three distinct ecotones were found within a linear distance of 20 km as shown in the figure below:

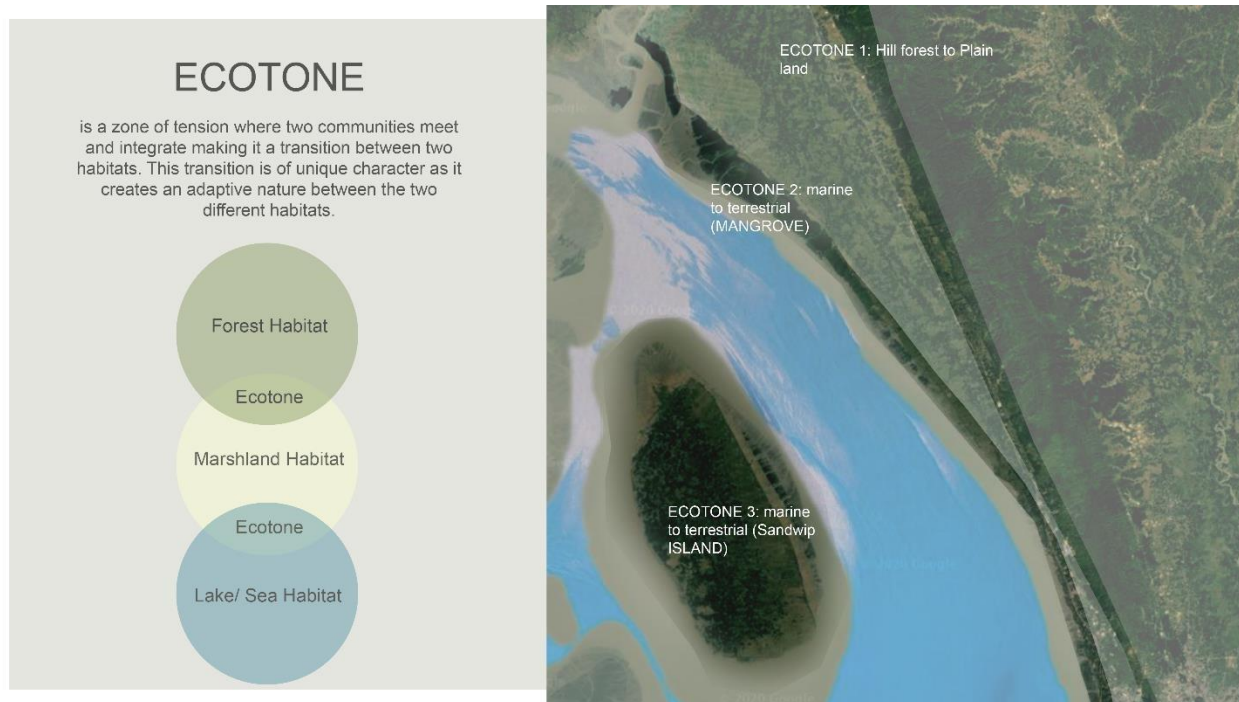


Figure 42: Ecotones present in the region.

6.2 Initial Conceptual Approach:

Water is the key element found in all three ecotones in the form of water springs, falls and lake in the hills, as ponds and canals in the plain land and finally falls onto the sea. The water here is a common element which runs from the hills to the mangrove forest to the Island as though stitching all the ecotones together its way. Hence the initial concept was Stitching Ecotones: Revitalizing Sitakunda Tourism through Environmental Transition.

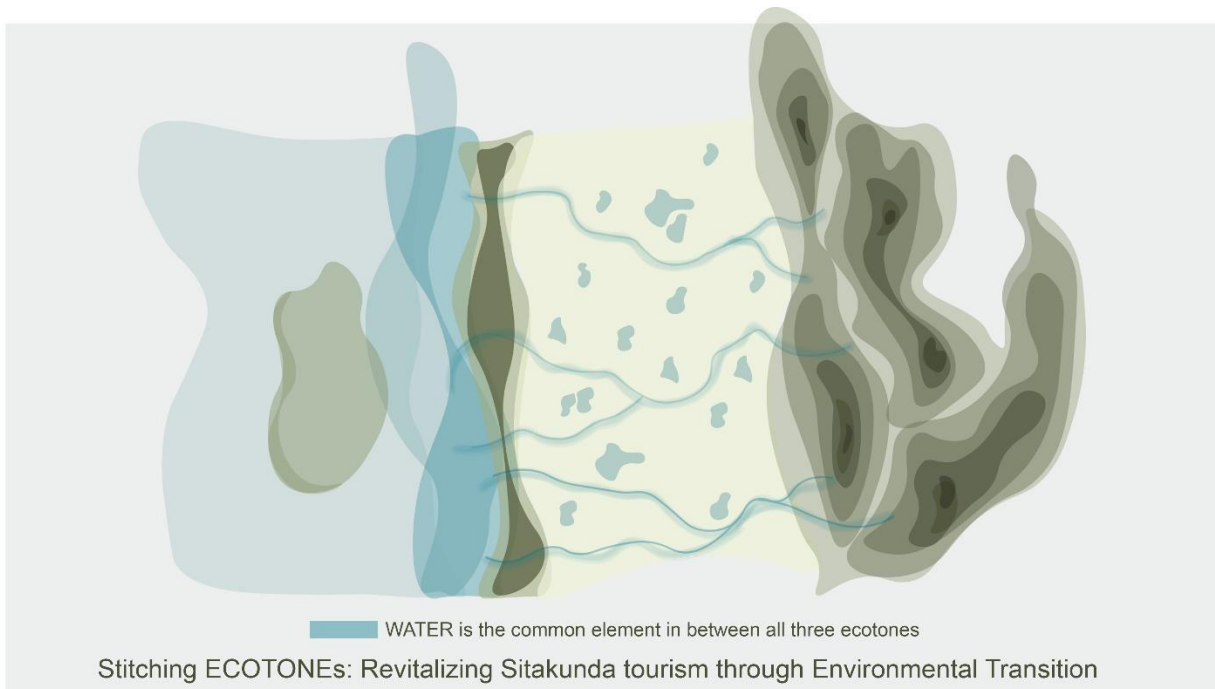


Figure 43: Conceptual Diagram (Source: Author)

6.3 Understanding the Landscape:

With the idea of studying ecotones, a thorough study on the landscape variation was conducted by studying it in sections.



Figure 44: Landscape Variation in between ecotones (Source: Author)

6.4 Ecotone 1: The Chandranath Dham

After studying the different variety of landscapes one site had to be chosen for the design of the Interventions. Ecotone 1, the Chandranath trail/ Dham was chosen because it's not only a natural touristic destination, it also has a great religious significance. Due to the age old Hindu legends that the hills hold this site is the largest Hindu pilgrimage sites in the country. It is 7 kms away from the Ecotone 2: Guliakhali sea beach which is the Mangrove sea beach.

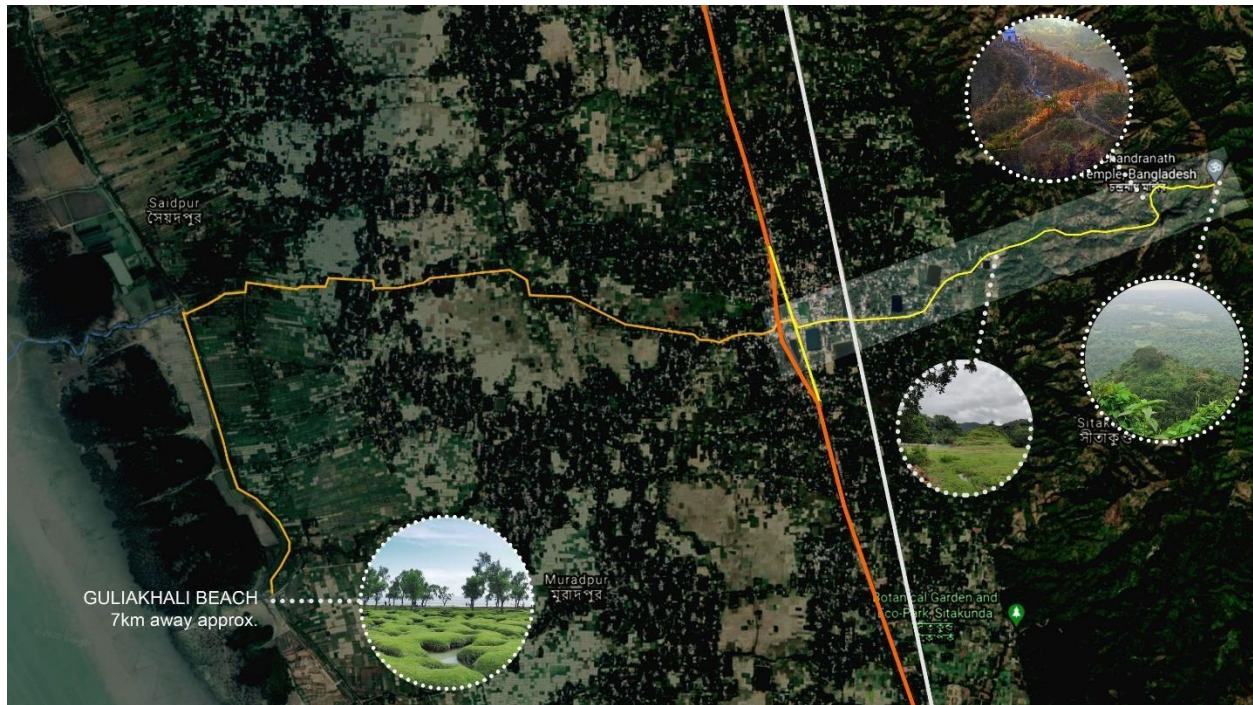


Figure 45: Showing the site in the map (source: author)

There are many nearby tourist spots from this site access to which are mostly from the highway that goes in the north-south direction.

The image below is a map that shows the distance of the nearby tourist spots from the site all of which is within a distance of 14 km.



Figure 46: Nearby tourist spots (source: author)

6.5 Division of the Framework:

The thesis was divided into three parts as per the scale of proposals. At first some urban strategies were proposed which would promote Eco tourism, forest regeneration and the connection between the Ecotones. Secondly, the Pilgrimage trail was designed according to the functional flow and the third part is the detailed design of the major architectural Intervention in the trail i.e. the accommodation area.



Part 1: URBAN SCALE STRATEGIES:

Figure 47: Strategy 1- This facilitates the connection in between two ecotones: the Chandranath and the guliakhali mangrove sea beach.

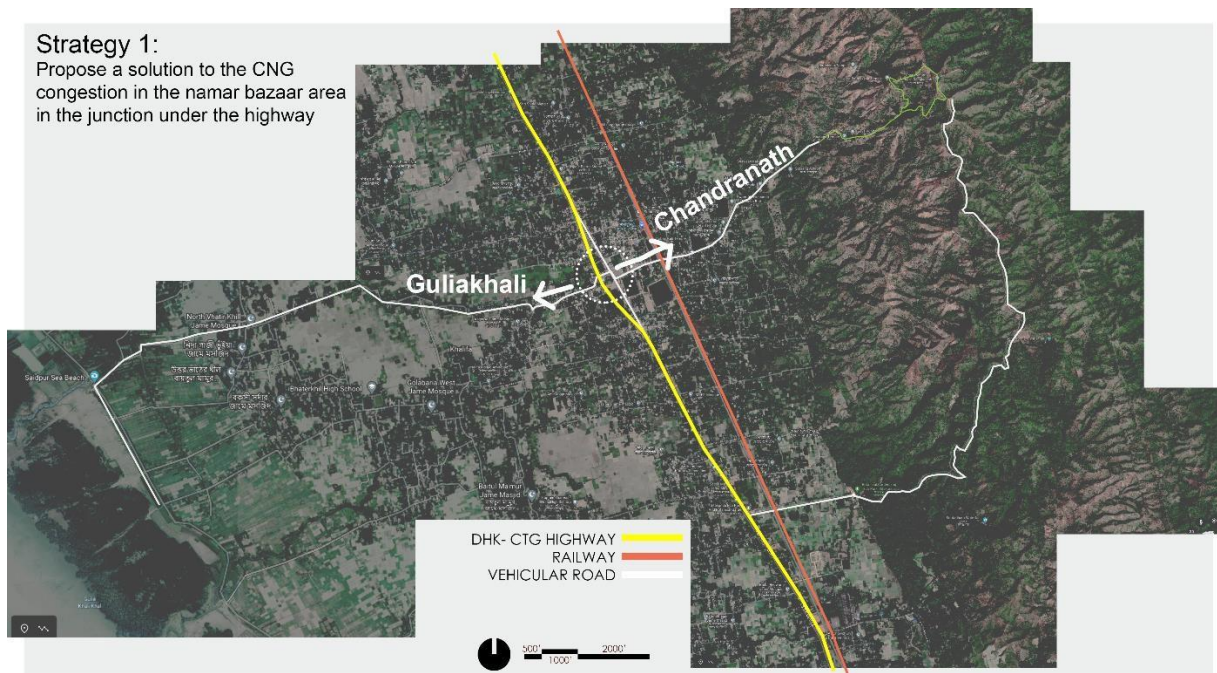


Figure 48: Strategy 2- This facilitates the connection in between Eco Park and botanical garden with chandranath foothills providing an alternate trekking route via the hillside walkway.

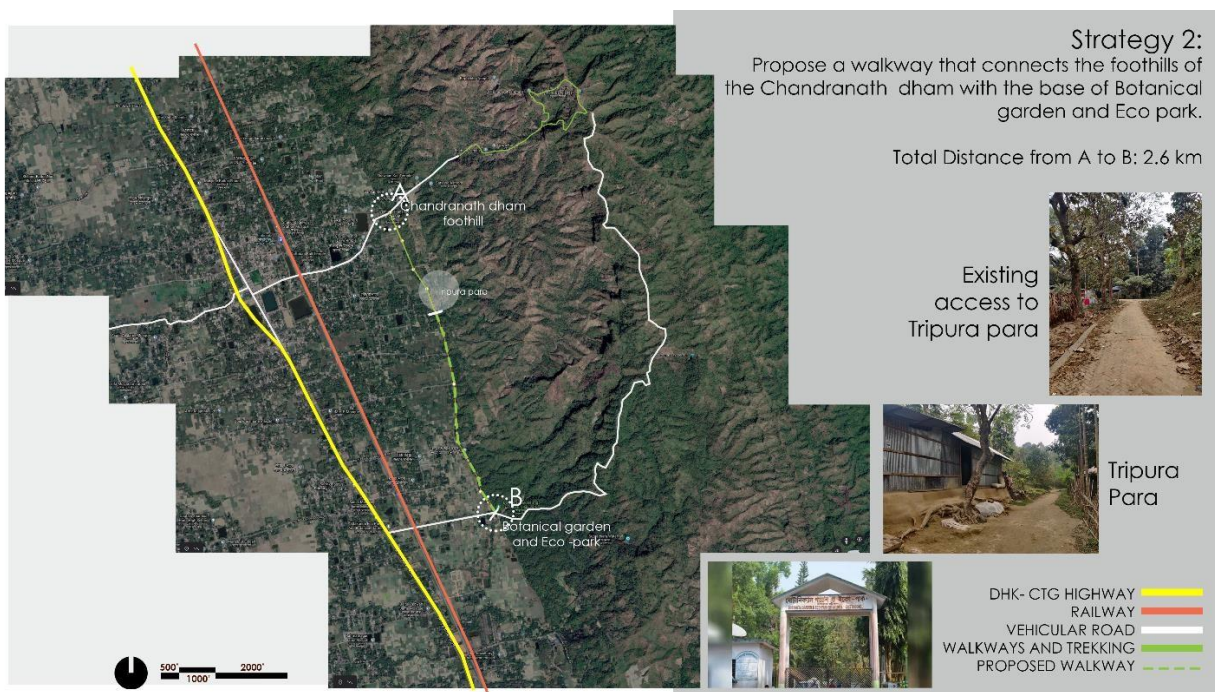
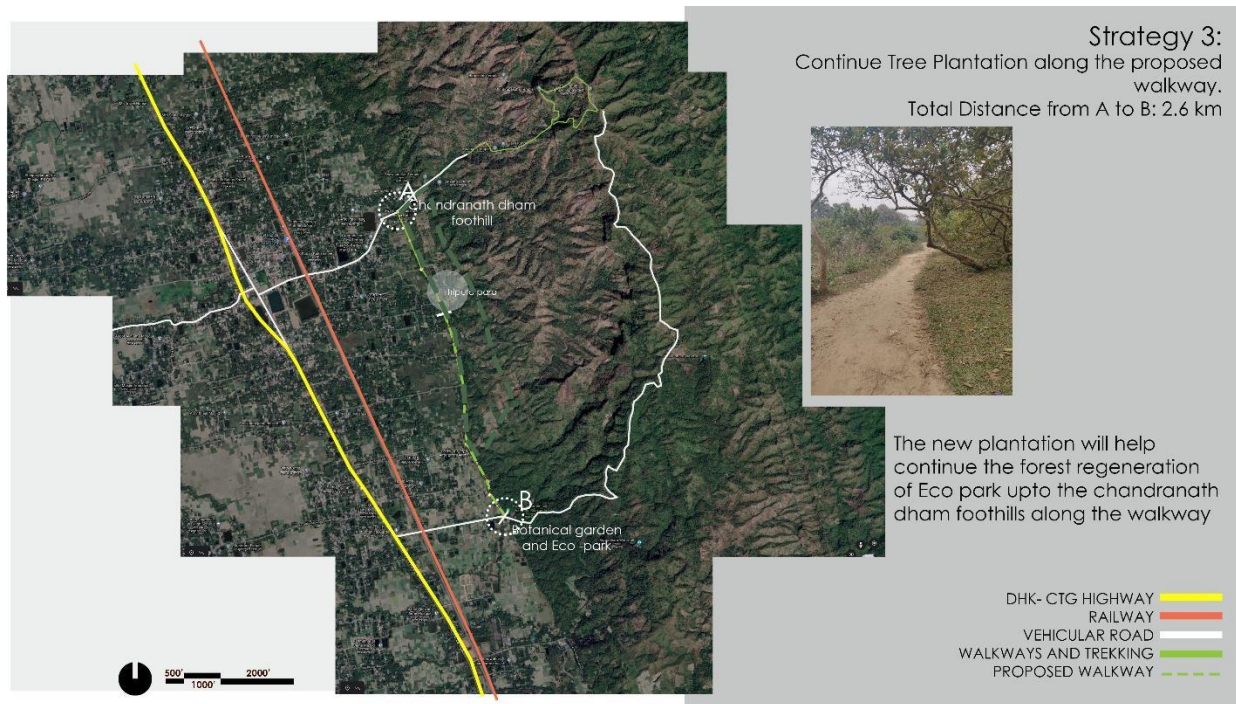


Figure 49: Strategy 3- This will not only help in forest regeneration just like what has been done in Eco Park but it will also facilitate the locals involved with Guava harvest along the foothills.



Part 2: DESIGNING THE FACILITIES ALONG THE TRAIL:

Here, the whole journey of a pilgrim or a tourist who wants to trek all the way through the bazaar area, village settlement and the meandering hilly path up to the peak of the hills, has been designed. A map of the trail has been given below:

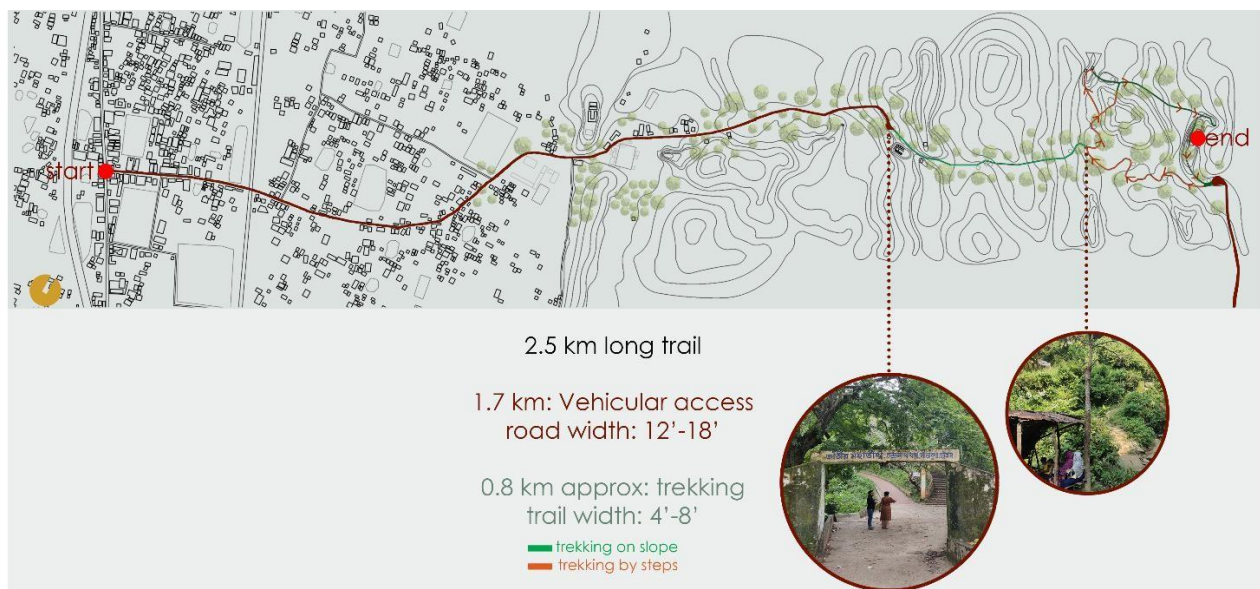


Figure 50: Spaces along the trail Visualized through Conceptual sketches

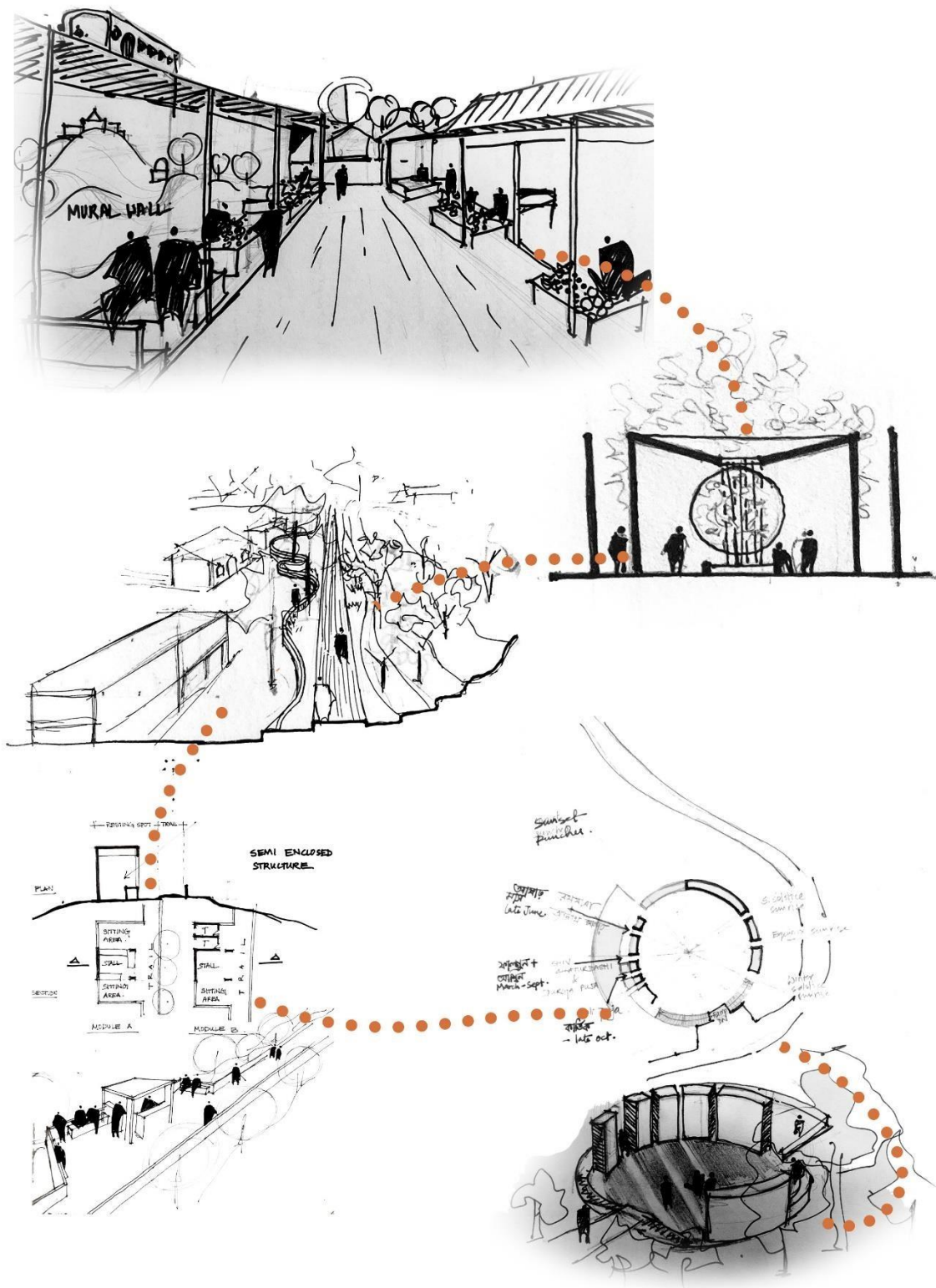


Figure 51: Masterplan Zoning

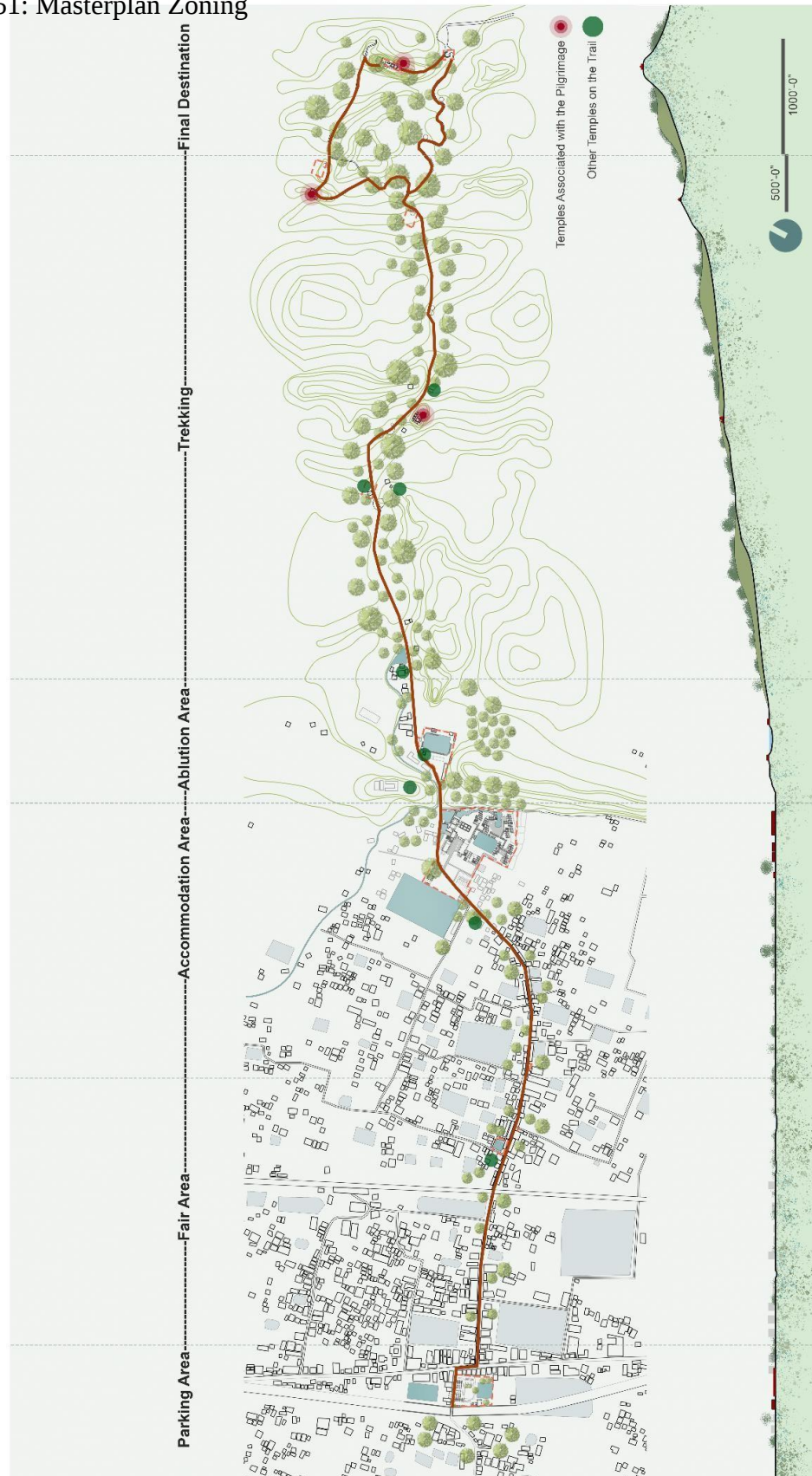




Figure 52: Masterplan with Interventions

01. Namaar Bazaar: People gather here from the Highway and the railway. This is where the journey starts from. A CNG and car parking area has been designed with minimal changes in the bazaar zoning and layout.

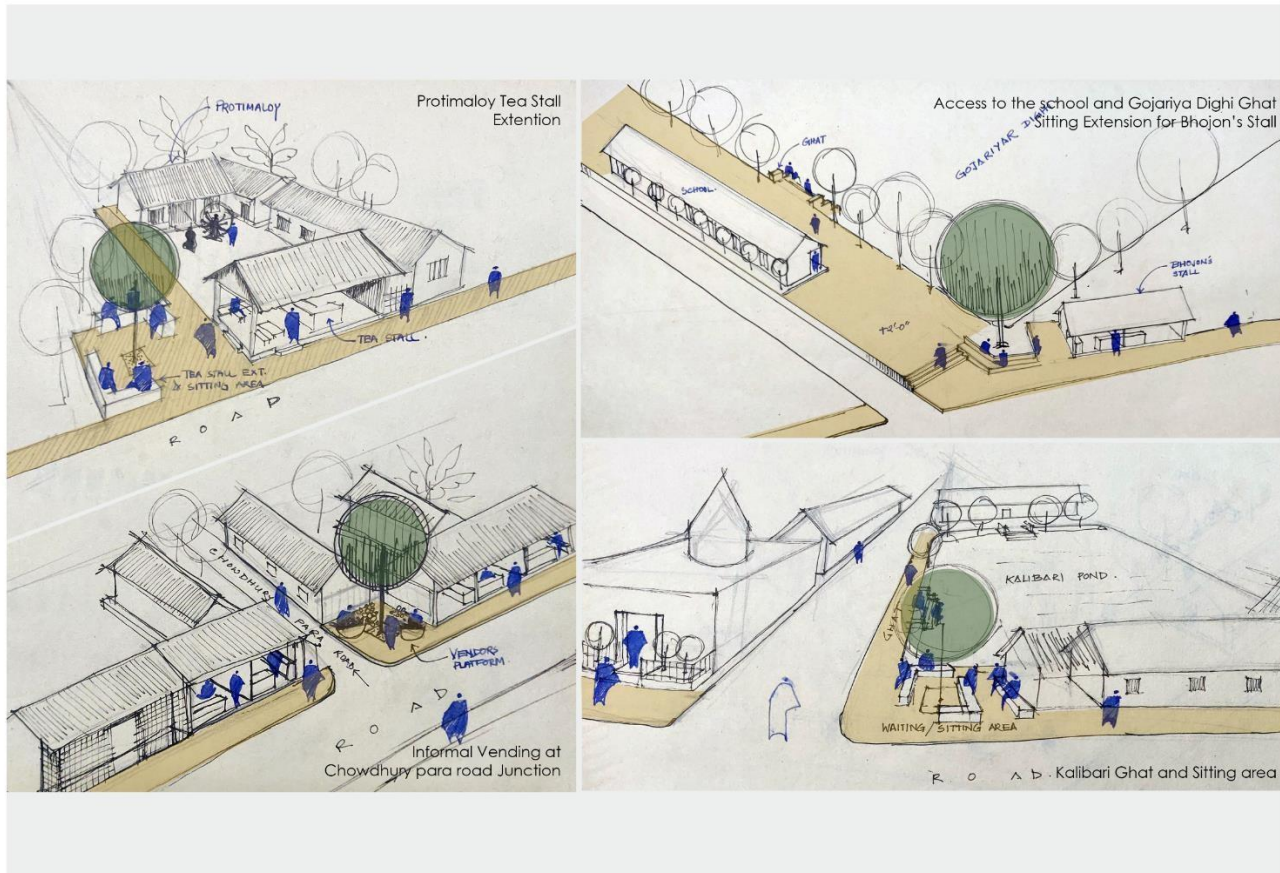


Figure 53: Namar Bazaar Junction (Source: Author)



Namar Bazaar Area
Restaurant | Bazaar | Parking

02. Pockets at Junctions and thresholds to promote Local informal Vendors, to provide breakout space from temples, to provide extensions to tea stalls and seating area and ghat.



Pockets at Junctions and Thresholds To Promote Local Informal Vendors
 To Provide Sitting area for activity Spill overs
 To provide Extensions to Tea Stalls and cafe
 To enhance the existing Landscape and ghat

Figure 54: Pocket spaces at junctions (Source: Author)

While running the site survey many important activity nodes were detected along the trail, some adjacent to temples, pratimalaya and tea stalls whereas some at junctions as platforms where vendors sit during farm day bazaar at Fridays and Tuesdays.

Not much has been built for these pockets. Only a platform or a seater or a ghat has been designed with a tree that will give the trail a sense of identity.

03. Accommodation Area: This is where the pilgrims or the tourists keep their belongings before starting to trek up the hills and if need be one can even stay the night. This is the major intervention area, hence the detail is given in the third part of the framework.



ACCOMMODATION ZONE



Figure 55: Accommodation Area Bird's eye view (Source: Author)

04. Ablution Area: Next in the journey comes the Ablution area where the pilgrims purify themselves before starting the holy pilgrimage. It is an existing water body with stepped ghaat, waiting shed, temples and changing rooms for both male and female.

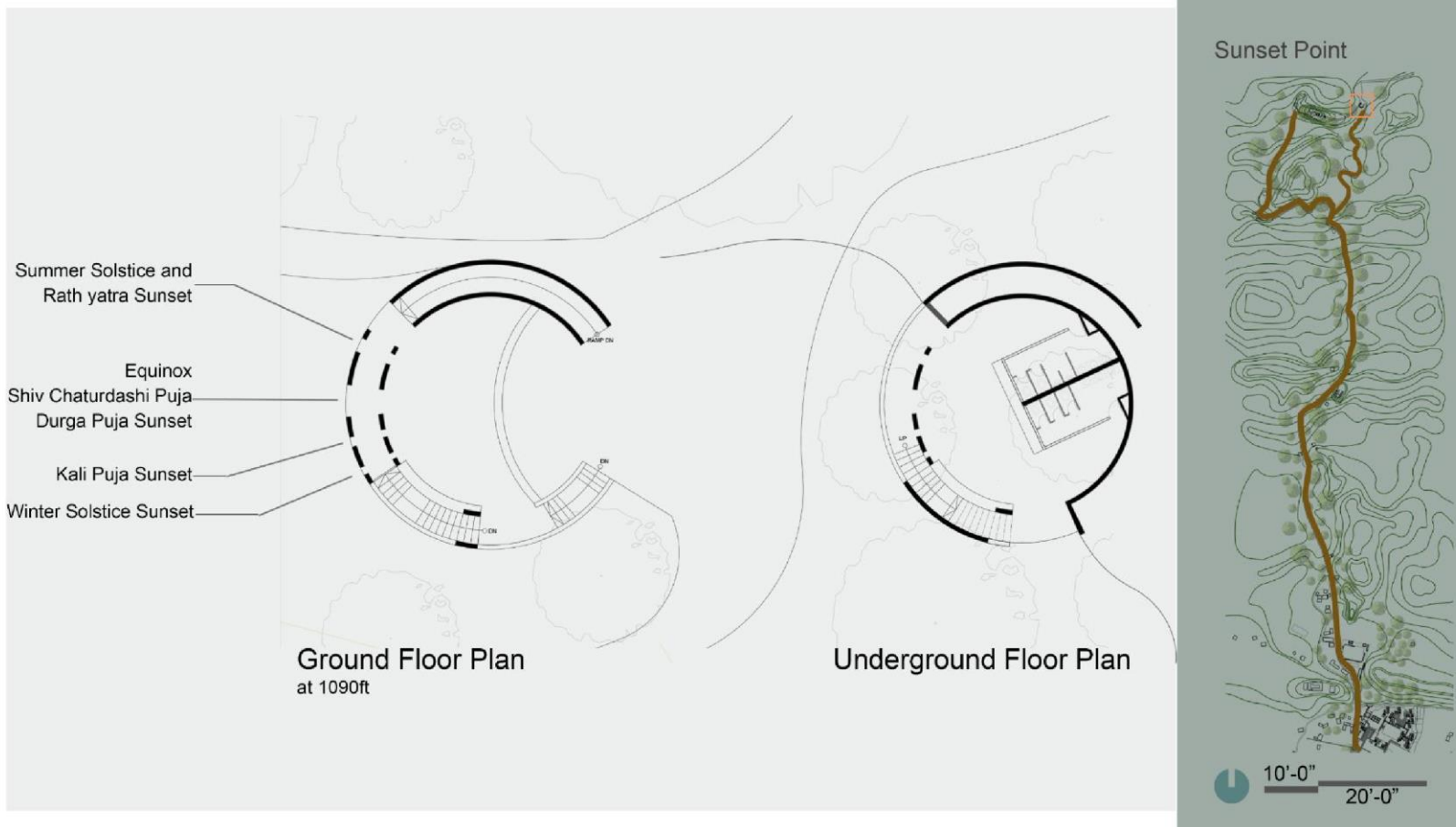
05. Resting Spot Modules: After one crosses the ablution area, the trekking road starts. Along the hilly path resting spots has been designed at strategic locations where people pause to rest or to enjoy the scenic view of the hills. A 12'x 12' module has been designed with scopes of further additions during pilgrimage when the demand of resting space is more. The locals can use their local built material like bamboo, bamboo reeds, bamboo chic, straws, CI sheet etc. as in fills or extensions.

Figure 56: Resting Spot module (Source: Author)



06. Sunset Point: After visiting the Chandranath Temple at 1152 ft peak right before the descending trail starts a sunset point has been designed to mark the end of the journey which humbly sits 60 feet below the chandranath peak overlooking the western sky and the Bay of Bengal. It is an astronomically oriented plan designed to enjoy sunset through a play of light and shadow coming through specific slits on the western curved wall at specific time of the year. This is to celebrate the different festivals that happen on the hill all year around.

Figure 57: Sunset Point (Source: Author)





Part 3: MAJOR INTERVENTION | ACCOMMODATION AREA

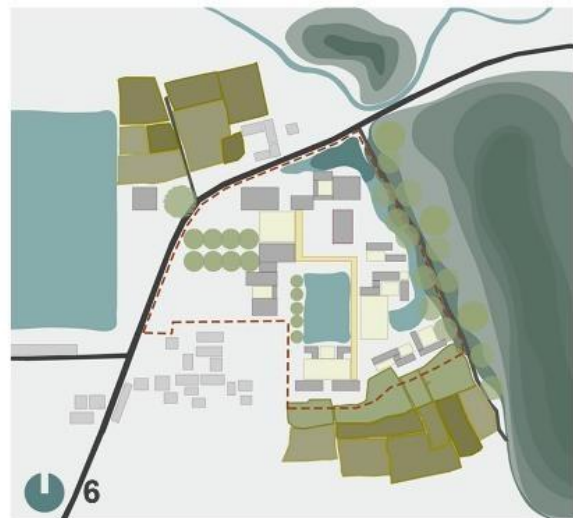
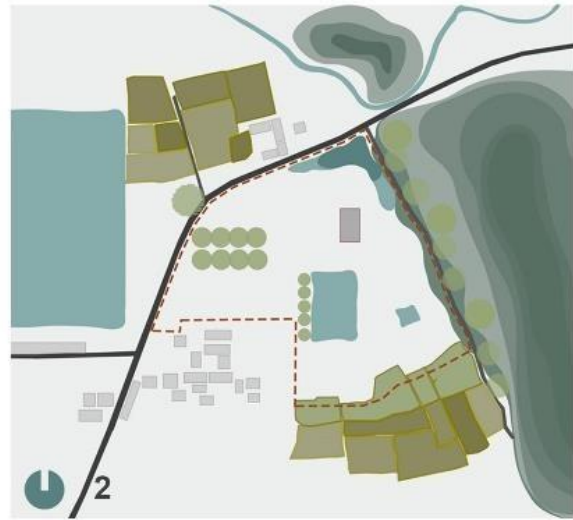


Figure 58: Planning Principle (Source: Author)

The site for the accommodation area is adjacent to the foothills of the Chandranath Hill range. Here is where the pilgrims/ tourists leave their belongings before trekking and stay the night if need be.

Planning Principle:

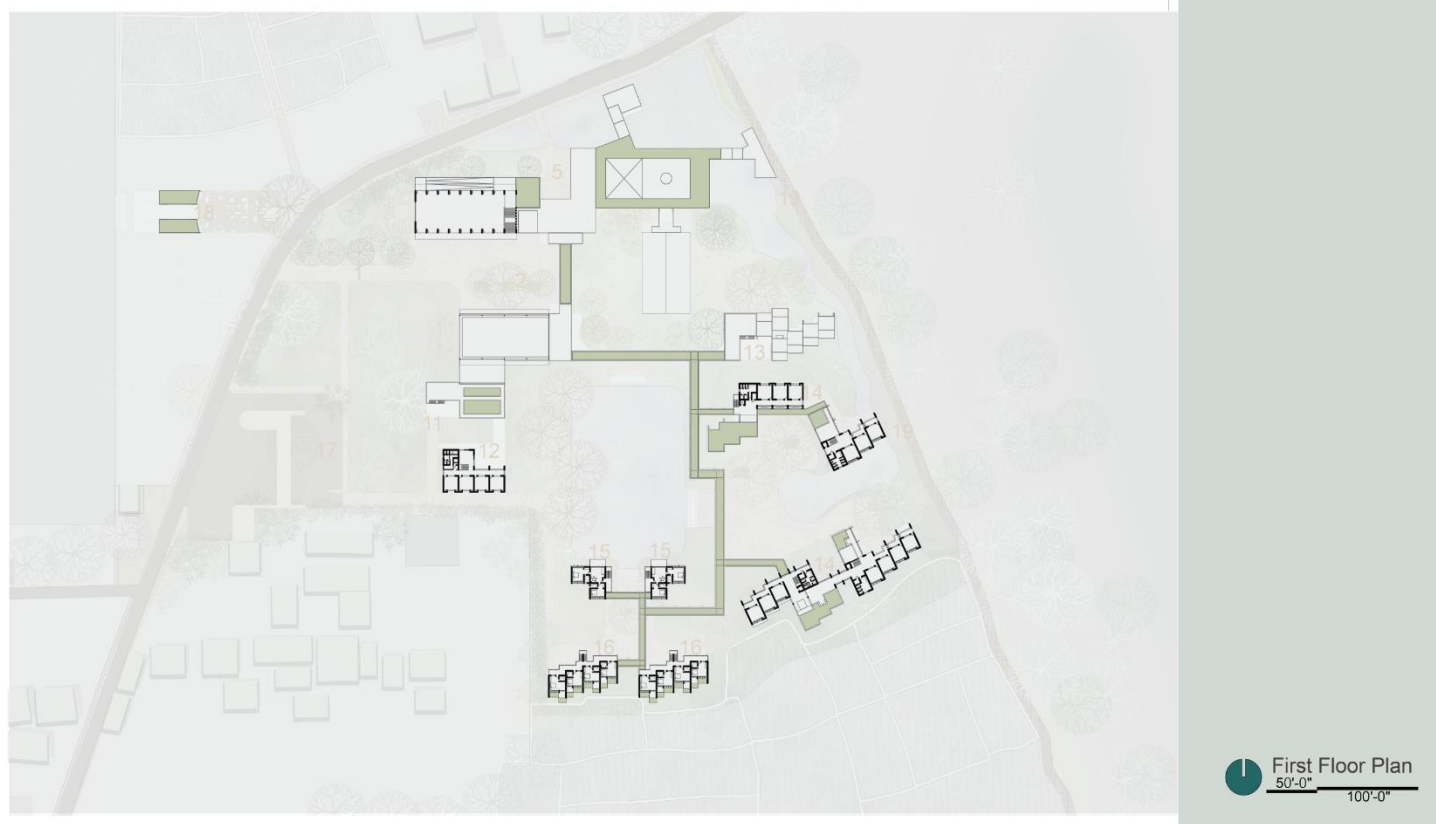
1. Keeping the Existing Site forces within the site (Fruit trees, Mohonter Astana, Panchavati, Waterbody)
2. Replicating Landscape: Contour on the east and Paddy fields on the south
3. Extending Water body and continuing Guava plantation into the site: to retain rain water run-off from the eastern contour.
4. Diving the site into Public- semi public- private realm as per access roads
5. Placement of mass following loose rural homestead layout with hierarchy of courtyards in between.
6. Connection in between masses by a shaded walkway.



Figure 59: Site Plan (Source: Author)



Figure 60: Floor Plans (Source: Author)



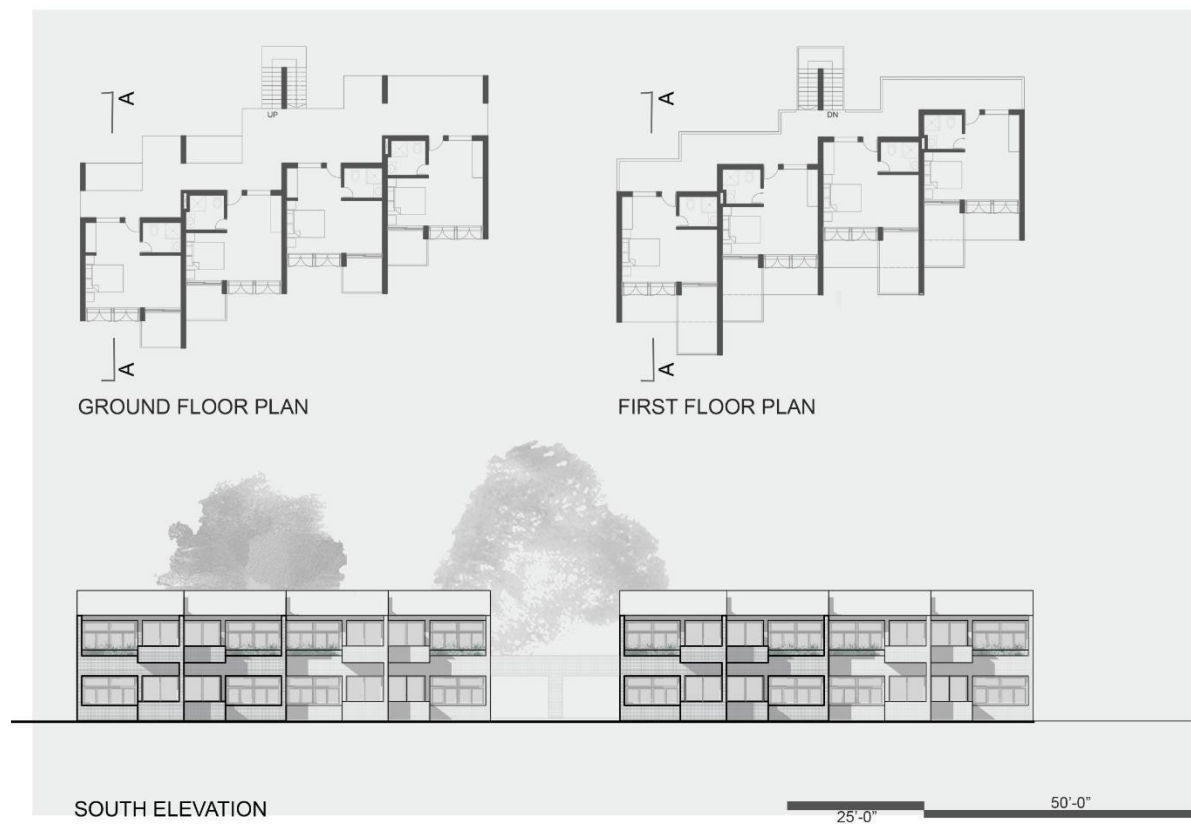


DORM-TYPE ACCOMMODATION

1. South East Orientation:
_ Site line
_ Prevailing wind
2. Staggered mass:
_ Intimate Entry
_ Provides Shading
3. Green roof:
_ Insulation
_ Photosynthesis
4. Green screen:
_ Creepers



Figure61: Blowup Details (Source: Author)



FAMILY-TYPE ACCOMMODATION

1. Staggered mass:
_ Intimate Entry
_ Provides Shading
_ Green Terrace on First floor



SECTION AA



Figure 62: Landscape Plans and Palette (Source: Author)



Figure 63: South Elevation (Source: Author)



Figure 64: Section AA (Source: Author)



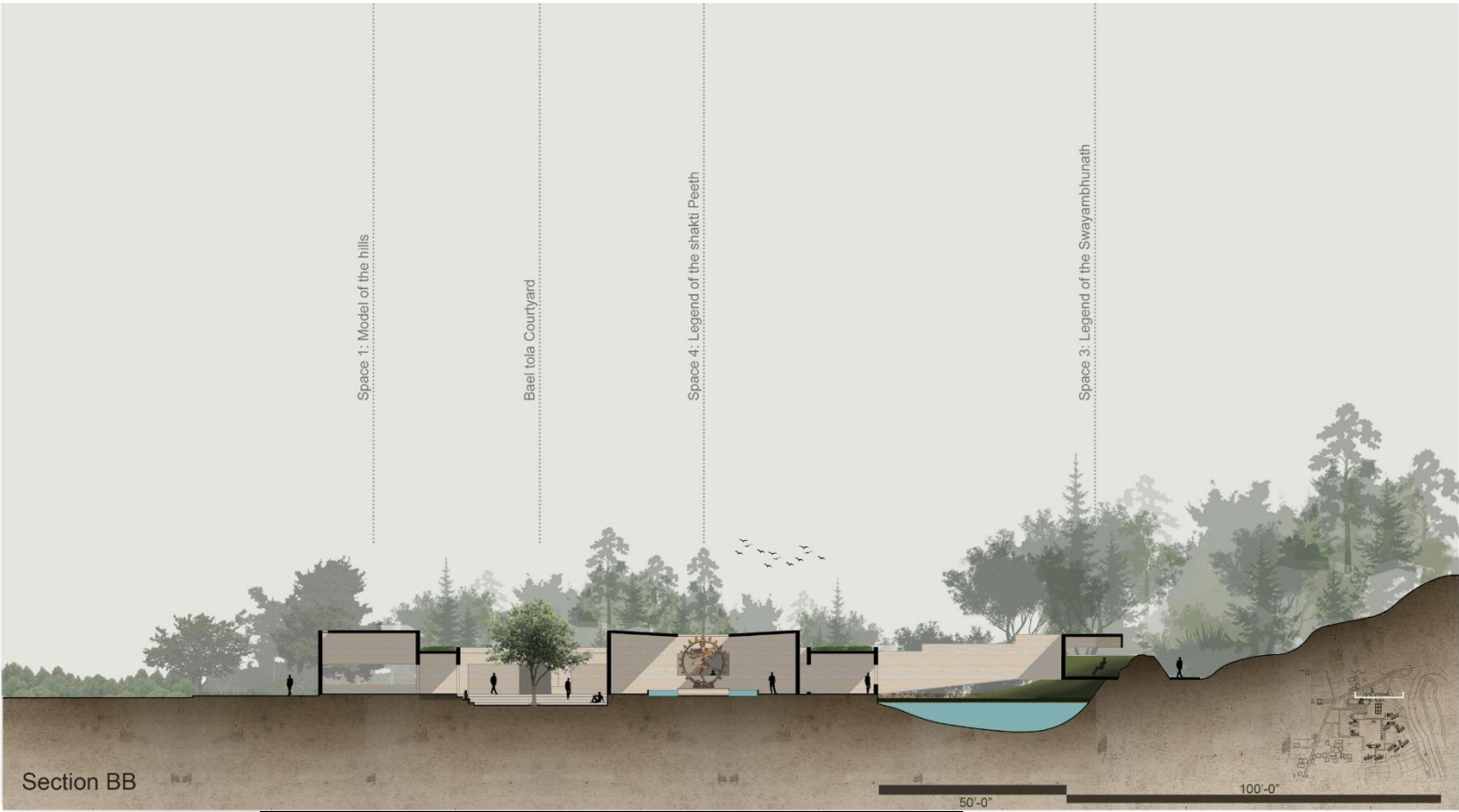


Figure 65: Section BB (Source: Author)

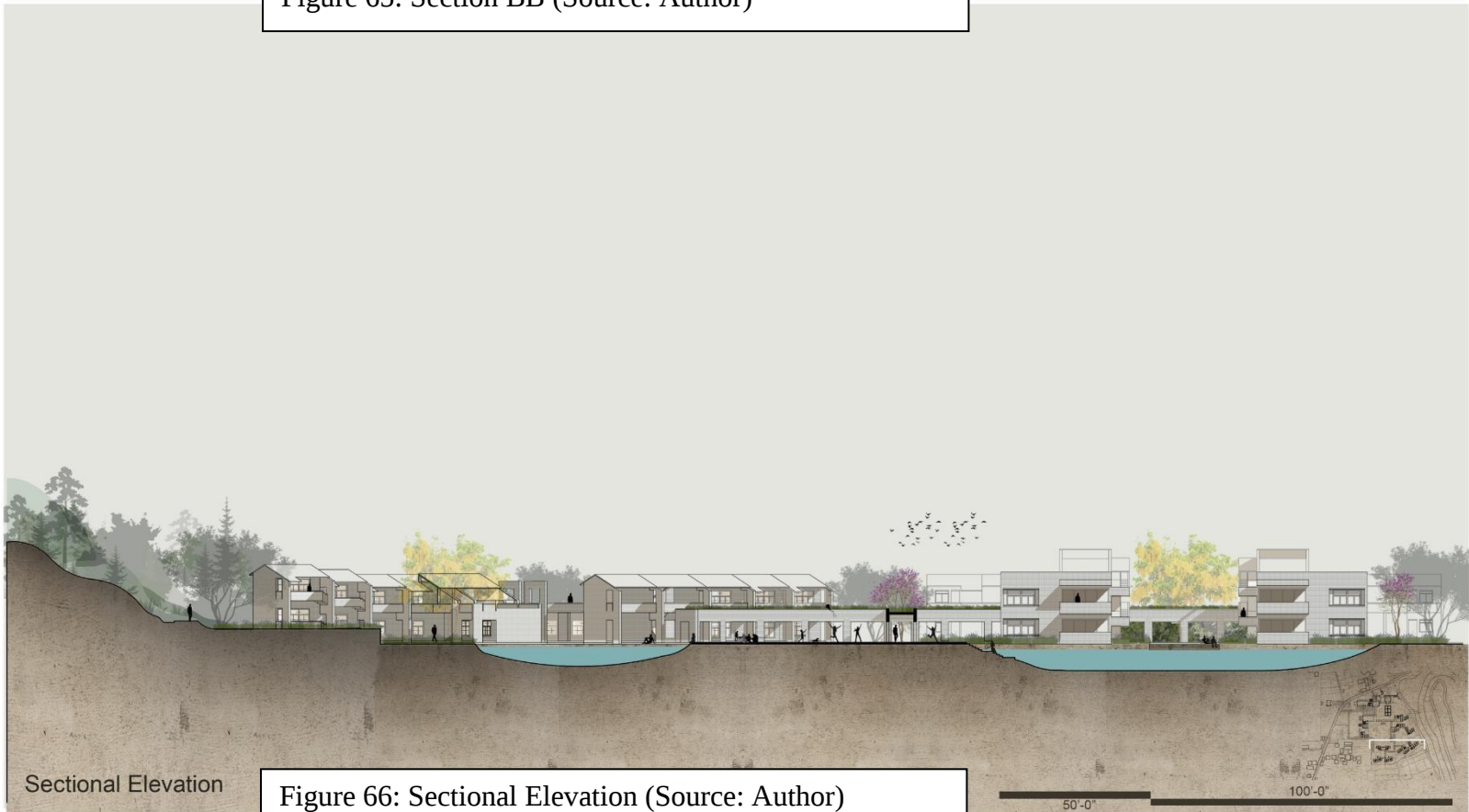


Figure 66: Sectional Elevation (Source: Author)

Figure 67: Façade and Material Details (Source: Author)

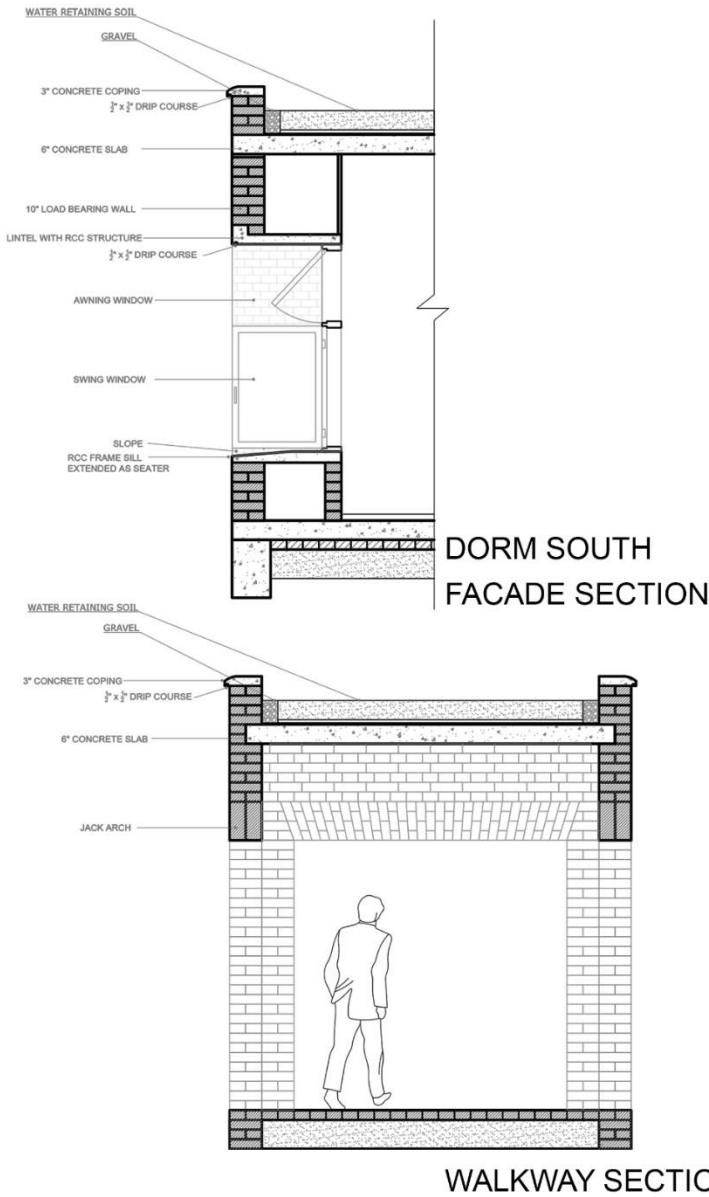
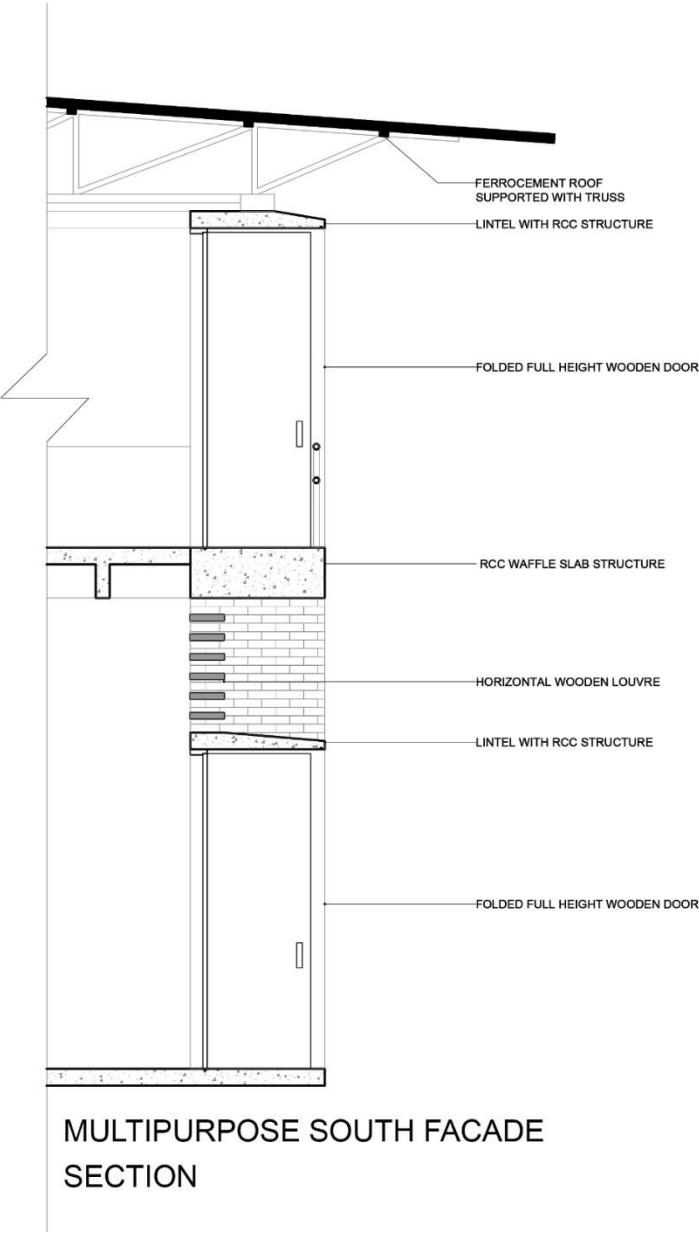
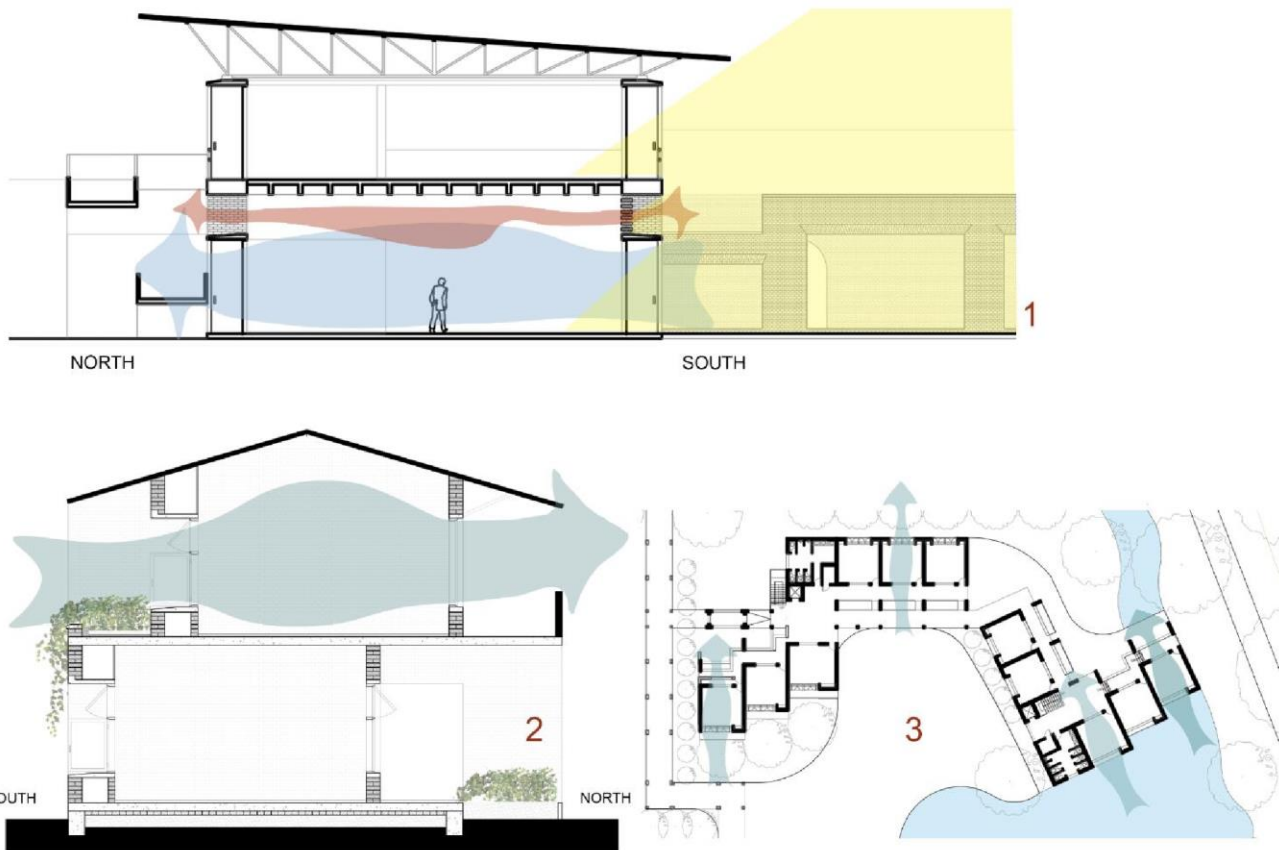


Figure 68: Diagrams showing Climatic Considerations (Source: Author)



LEGENDS

1. Section through multipurpose hall

2. Section through Family type accommodation

3. Dorm type Accommodation A plan

CLIMATIC CONSIDERATIONS

The climatic considerations taken are as follows:

Cross Ventilation

Warm Air Vent (High Window)

Southern Terraces

Staggered Mass providing shade

Deep Recessed Window

Passive Cooling (Water Body)

3D Perspective Views:

Figure 69: View through Entry Court (Source: Author)



Figure 70: View of the Dorm courtyard (Source: Author)



Figure 71: View inside the Museum (Source: Author)



Figure 72: View of the Multipurpose from Panchavati area (Source: Author)



Figure 73: View of the Panchavati Contemplation space (Source: Author)



Figure 74: Resting Spots on the trail (Source: Author)

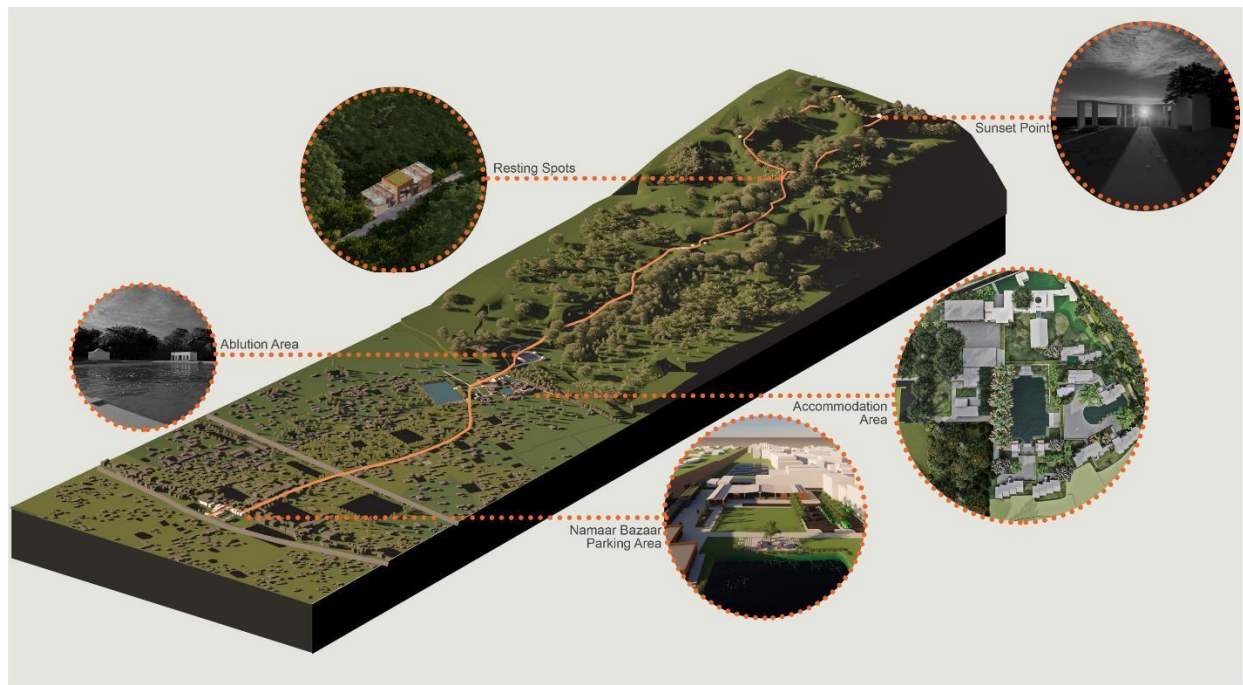


Figure 75: Sunset Point (Source: Author)



To sum it up the whole journey is shown in an axonometric view below.

Figure 76: Axonometric view of the Trail (Source: Author)



Conclusion

This project is very close to my heart not only because I have been going to the hills since childhood and have made wonderful memories there but also because in the process of building up this thesis I got more and more involved with the hills and the locals both spiritually and mentally. This is dedicated to every user of the trail including the CNG drivers, the priests, the village people, the people from shrine committee, the tourists and most importantly the Mother Nature.

The whole journey of a tourist or a pilgrim is narrated again as follows: People will take a CNG either to Guliakhali or to Chandranath. On their way they will find numerous temples, ashrams and Water bodies. They will then stop at the accommodation area to leave their belongings before setting off for trekking or pilgrimage. They will then encounter the scenic view of the Byashkunda ablution area where the pilgrims will purify themselves before starting the holy pilgrimage. Along the meandering pathways of the hills they might pause to take rest at one of those resting spots or to visit the temples on the hills. Finally after a 3 hour long trek they look up towards the Chandranath Temple standing bold and strong on the highest peak of the Chittagong District. They visit the temple and offer their prayers to the Mahadev. Just before starting the descending trail they stop at the sunset point to enjoy the play of light and shadow coming through the slits and if one is lucky enough to be at the right time in the right place he/ she will get to see the majestic calendric event in the form of cosmic connection with the setting sun at specific days.

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