

THESIS ON

Women's Sports Complex Rangpur

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

Declaration

It is hereby declared that

1. The thesis submitted is my/our own original work while completing degree at Brac University.
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.
4. I/We have acknowledged all main sources of help.

Student's Full Name & Signature:

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Approval

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Of Fall 2021, has been accepted as satisfactory in partial fulfillment of the requirement for
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Abstract

Women in Bangladesh is endangered and endemic. For over centuries male domination and the associated female inferiority pervade all sections of society, irrespective of ethnicity, religion or socio-economic status in our country. Sport can act as a wonderful and powerful platform which can help the girls and women of our country in the betterment of their health, wellbeing, selfesteem and education. Hence the government of Bangladesh has taken initiatives to build women sports centers in every division beside many other women empowerment programmes.

This particular paper will discuss about the different aspects of sports, its credibility in human life, women in sports and Bangladeshi women's achievement in the field, context studies of the site area and attempted design solution on the basis of these studies.

Keywords: Sport s, Sports Centre Women Sports, Indoor sports, Green, Bangladesh

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List of Acronyms

ODI	One day International
T20	Twenty Twenty
IPL	Indian Premier League

Chapter 1: Introduction

1.1 Introduction to the Project

Sports concerns different basic human skills and its history also talks about the different steps of social changes as well. History of sports stretches back to the Ancient world which has links with rituals, entertainment, warfare

History of sports shows that its beginning was in relation with military training. For example, through different competition individuals were examined whether they were fit for particular services. With industrial revolution and mass production, brought more idle hours in hands, which allowed more time to engage in playing and enjoying spectator sports, as well as less elitism in and greater of sports of many kinds. With advancement of media and global connection, sports also became profession and gained popularity globally.

Even though conventionally the world of sports has been constructed and reconstructed around the assumptions, values, and ideologies of males, maleness, and masculinity. In the mid-to-latter part of the 20th century, female participation in sport and the popularization of their involvement increased, particularly during its last quarter. However, participation rates and activities vary in accordance with nation, era, geography, and stage of economic development.

women's sports have developed into both amateur levels of sport and professional levels in various places internationally, but is found primarily within developed countries where conscious organization and accumulation of wealth has occurred.

The vulnerability of women in Bangladesh is endangered and endemic. For over centuries male domination and the associated female inferiority pervade all sections of society, irrespective of ethnicity, religion or socio economic status. According to the article, “Sport And Gender”, sport can also be a powerful health information and education platform, where awareness among the girls and women can be created that they need to reduce health risks in their lives, particularly in connection with their sexual and reproductive health. Sport can help increase self esteem by giving girls and women opportunities to learn new skills, engage in positive relationships, acquire achievements, and engage in volunteer service.

Hence the government of Bangladesh has taken many initiatives to empower girls and women of the country through different projects and constructing women’s sports complex at every divisional headquarter is one of the few.

1.2 Aims and Objectives

This center will create an opportunity for women to understand the unique strengths as a woman, involving themselves into various trainings provided in this center. It will further help them to gain self-sufficiency and improve their mental and physical health in the whole process of training in a safe and friendly environment.

1. To design a functional sports complex for women.
2. To inspire more women to be aware of their wellbeing and identity.
2. To promote women empowerment through sports.

3. To encourage and create opportunities for more women to play.

4. To create a communal space for the women and as well folk of the city.

1.1Background:

Sports is one of the largest platforms in the world, which can lift a nation's value and prestige. Over the years many nations have used this opportunity to enhance their reputation by providing state of the art sports facilities and giving opportunity to those who seek. Even though sport continues to be a section dominated by males, female participation and popularity in sports increased dramatically in the 20th century, especially in the last quarter-century, reflecting changes in modern societies that emphasize gender parity. The number of women who currently play sport or who closely follow sport events is steely increasing.

However, due to several issues, women actively participating in sports are lagging behind; this is because sports are not perceived as a suitable or desirable activity for girls and women, notably in our culture. It is a mistake to assume that this is because girls and women do not wish to participate. Poverty, heavy domestic demands, safety concerns, lack of accessible transportation, inadequate sport and recreation facilities, and few opportunities for physical education and skill development frequently prevent women's participation. (Rayma, 2017).

Then again, it is generally accepted that participation in sports creates extensive benefits to the individual as well as to the community as a whole. Internationally, government agencies encourage participation in sports and recreational activities because these contribute to the community's health and well-being, confidence building and empowerment, social integration

and cohesion, national and cultural identity and a reduction in crime and vandalism. (Thakur, 2016)

A sports complex dedicated to women can create a platform for women sports and encourage more women to participate in different kind of activities which will not only empower women but also contribute to economic development of the country.

Bangladesh is considered to be one of the countries which is gradually transforming from rural to urban. And Rangpur, as one of the most recent City Corporations of Bangladesh it will be subjected to development. The Women Sports Complex is one of the many infrastructures to be built along with redevelopment of stadiums in Netrokona and Nilphamari. The government will use this facility to help women teach various types of sports. This will not just produce skilled sportswomen but will also act as a part of women empowerment program.

1.3 Project Rationale:

The decision to construct women's sports complex in every divisional headquarter is a part of the women empowerment program by the Government of Bangladesh. The Sports Complex is one of the many infrastructures planned along with redevelopment of stadiums situated in Netrokona and Nilphamari.

Women of Rangpur city has encouraged women empowerment in our country in many fields. The development will consist of a multi-purpose modern complex where both indoor and outdoor sport facilities will be available. As well as it will have other community supporting facilities, to make the project holistic and community supportive at all times. This will enhance communal gathering, breathing spaces beside being a platform for the athletes.

1.4 Project Brief

- Project Name: Women's Sports Complex
- Implementation of the Project: National Sports Council Bangladesh
- Site Location: Rangpur
- Site Area available for the Project Development: 10 Acres
- Funded by: Government of Bangladesh

1.5 Proposed Programmes of the project:

1. Swimming pool
2. Handball
3. Volleyball
4. Lawn Tennis
5. Football ground
6. Gymnasium
7. Table tennis
8. Indoor stadium/Gallery
9. Badminton
10. Table Tennis
11. Residential facilities for players
12. Administration and office spaces

Chapter 2: Literature Review

2.2 Global Appeal of Sports

In 2000, at the inaugural Laureus World Sports Awards Nelson Mandela, declared “Sport has the power to unite people in a way little else can. Sport can create hope where there was once only despair. It breaks down racial barriers. It laughs in the face of discrimination. Sport speaks to people in a language they can understand. Sport can create hope, where once there was only despair. It is more powerful than governments in breaking down racial barriers. It laughs in the face of all types of discrimination.”

In one of the articles by FIFA it was mentioned that the renowned ‘El Classico’ match, of the 2015-2016 season had an estimated viewer of 400 million. According to ICC report The India vs Pakistan World Cup group stage match had a reported audience of 288 million alone in India. These statistics signifies those sports is a globally appreciated form of entertainment.

2.3 Advantage of sports in our life

According to the author of "The Importance of School Sports and Education," Theodore Hesburgh, it is a must for school going children to have access to sports and games. This is because it empowers youth and promotes higher self-esteem and motivates students, enables them to earn better grades, especially in schools where obtaining certain grades is a pre-requisite to staying on the team.

In an article named “the importance of sports for kids”, it was written that the advantage of sports in life cannot be overlooked because it will help the children to build up the essential

skills for life that will help them later in team works and cooperation. Moreover, sports not only have positive impact on children but also on adults, providing opportunities to get exercises and spend time in a healthy environment with everyone.

The significance of sports and games contains more than just the benefit of physical activity; it helps build self-esteem and also mental alertness. Although the benefits of school sports are abounded, but with a diminishing economy, unfortunately many schools are cutting out sports and physical education programs, which is the detriment of students nationwide.

2.4 Sports in Bangladesh

Sports are popular and widespread like in most of the countries in the world. The popular sports in Bangladesh are kabaddi, cricket, football, hockey, chess, golf, handball, and volleyball. The traditional sports like athletics, swimming, *boli khela*, *lathy khela*, and boat races are played mostly in the rural areas, while cricket, football, hockey, volleyball, handball, golf, and badminton are popular among the urban population.

The prevailing socio-economic condition during the early years hindered the provision of adequate infrastructure facilities and appropriate education and training in sports, thereby limiting the promotion and development of sports. To address this situation, the concept of *sports institutes* emerged to identify and nurture talented sports persons and to build competent coaches and other technical experts.

2.5 Women and Sports

“And what has football done for me? Well, a lot of things because it helps me to forget things that are sad and all the problems that are occurring. Also, it prevents me from getting into the

many problems we have in this country. For example, becoming pregnant at my age or getting into prostitution or something like that. It helps me avoid problems. And also, I am having a lot of fun. Football is really good for me.” -Xiomara, 17-year-old football player with Association Bogota Colombia, Bogota, Columbia (Womenwin, 2016)

In “Women, sport and development”, an article that examines the numerous dilemmas faced in women’s involvement in sport, Martha Saaverda writes: “Sport as an embodied practice may liberate girls and women from constraining hegemonic feminine ideals, empower them within their communities, provide positive health and welfare outcomes, and ultimately transform gendered notion leading to a more egalitarian world and unleashing the productive, intellectual and social power of women. This then would contribute to overall development economic, social and political.” (Womenwin, p. 9)

According to the United Nations Division for the Advancement of Women in “Women 2000 and Beyond: Women, Gender Equality and Sports” it says that “The participation of women and girls in sport challenges gender-based stereotypes and discrimination, and can therefore be a vehicle to promote gender equality and the empowerment of women and girls. In particular, women in sport leadership can shape attitudes towards women’s capabilities as leaders and decision-makers, especially in traditional male domains. Women’s involvement in sport can make a significant contribution to public life and community development” (Womenwin, p 9).

In an article “The changing profile of sports fans around the world” it was found even though traditional thinking might skew more towards a male viewership, the gender divide is narrower than one might think. Viewing figures show that women are avid sports watchers as well. Globally, nearly 80% of women surveyed say they watch live sports online or in person, not far behind 90% of men who said the same.

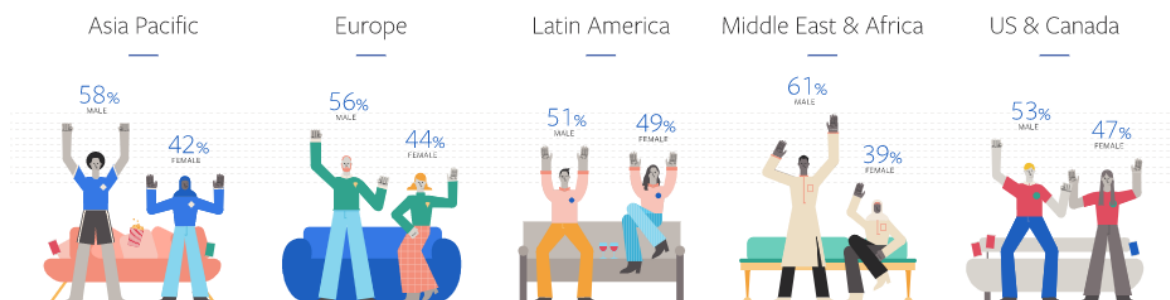


Figure 9: <https://www.facebook.com/business/news/insights/the-changing-profile-of-sports-fans-around-the-world>

2.6 Women Sports in Bangladesh

Women's participation in sports in Bangladesh formally began during the early 1970s immediately after the independence. Bangladesh Women's Sports Association (BWSA) was established in 1972, as initiated by Shamsun Nahar Bakul (a former athlete, who participated in the Pakistan National Olympic and won gold medals; she also received awards at the East Pakistan Sports Federation competition).

The BWSA has been instrumental in promoting women's sport in Bangladesh by unifying women athletes under their support. They helped women to organize themselves, join the board of directors of the BWSA, and mobilize other young girls and women to engage in sports.

During the mid-1970s and early 1980s, several women athletes were trained and groomed by different professional sports agencies. With increased number of sports federations and clubs, several women athletes showed interests and emerged as national athletes after winning awards in many national competitions. According to the book, *Bangladesh Sports History of 20 Years* (National Sports Council, 1990), many women of all ages have participated and been

awarded. Furthermore, successful women athletes were supported to train and compete at the national and international level by various groups and agencies.

"Women's cricket in Bangladesh has changed in a big way over the last few years. Many more parents are willing to allow their daughters come out on the field and play. Our domestic structure today is a lot stronger than before since we play a lot more matches," explains the young captain of the Bangladeshi team, Salma Khatun. "Finding players was more difficult before. Today, however, many more girls are willing to play and this will definitely help us create a stronger team," she adds. (Karim, 2012)

According to the article “Women Sports in Bangladesh”, the general secretary of Women’s sports Association, Kamrunnahar Dana says that the only reason other sports are lagging behind is because of not enough campaigns is done to promote other sports, for example talent hunt programs need to be arranged in order to look for passionate and talented athletes.

Apart from prospering in cricket, Bangladeshi women also have received many medals in kabaddi. They received many awards in South Asian games and the highest amount was 18 medals. Moreover, a Bangladeshi gymnastic has made the country proud by receiving the silver medal in the South Asian Gymnastic Championship. (Karim, 2012)

Besides these there are many women athletes in Bangladesh who have brought fame to the



Figure 10: From left Jahanara Alam, Sabina Khatun, Mabia Akhter, Sonia Akhter Tumpa, Shyamoli Roy, Zobera Rahman Linu And Sultana Kamal (source: <https://unb.com.bd>)

country and are assets for Bangladesh. For example, Jahanra Alam a renowned national cricketer; Sabina khatun a footballer renowned both at home and abroad; Shirin Akhter who is a Bangladeshi sprinter, played in 2016 Olympics, brought many national titles and currently plays for Bangladesh Navy; Weightlifter Mabia Akhter; swimmer Sonia Akhter Tumpa; Archer Shymaoli Roy; table tennis player Zobera Rahman Linu And not to forget the legendary sprinter Sultana Kamal etc. and many more. (<https://unb.com.bd/>)

Therefore, to conclude, the number of females interested to take up sport as professional has increased over the years in Bangladesh. With more women to gain fame and significantly contributing to do something for their country as well as the women of the country, encouraged more women to participate in sports.

2.7 Empowering women through sports

Sports provide women not only physical and mental strength, along with confidence, but also a way to become self-dependent in order to break the social barriers to live a better and healthy life, discussed the speakers at a panel discussion on Women's Empowerment through Sports in Dhaka Thursday.

Jessy recently become the first female commentator from Bangladesh to commentate in international matches on Star Sports during the World Cup 2019, while Ashreen became the first Bangladeshi basketball player to join the Global Sports Mentoring Program, funded by ESPN and the United States, last year.

“Sports help women on their temperament,” said, Jessy, a BKSP alumni who took his first sports lessons in shooting discipline and later turned to cricket to join the national team in 2007.

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US Embassy’s public affairs section hosted the event at the American Center Library, which included the film screening of “Alex & Me” to support “Step In, Dream Big” campaign to encourage girls to step into their potential and realize their dreams

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US Embassy’s public affairs section hosted the event at the American Center Library, which included the film screening of “Alex & Me” to support “Step In, Dream Big” campaign to encourage girls to step into their potential and realize their dreams.

Around 50 female students and players from different schools, clubs and organizations took part.

Former national cricket team player Shathira Jakir Jessy and former national basketball captain Ashreen Mridha were the two speakers during the panel discussion.

Both have already acquired themselves in the global platform as well.

Jessy recently become the first female commentator from Bangladesh to commentate in international matches on Star Sports during the World Cup 2019, while Ashreen became the first Bangladeshi basketball player to join the Global Sports Mentoring Program, funded by ESPN and the United States, last year.

“Sports help women on their temperament,” said, Jessy, a BKSP alumni who took his first sports lessons in shooting discipline and later turned to cricket to join the national team in 2007.

“The most important thing is that it makes girls more self-dependent and stronger. Here we used to think that the girls can’t go outside of his own or return home after the evening because they are not safe, but when one gets involved with sports it gives them the confidence to do her things alone,” she added.

Ashreen, who joined the national basketball team in 2009, said, “Sports gives women strength, both physically and mentally. It gives confidence. Those involved with sports have naturally the capability to deal with failure. During games, you win or lose, this experience helps people to become stronger and deal with difficult situations.

2.8 Recent achievements by Bangladeshi women in sports sector

The Bangladeshi women’s cricket team and the Bangladeshi under 19 football team enjoyed significant success at the end of year 2021. Aside from that, Bangladeshi athlete have had great success in individual events.

It was a joyous year for the Bangladeshi national women cricket team, 2021, they qualified for the ICC One day International World cup 2022 after winning a bilateral series in Zimbabwe was overwhelmed with the well wishes from the media and supporters.

The Bangladesh U19 team performed well throughout their campaign in the 2021 SAFF Championship. They were the undefeated owners after defeating India 1-0 in the final.

During the 2021 Archery World Cup, Ruman Shana and Diya Siddique took silver in the recurved mixed team event. In the final, Bangladesh finished behind Netherlands. It was the first time Bangladesh reached final round in world archery.

Maksuda Akhter was the first women bodybuilder from Bangladesh to take part in an international competition. She placed third among 30 toppers in the IHFF Olympia Amateur Bodybuilding Championship in Mumbai.

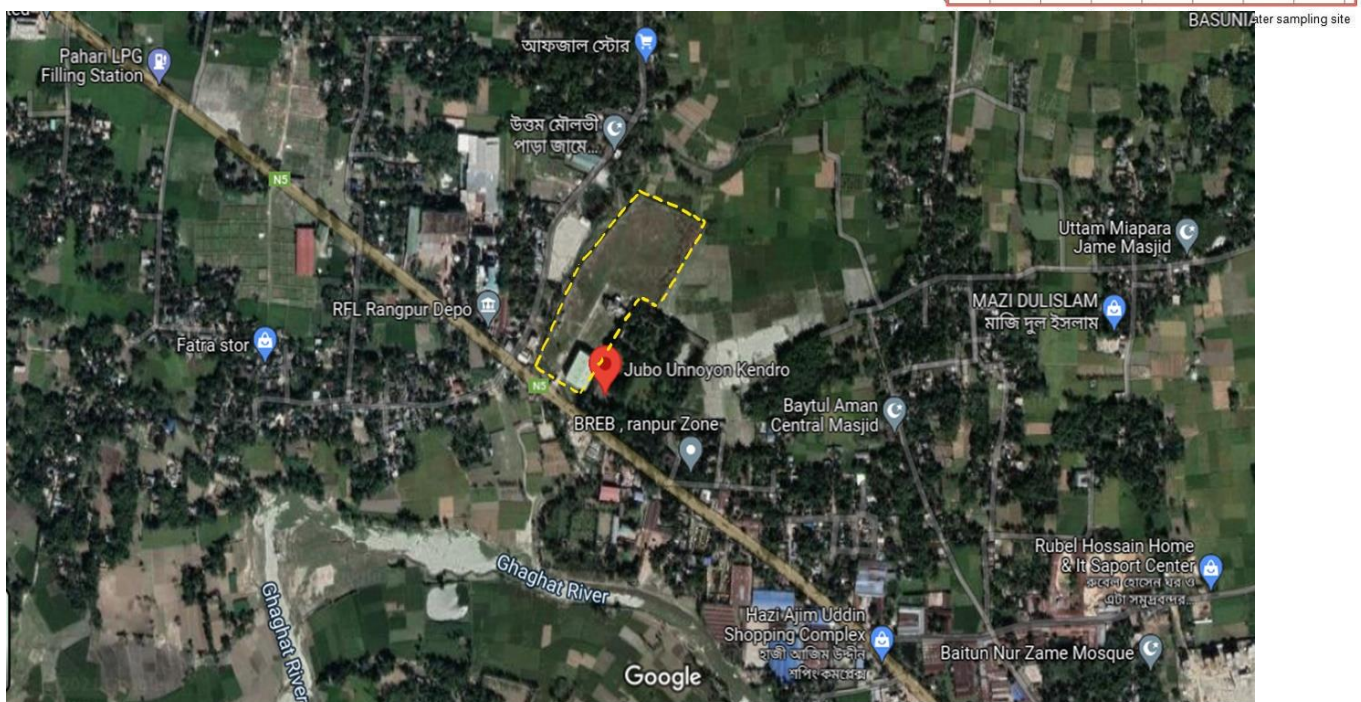
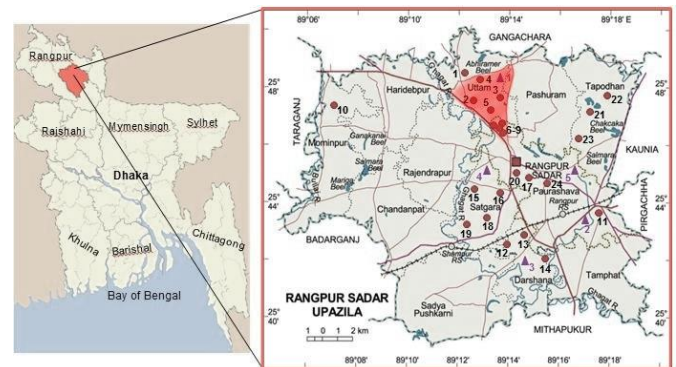
Bangladesh also performed remarkable in shooting where Syeda Atkia Hossain took silver in women's 10m air rifle with a score of 623.3.

In the 2020 summer Olympics, six Bangladeshi competed amongst which two women Rumana Shana ,Diya Siddique performed remarkable in shooting and got defeated by the strong south Korean team at round 16. There was also female swimmer Junayna Ahmed.

In the year 2021 women has achieved great deal of success in sports of Bangladesh. Therefore, authorities need to aid them with proper professional care for every sector so that they can carry on bringing about more achievements for themselves women and the country.

Chapter 3: Site Analysis

The proposed site is in Uttam Union situated in Rangpur Sadar, Rangpur Bangladesh. The site is approximately 6 Kilometers from the main city Centre, Paglapir Bazar and is adjacent to the



‘Jubo Unnoyon Kendra’, beside the primary road Rangpur – Dinajpur Highway.

The site is of 10 acres in area and comprises mainly of agricultural farmlands. The north-eastern side is entirely agricultural field, while the north-west has some small-scale factories, houses and agricultural lands.

3.1 Site Surrounding

Lands surrounding the sites mainly consist of farmlands. Beside site has abundance of green and small low-rise factories, stores and truck parking. There are few settlements in the inner side of the locality

There are few semi pucca stores of furniture’s and log on the roadside and some informal bazars and vendors as well. The factories are mainly factories of tobacco, furniture makings etc.

There is a canal adjacent to the site which is a subbranches from the Ghaghat river which runs all through the Rangpur district and is a distributary of Teesta River. The site is also 2kilometres away from flood prone zone which becomes flooded seasonally when the Teesta barrage is opened.



Figure 5: Site Surrounding



Temporary structure for roadside shop



Rangpur Medical College and Hospital



Lowrise factory



Lowrise factory

Figure 6: Site Surrounding

3.2 Micro climate

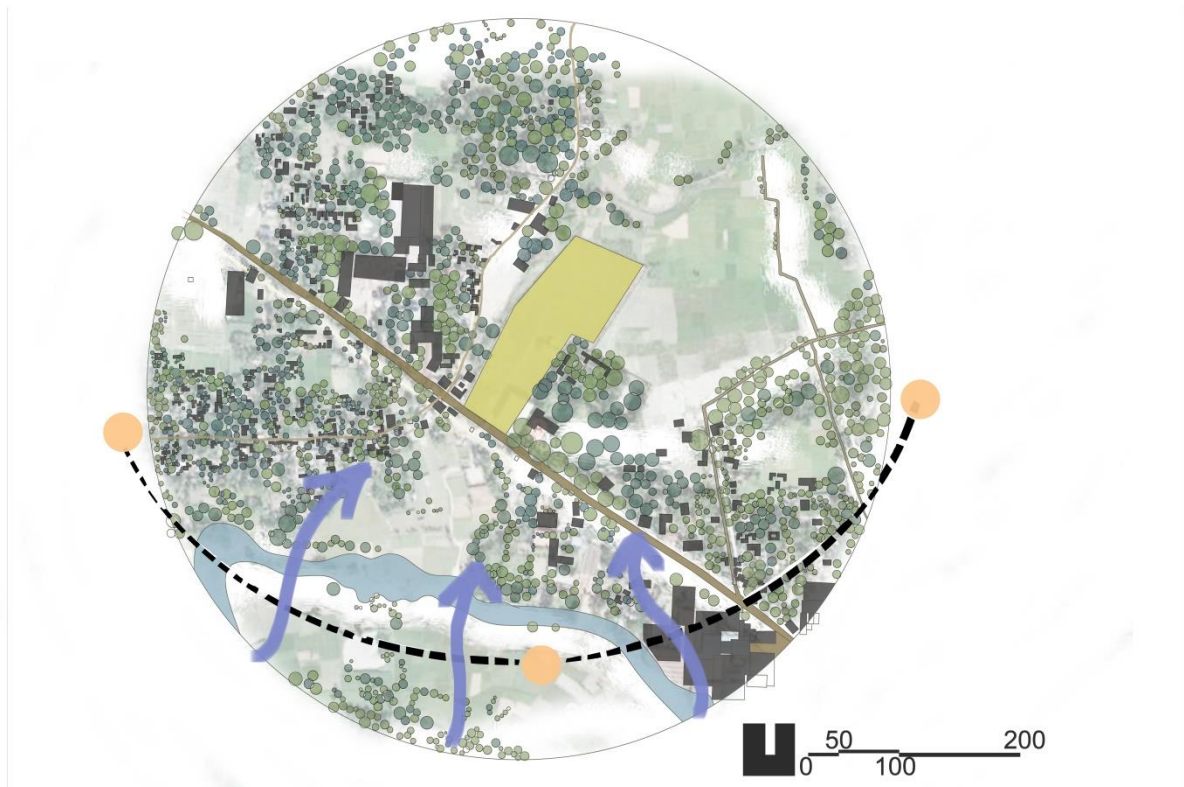


Figure 7 :Micro Climate Analysis

The above diagram shows the microclimate of the site. The lands surrounding the site are open and has few low height infrastructures which would cause direct sunlight falling on the site during the daytime. Also, southern wind can be ensured due to absence of any obstruction.

The site being immediately adjacent to the primary road which rangpur –Dinajpur highway, will cause noise at all times, due to continuous flow of vehicle at all times.

3.3. Accessibility

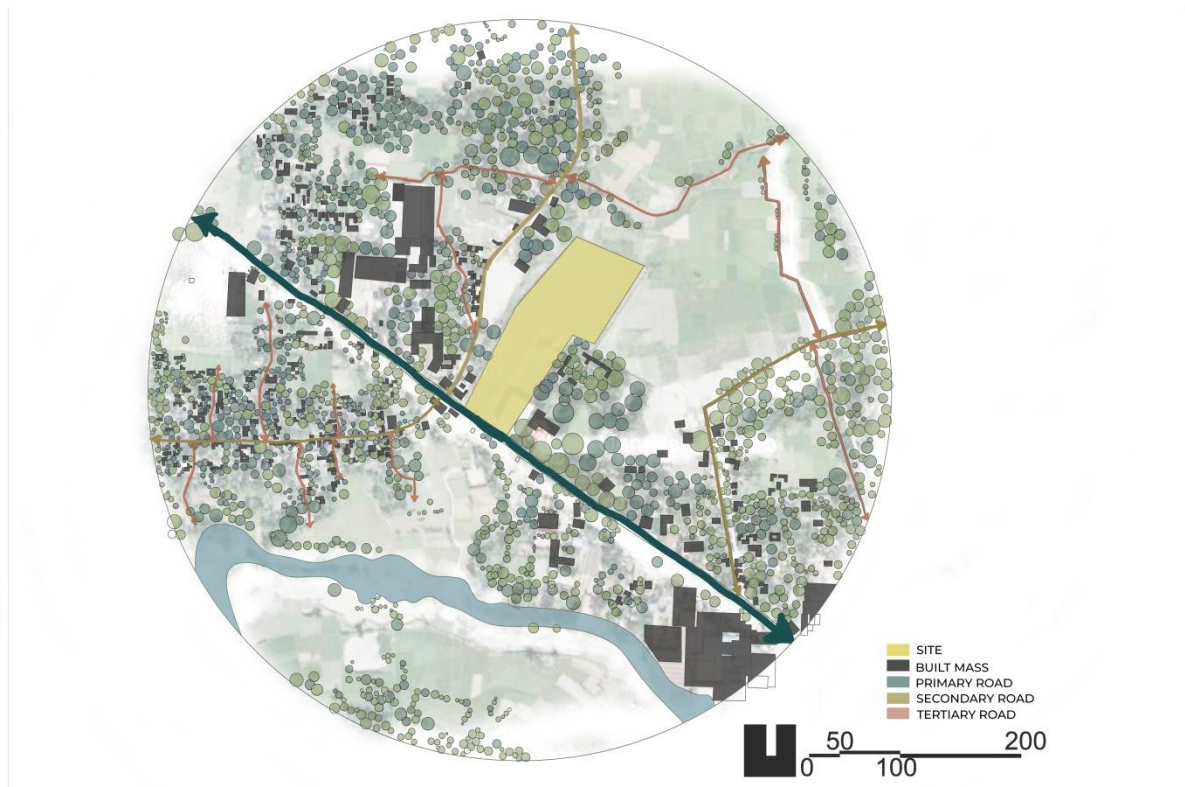


Figure 7 : Accessibility and connectivity of Site

Site can be easily accessed through the primary roads. Due to no restriction of particular vehicular types in this road, all types of vehicles can access the site through this road as well.

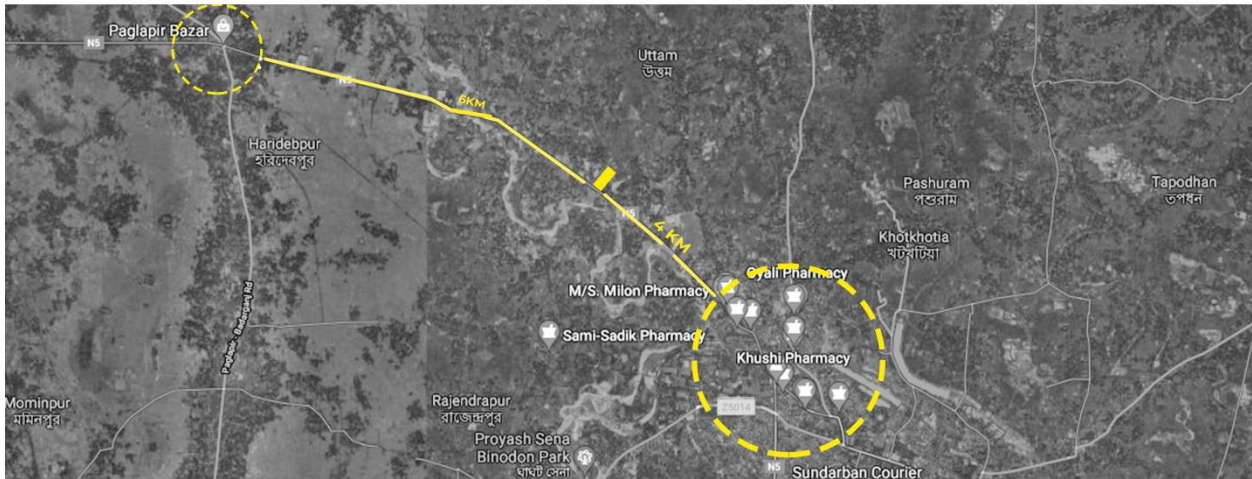


Figure 8 : Nearby amenities and facility location on site

3.4 Nearby Amenities and facilities

few roadside shops, mosques most of the amenities located nearby to the site are in the nearby city nodes which are Paglapir bazar (6km from site) & CO bazar (4km away from site) area.



3.5. Vegetation and Urban density

Site is dominated by agricultural farmland and abundance of green & the density of built form is also very low.

3.6 Urban Fabric

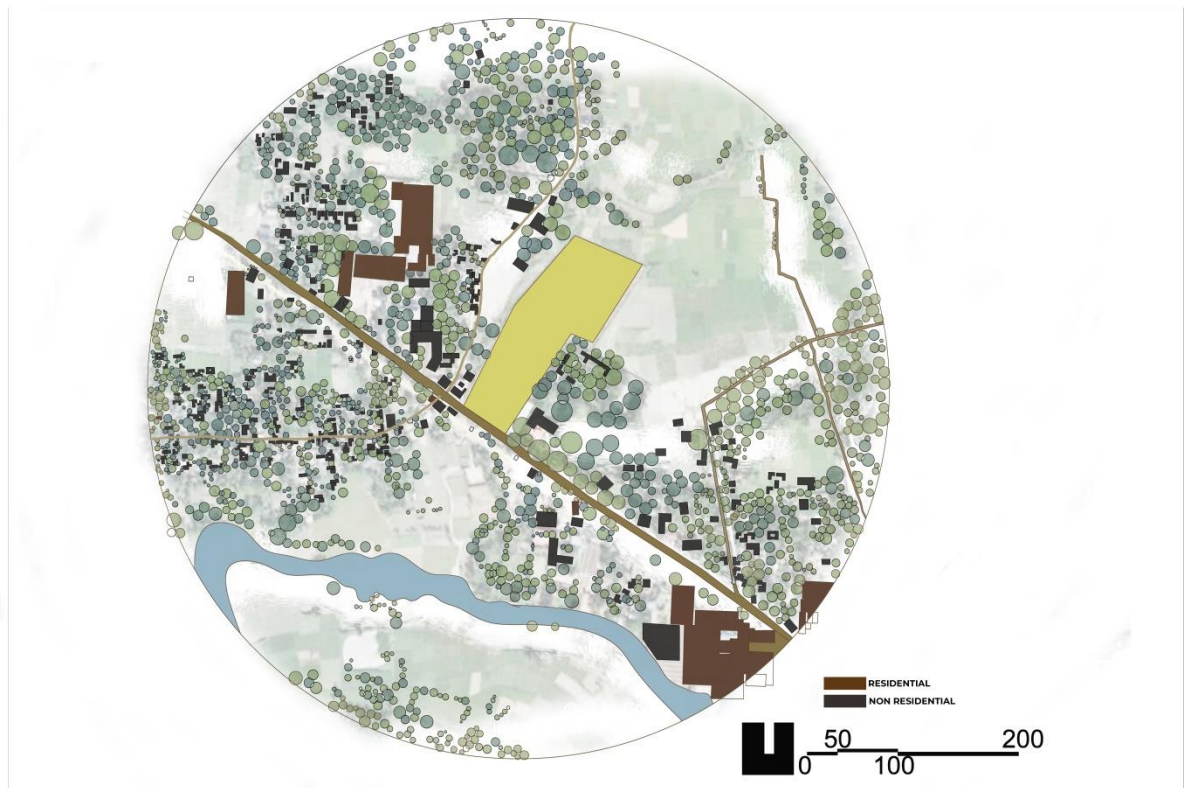


Figure 10: Urban Fabric of site

The urban fabric in the site surrounding is majorly residential. Only few industries, mosques, road side shops are the only nonresidential infrastructures in the surrounding.

3.7 Climatic Condition

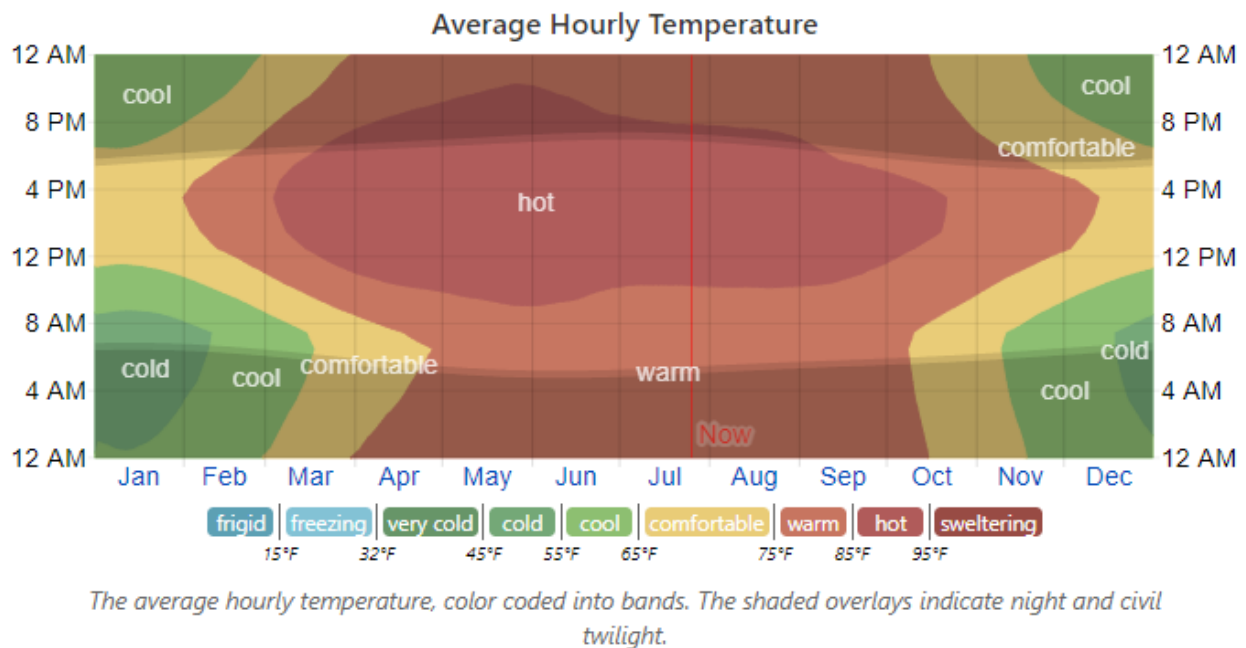


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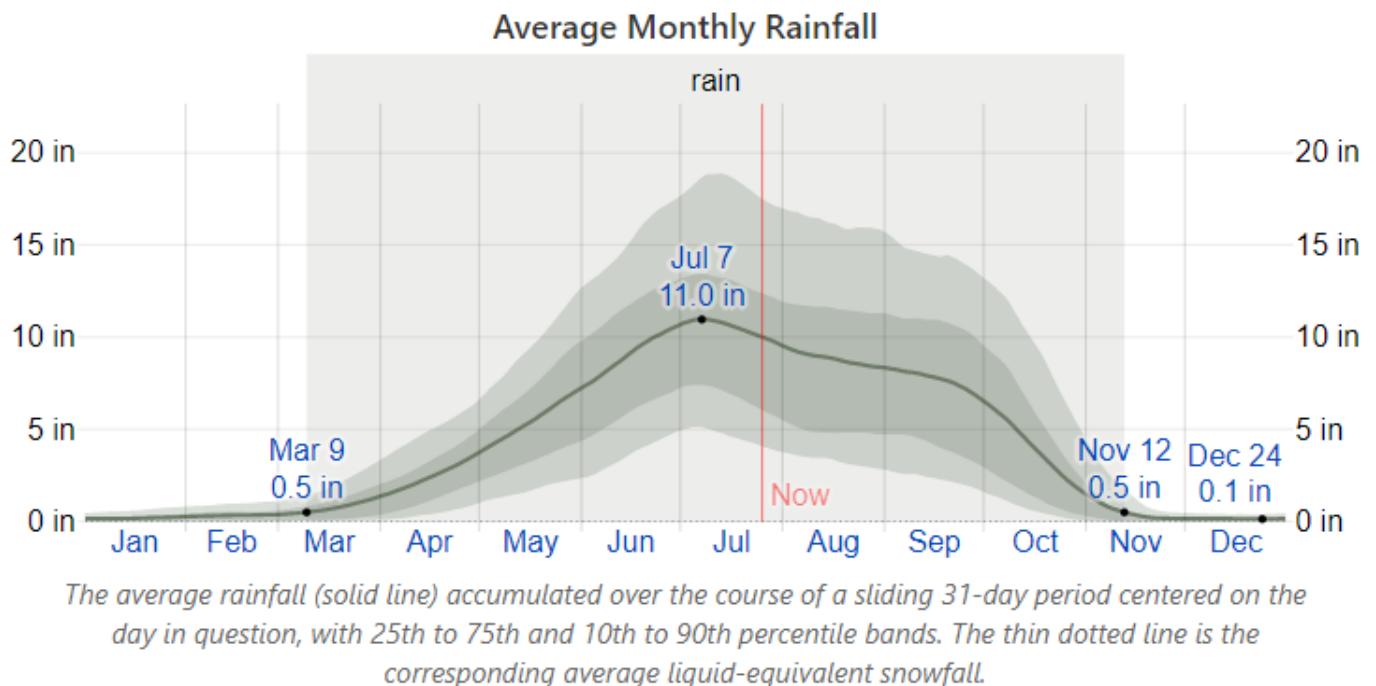


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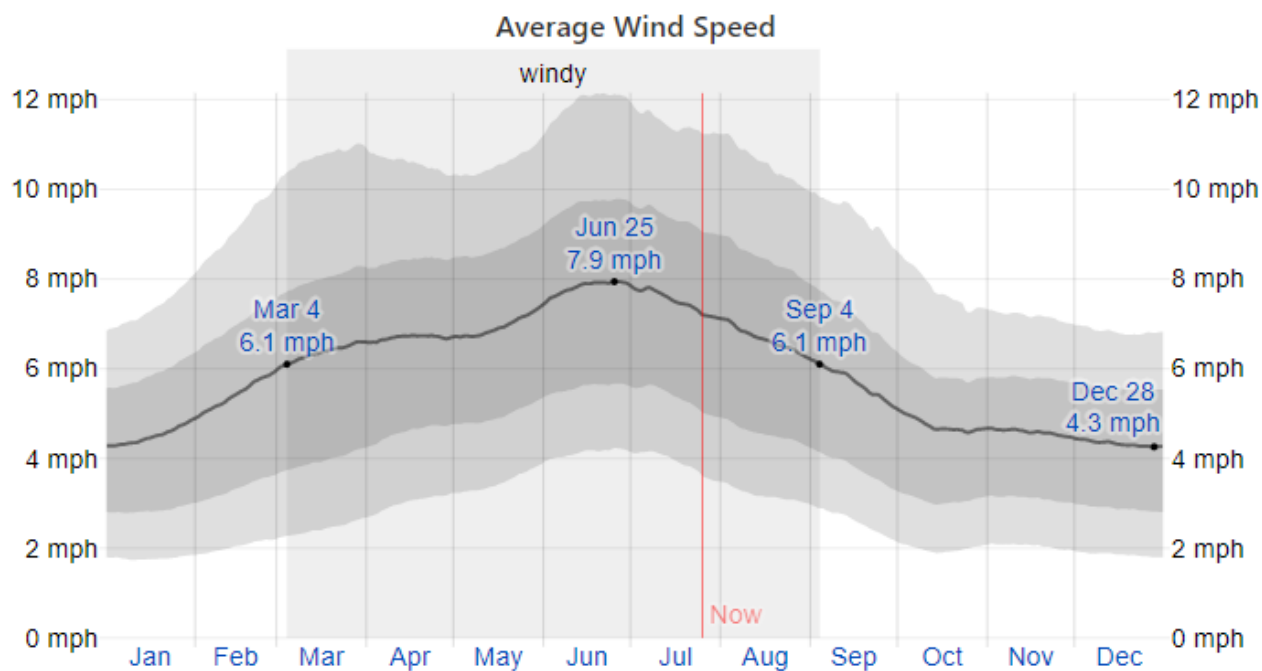
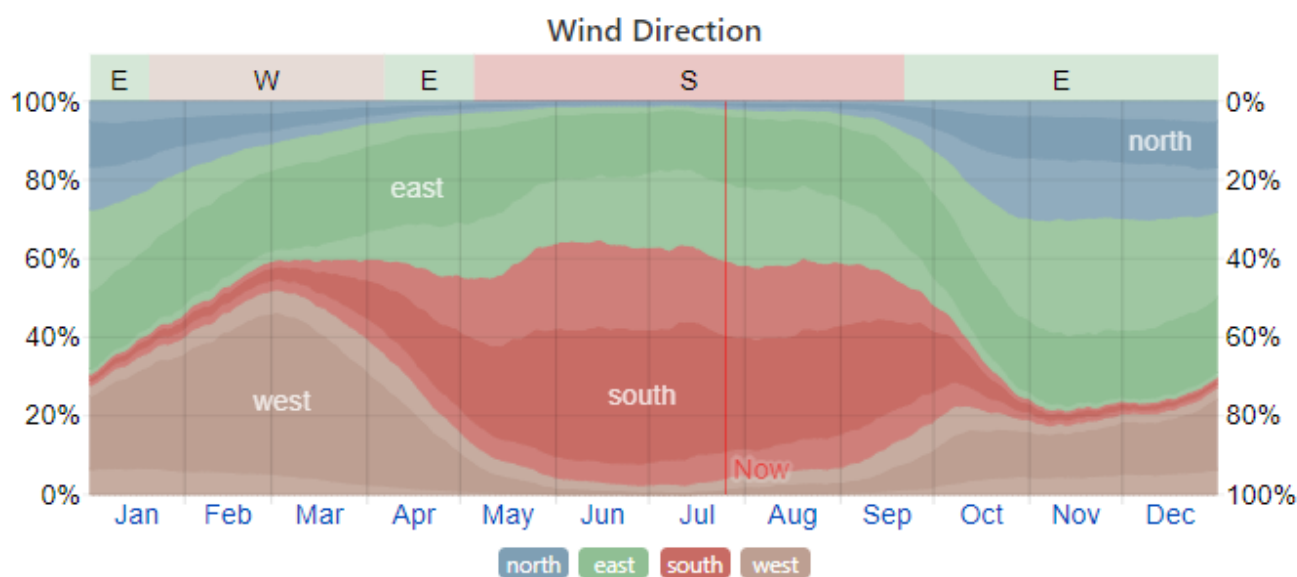


Figure 13: Average Wind speed of Rangpur (source :www.weatherspark.com)



The percentage of hours in which the mean wind direction is from each of the four cardinal wind directions, excluding hours in which the mean wind speed is less than 1.0 mph. The lightly tinted areas at the boundaries are the percentage of hours spent in the implied intermediate directions (northeast, southeast, southwest, and northwest).

Figure 14: Wind Direction in Rangpur (source :www.weatherspark.com)

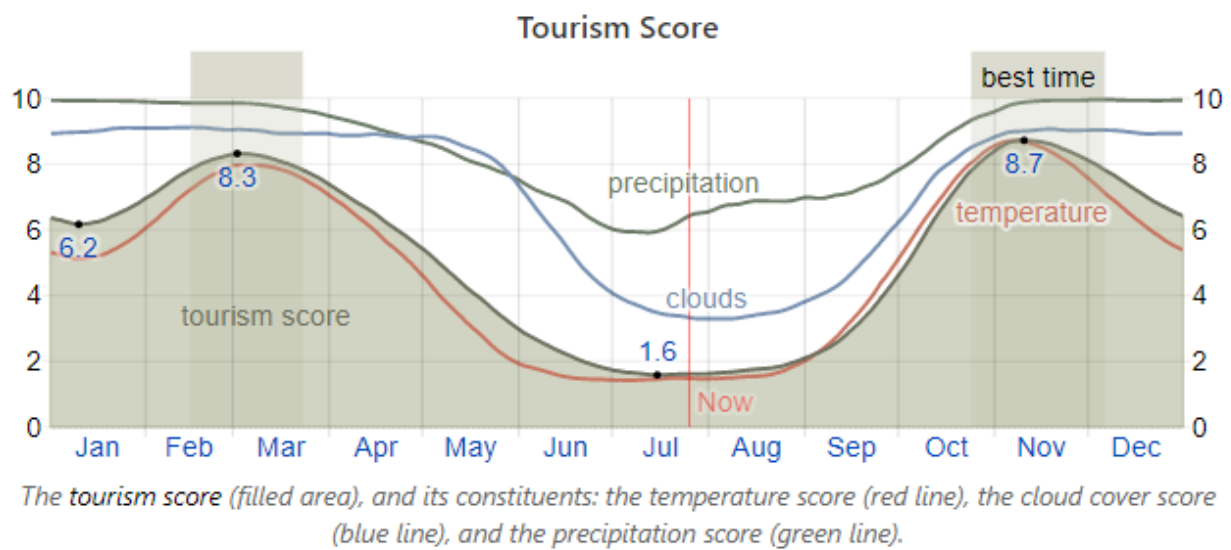


Figure 15: Tourism Score of Rangpur (source :www.weatherspark.com)

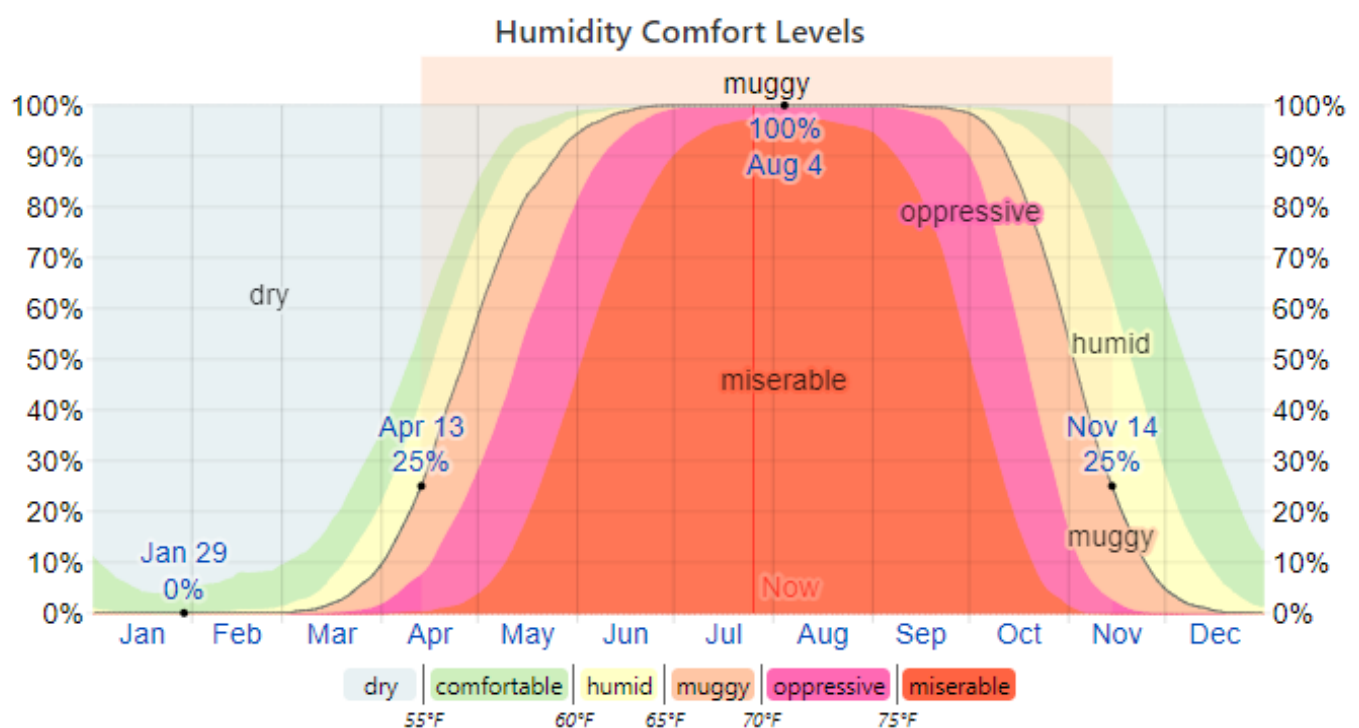


Figure 16: Humidity Comfort Level of Rangpur (source :www.weatherspark.com)

3.8 SWOT Analysis

Strength

-Surrounded by open spaces and low height structure, doesn't block open views. Making it suitable for

sports activities.

- Situated at the outskirts of city and away from citycentric, makes it a suitable place for training and

wellbeing, free of sound pollution and traffic.

- Adjacent to a primary road network of the city.

Weakness

- As Rangpur is a new division many facilities are yet to be developed.

-Only one access road to the site that connects to the city.

- The weather during summer is on the uncomfortable side making it a challenge for outdoor activities.

Opportunities

- Sports Complex will become a utilitarian landmark for the city.
- Sports complex will encourage people from the city and allover country to evolve their different sporting skills and celebrate it.
- The people of the city will get a communal space.
- It can create income source for a number of people from the city.

Threat

- Decrease in agricultural land for many locals

Chapter 4: Case Study Appraisal

A case study is a detailed study of a specific subject in its real-world context. It's a process of researching for the sake of a project and documenting through writings, sketches, diagrams, and photos. It is important for one to understand the various aspects of designing and constructing a particular project from the knowledge of the experts.

4.1 Case Study 1: Tucheng Sports Center by Q-Lab

This project was selected due to its similarity with the site climatic condition with that of the given project and also the functions. Comparison graphs of different climate determining condition are given below.

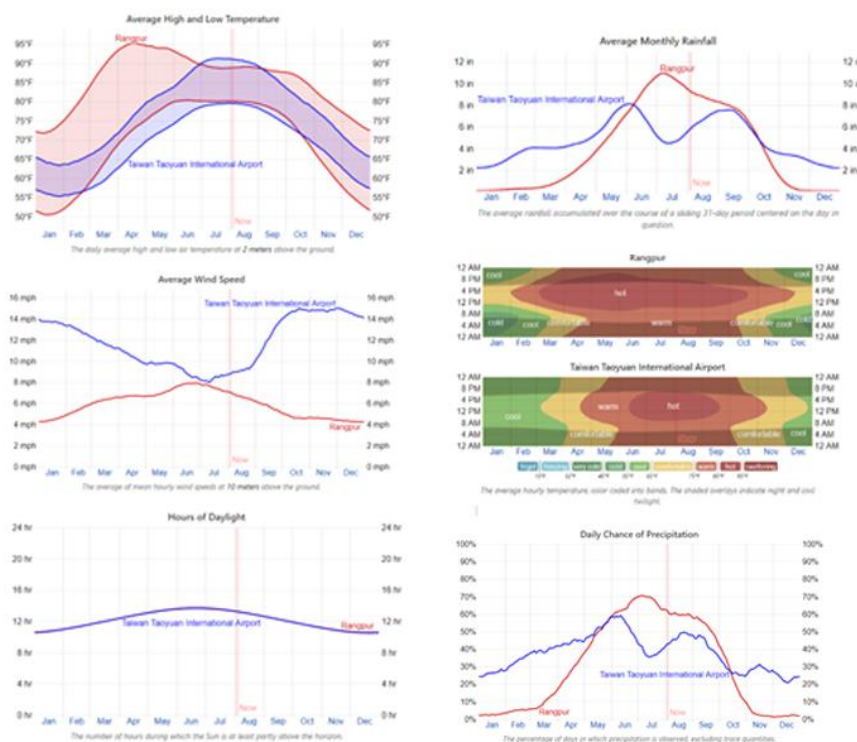


Figure 17 : Climate comparison between Rangpur city and Tucheng district Taiwan Source <https://weatherspark.com/>

4.1.1 Design strategy

In order to accommodate a large amount of required space and at the same time not creating a huge mass for the site, a set of design strategy was deployed. The design of this building tries to resolve two major issues. From the urbanistic point of view, the massing of the building should be kept low and small so that the impact on the environment could be as minimal as possible. From the architectural point of view, the arrangement of major sports component should be stacked distinctively so that the play of the space can be fun and engaging. The Tucheng Sports Center aims to create a landmark which provokes the importance of civil buildings and engages the general public with a sense of belonging.

boxes were oriented towards different direction respectively to create shades for each other as well as for the outdoor activities take place on ground level.

4.1.2 Programme and Zoning

The blue volume which is contributed for the swimming athletes, includes changing rooms, ovens, steam rooms, children's pools, SPA pools, hot and cold pools, billiard rooms, pool rooms, squash rooms, flywheel classrooms, gyms, children's playrooms, and sales Department and other comprehensive spaces.

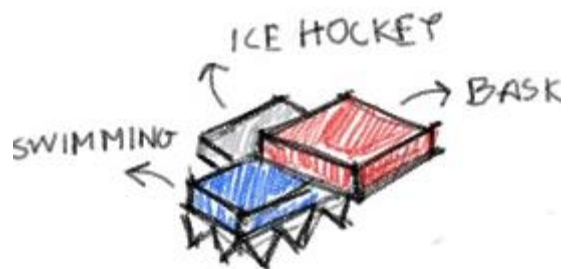


Figure 18 :Conceptual approach (Drawn by Author)

The red volume which is dedicated for basketball contains basketball court, service spaces such as consultation counters, administrative offices, equipment storage rooms, changing rooms, shower rooms, and men's and women's toilets, this block also contains other supportive functions.

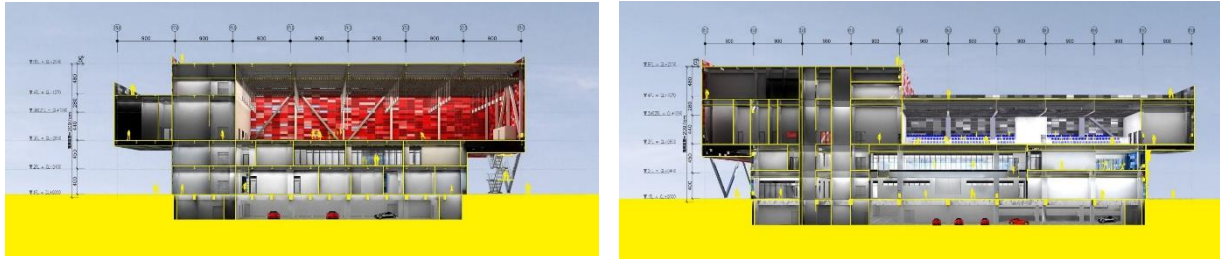


Figure 19: Section Showing the Zoning and Programme layout

The grey volume contain the ice hockey ricks and service spaces such as rental counters,equipement storage rooms,waiting rooms,shoe changing areas,changing rooms,shower rooms and lavatories.

4.1.3 Structure

The beauty of architecture not only come from the outer skin but also form its mechanically and structurally distinct body and creative spatial plan.

The special structural behaviour of the project was met through huge steel truss system and multi directional seismic bracing .

4.1.4 Facade treatment



Figure 20: Façade of the complex

The external wall system is built on a fully moulded structural system. The exterior wall system was developed by Qlab .A high performance composite curtain wall system is used on the exterior. It is made of aluminum perforated composite board combined with glass, thermal insulation cotton and light partition wall.

The color depth of each aluminum composite panel depends on the analysis result of the external wall energy consumption software (Vasari) (lighter color is given to heat-prone areas, and darker color to parts that are not easily heated).

4.1.5.Landscape

Outdoor arbor and shrub configuration position corresponds to the results of energy consumption analysis on the external wall, and the geometry of the flower table in the sky garden corresponds to the concept of external wall mold flow.



Figure 21 :Google Map showing vegetation on site of complex

4.2 Case Study 2: La Fontaine Sports Complex by archi5 + Tecnova Architecture

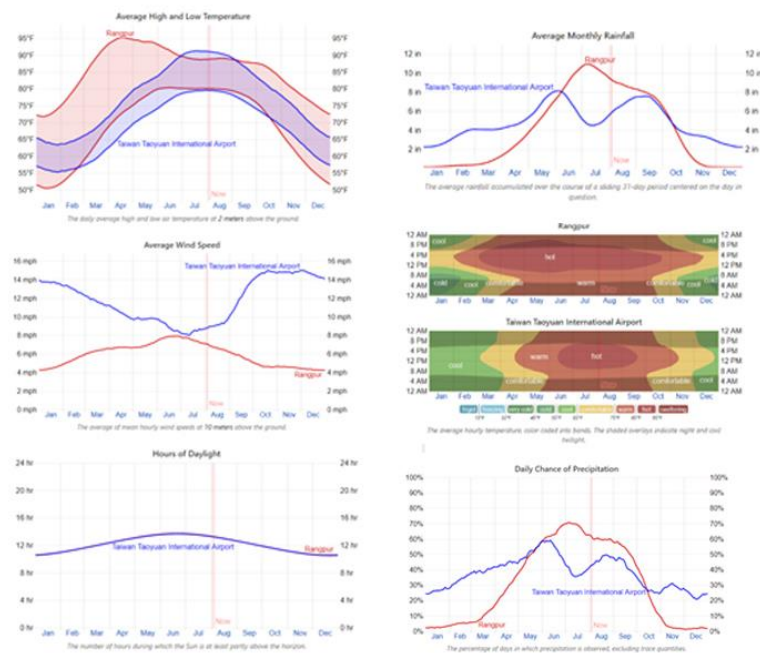


Figure 22: Climatic comparison between Rangpur and Taiwan

This project was selected for its unique response to the site. The context was mixed with linear apartment blocks on one side and the park's exceptional location of heritage on the other. Also, the building was a strong political will response for a new urban ambition of the neighborhood.

4.2.1 Design Strategy

The complex was given to be designed for two separate facilities: one for the middle school just next to the site, and for sports clubs and organizations of the city of Antony. A form, unifying these two facilities, each of which operates independently, few areas shared, was decided.

The central planted path opening towards the Bievre Valley, separates between the two different functions yet keeps a space connection between two. The space creates opportunity for movement, meeting and greeting, also invites natural light into the sports facilities.

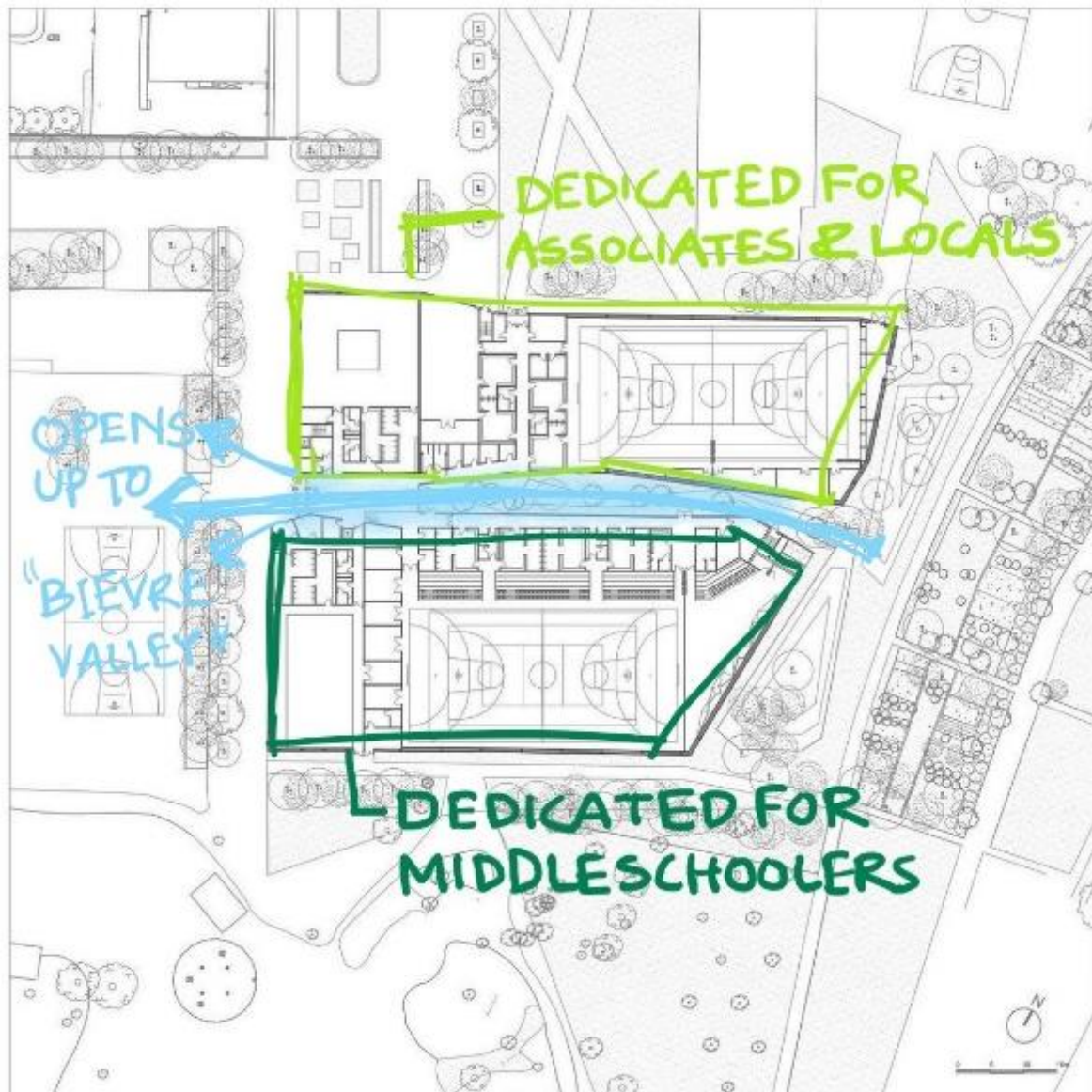


Figure 23: Design strategy analysis shown through sketch (Source:Author)

4.2.2 Form Derivation

The mineral shape was chosen symbolizing a big multi-faceted monolith, i.e., a mysterious, precious stone planted in the landscape that contrasts yet harmonizes with the setting. This magnetic structure is framed by greenery like a gold nugget. A central gap gives onto Bièvre Valley and clearly separates the two poles of the sport center, guaranteeing natural light in the gymnasiums and concourses.

(archdaily)

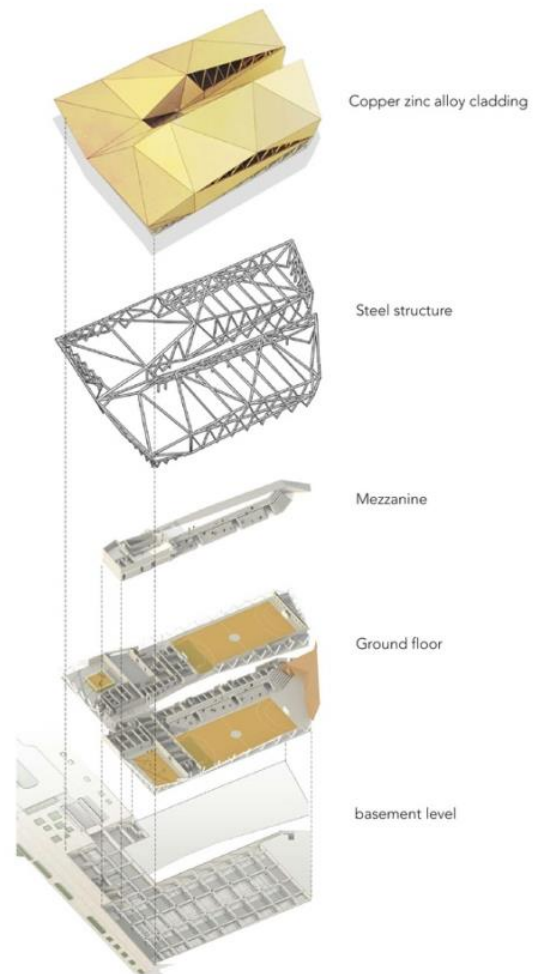


Figure 24: Exploded axonometric view showing functional layout and structure of complex

4.2.3 Programme and zoning

The programmes included in this project are gymnasium for middle schoolers and separate gymnasium for associations and citizens, Climbing walls, aerial art Doja, Boxing Hall, Multipurpose Hall, Offices, 100+ parking and other supporting facilities.

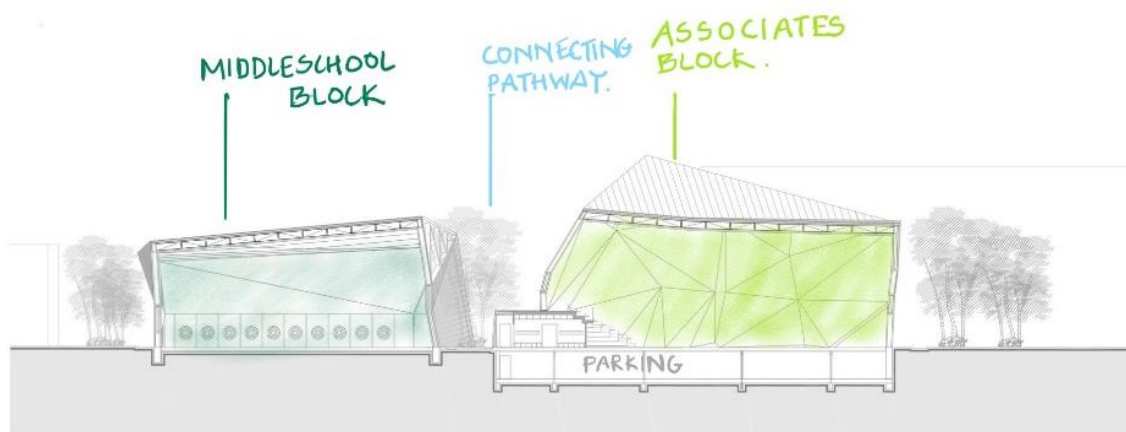


Figure 35 :Sectional conceptual sketch showing Division of Programmes

4.2.4 Structure

The whole building is framed in steel structure to meet the long span which was required for such unobstructed spaces.

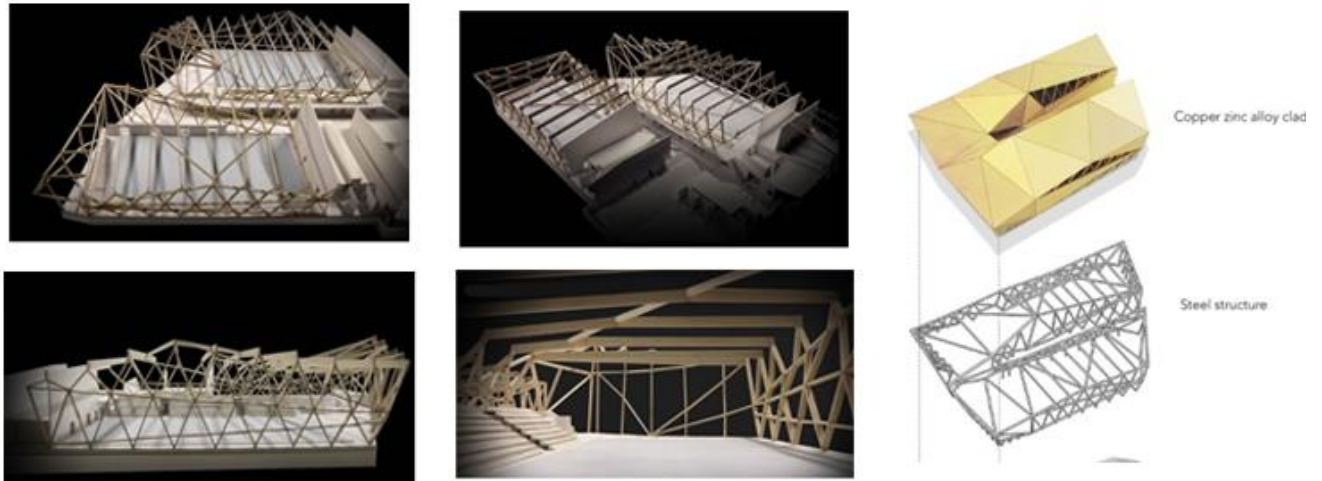


Figure 26 :Figure showing structure of complex

4.2.5 Facade treatment

The skin is composed of a copper, aluminum and tin alloy. The complex is structured by a play of transparencies and visual vents, which fudge the borders between outside and inside where surrounding nature is ever present at all times. The openings are framed and highlight remarkable elements on inside



Figure 27: Façade details of the complex

and out. The orientations are selected for the sporting activity. (archdaily)

4.2.6.Landscape

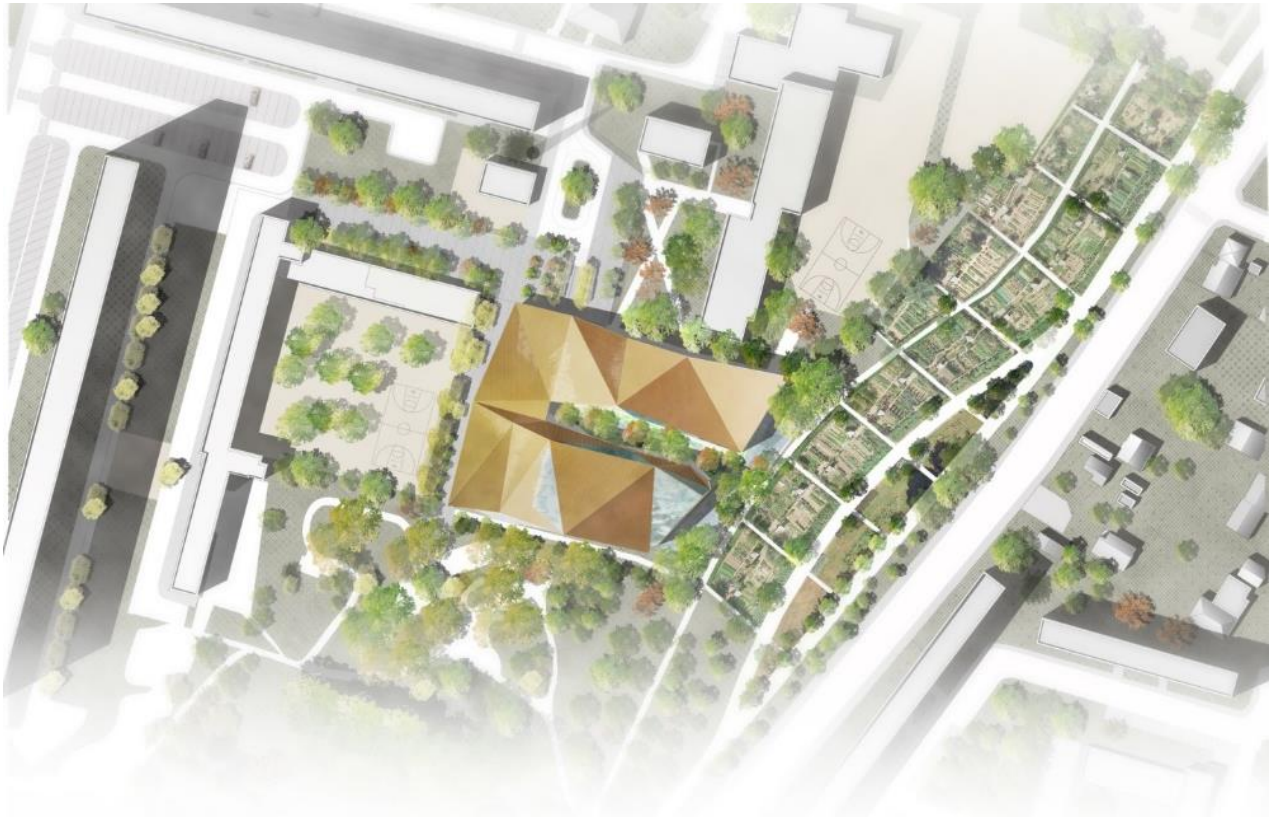


Figure 28 : Top View of Complex showing vegetaion and landscape

Landscape has been done generously keeping in pace with the surrounding greenery and design strategies.

4.3 Architectural examples in context

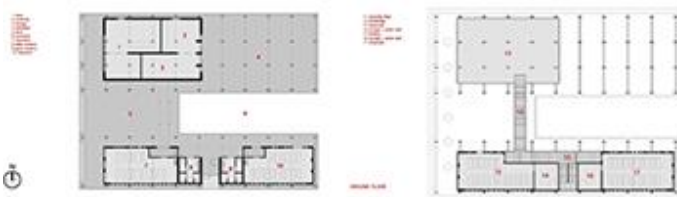
Local residential architecture in rural area included thick mud walls with small opening, deep shading due to the extreme weather in the summer as well as winter in Northern region of the country.



20) (compacted earth) houses in Rajshahi, G.D. Mous.



Studying the local architecture, Architect Anna Herringer during her hands-on workshop in Rudrapur, built these local houses with mud. The outcomes were these wonderful two-story mud buildings.



A contemporary architecture situated few kms from site, inspired by the vernacular architectural structure and space layouts, is a wonderful example that depicts best of both worlds.



Renowned structure The Meti School can also be considered as an architecture that is well responsive of the context. Many features of this structure plays a great role in the design decisions of this project.

Climate responsive features of the structures are thick wall, small opening, Louvered/suncutter on upper floors, deep shaded roof structures and abundance of greenery.



Another renowned architectural structure is the "friendship centre" in Gaibandha. The exposed local made brick expression and connection of spaces through courtyards is one of a kind and sets well with the rural setting of the site is another example the concept of which contributed in the design decisions of the Project.



These are examples of climatic strategic architecture in context to site, from which design considerations were taken for spatial planning, landscape, facade treatment and elevations.

Chapter 5: Program Appraisal

It is the process through which the project's facilities and functions are derived with logic and research, depending on clients' demand & standard space requirements. It helps to guide with the design process.

A particular project requires facilities that will support its core programmes to full extent & also provide with additional facilities if required. The major programs were briefed by the clients which are

13. Swimming pool
14. Basketball court
15. Volleyball courts
16. Football field
17. Cricket pitch
18. Gymnasium
19. Table tennis
20. Lawn tennis
21. Indoor stadium/Gallery
22. Badminton courts
23. Table Tennis
24. Residential facilities for players
25. Administration and office spaces

Football, cricket, basketball, tennis and swimming are the major sports that will be practiced/played in the sports complex.

The given programme breakdown with area and their annex facilities are given in the table below:

	Number of units	Number of users	Area per unit (sq m)	Total area (sq m)
ADMINISTRATIVE FACILITIES				
Director General	1	1	23	23
Director Finance	1	1	13	13
Director Training	1	1	13	13
Executive engineer	1	1	13	13
Assistant Engineer	1	1	13	13
Staffs	1	4	10	40
Meeting room	1	15	4	60
Reception+Lounge	1	20	1.8	36
Common Lavatories	1	6	1.5	9
Circulation				66
TOTAL				286
OUTDOOR FACILITIES				
Lawn Tennis	2		674.4	1348.8
Cricket Pitch	4		98	392
Football field	1		7140	7140
Basket Ball court	2		540	1080
Equipment room +Players shade	1			186
Lavatories +changing room	1			590
Circulation				3221.04
Total				13957.84
INDOOR FACILITIES				
Gymnasium	1			929
Multisport court area	1			929
Indoor stadium(seating gallery for 1500	1	1500		1165
Equipment room	1			50
Maintenance staff room	1			32
Security room	1	2	5	10
Café +Kitchen +Pantry	1			297
Staff Lavatories	1	1	1.5	1.5
Spectators Lavatories	1	18	1.5	27
Player Lavatorie+Changing+Locker+Shower	1			590
Electro Mechanical room	1			80
Circulation	1			954.45
al				5064.95

SWIMMING FACILITIES	Number of units	Number of users	Area per unit (sq m)	Total area (sq m)
8 Lane Swimming Pool	1			2300
Lavatories+Shower+Changing+Locker (for swimmers)	1	30		354
Maintenance Staff+ Trainer room	1	4	10	40
Equipment Room +Shaded seating	1			92
Water pump +Filtration	1			432
Circulation				965.4

Total			4183.4	
RESIDENTIAL FACILITIES	Number of units	Number of users	Area per unit (sq m)	Total area (sq m)
Accommodation for trainees(Bedrooms)	50		8	400
Accommodation for trainers (Bedrooms)	5		8	40
Accommodation for staff (Bedrooms)	2		8	16
Dining hall (Kitchen +Pantry)	1	60		285
Medical Room	1			50
Lavatories + Shower for residents	1			350
Laundry room +Storage	1			160
Electromechanical room	1			50
Emergency Medical Room	1			80
Circulation				429.3
Total				1860.3
Total Built Area				25352.49
Total Site Area				40468.6

6: Design Considerations

To design a project in a particular site it is important to know who the stakeholders are. Beside the project users itself the local people will play a very important role for the project to be successful. In this particular project beside the project's users itself other occupation were school going children, families, trainees from nearby youth training institute, vendors, truck drivers, works from nearby factories and stores.etc.

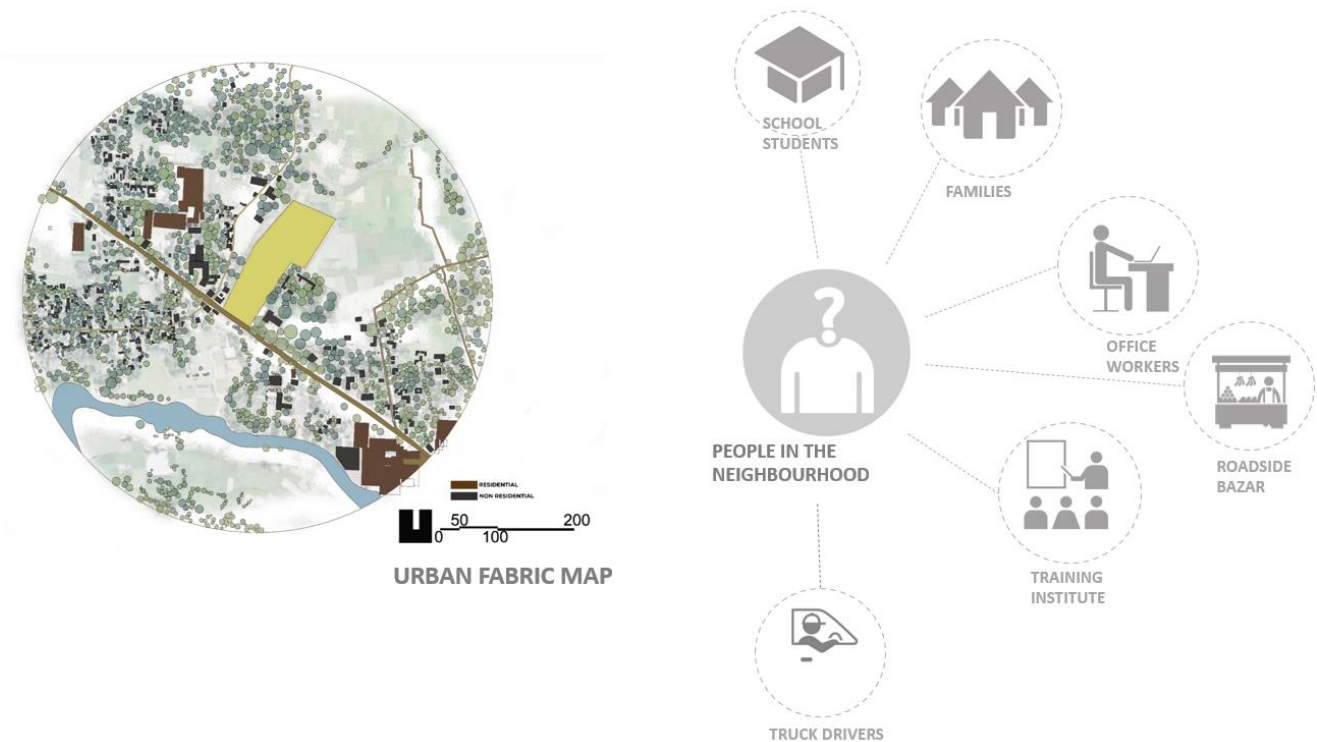


Figure 29: Design Consideration diagram 1



Sports Facilities Only itself will not sustain the complex. So Few neighbourhood integrated prorgammes can be proposed.



Figure 30: Design Consideration diagram 2

As sports complex with the training facilities itself cannot sustain such a big project so few neighbourhoods integrated facilities are added -.

PROGRAMMES ADDED ARE

COMBAT SPORTS

- ARCHERY
- SHOOTING
- WEIGHTLIFTING
- BOXING

TRAINEE AMENITIES

- CLASSROOM
- CLINIC (SMALL)
- GUEST ROOMS

COMMUNITY AMENITIES

- MULTIPURPOSE/CONVENTION HALL
- WORKSHOP
- DAYCARE



Besides these other key findings and considerations that influenced the design processes are -

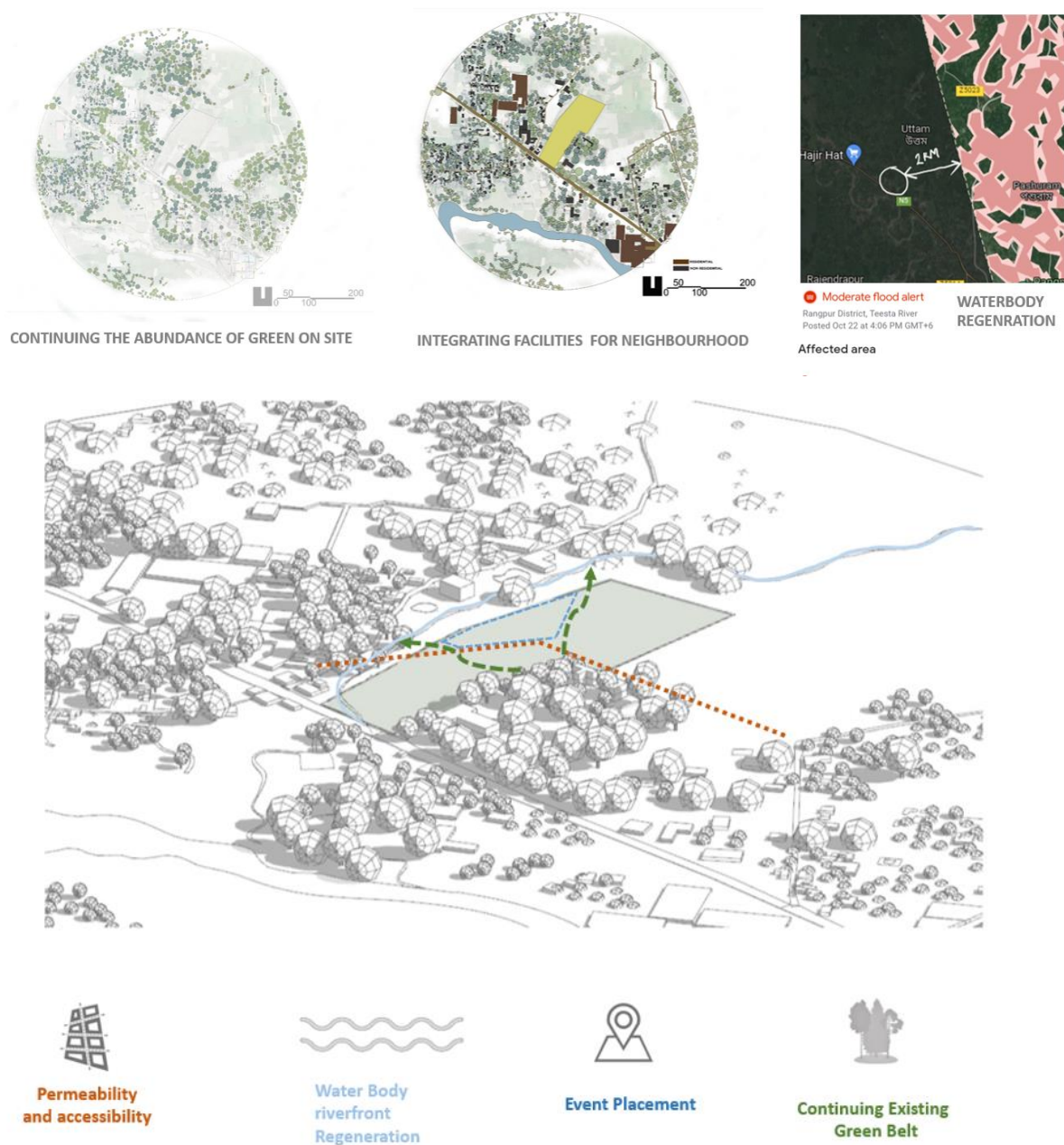


Figure 31 : Design Consideration diagram 3

Chapter 7: Form Derivation

The layout of spaces and void has been done keeping in mind the permeability all through the site, connection with waterbody and pedestrian friendly.

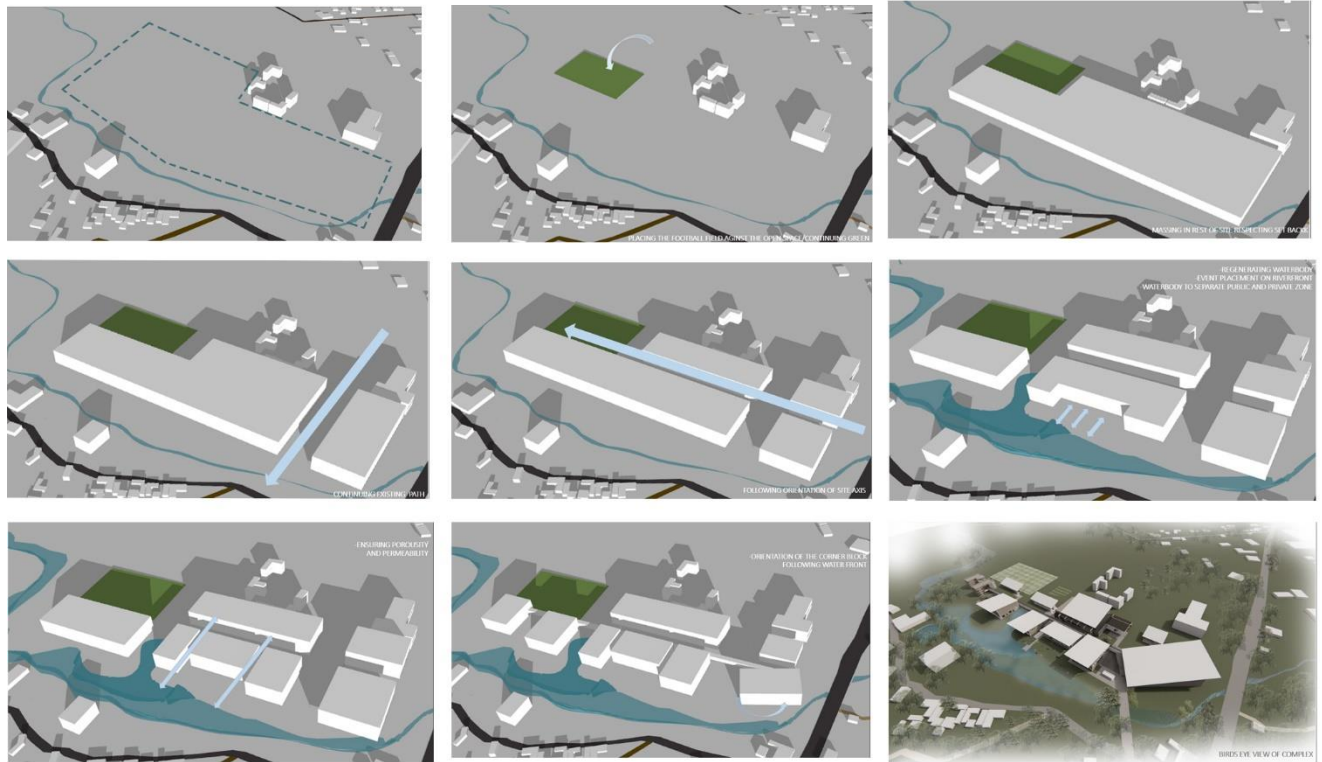


Figure 32 :Form Derivation

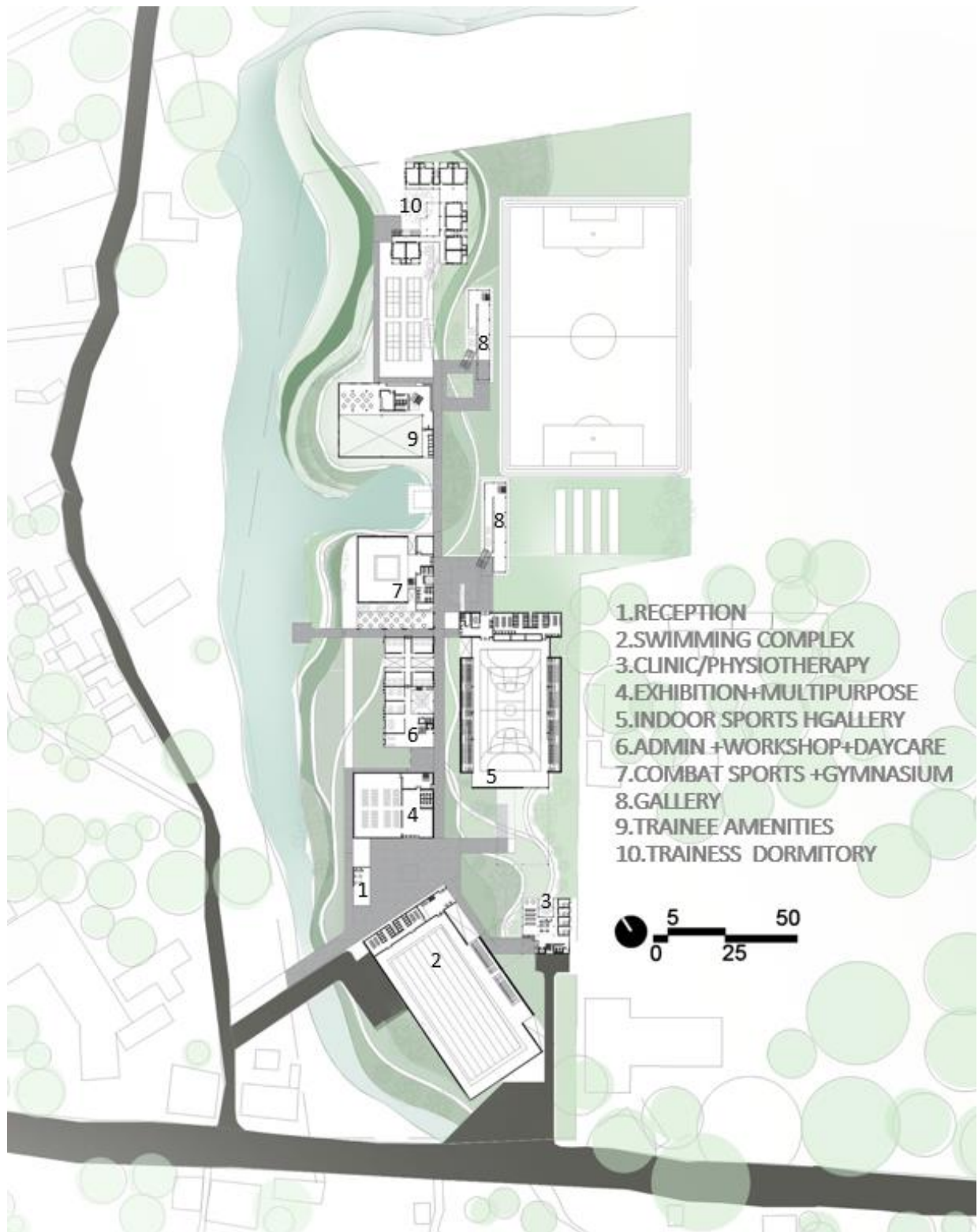


Figure 33 :Ground Floor Plan

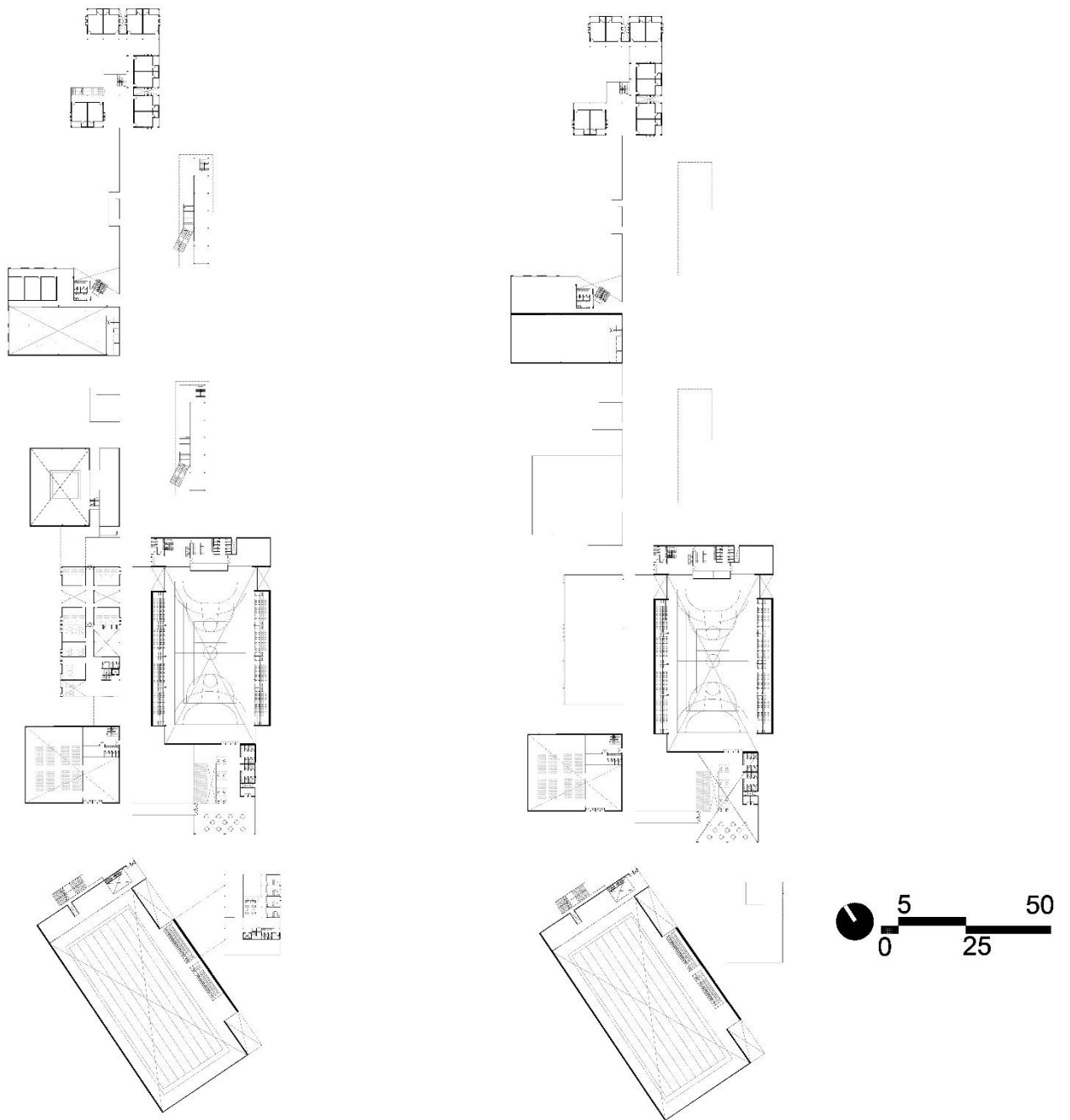


Figure 34:Other Floor Plans

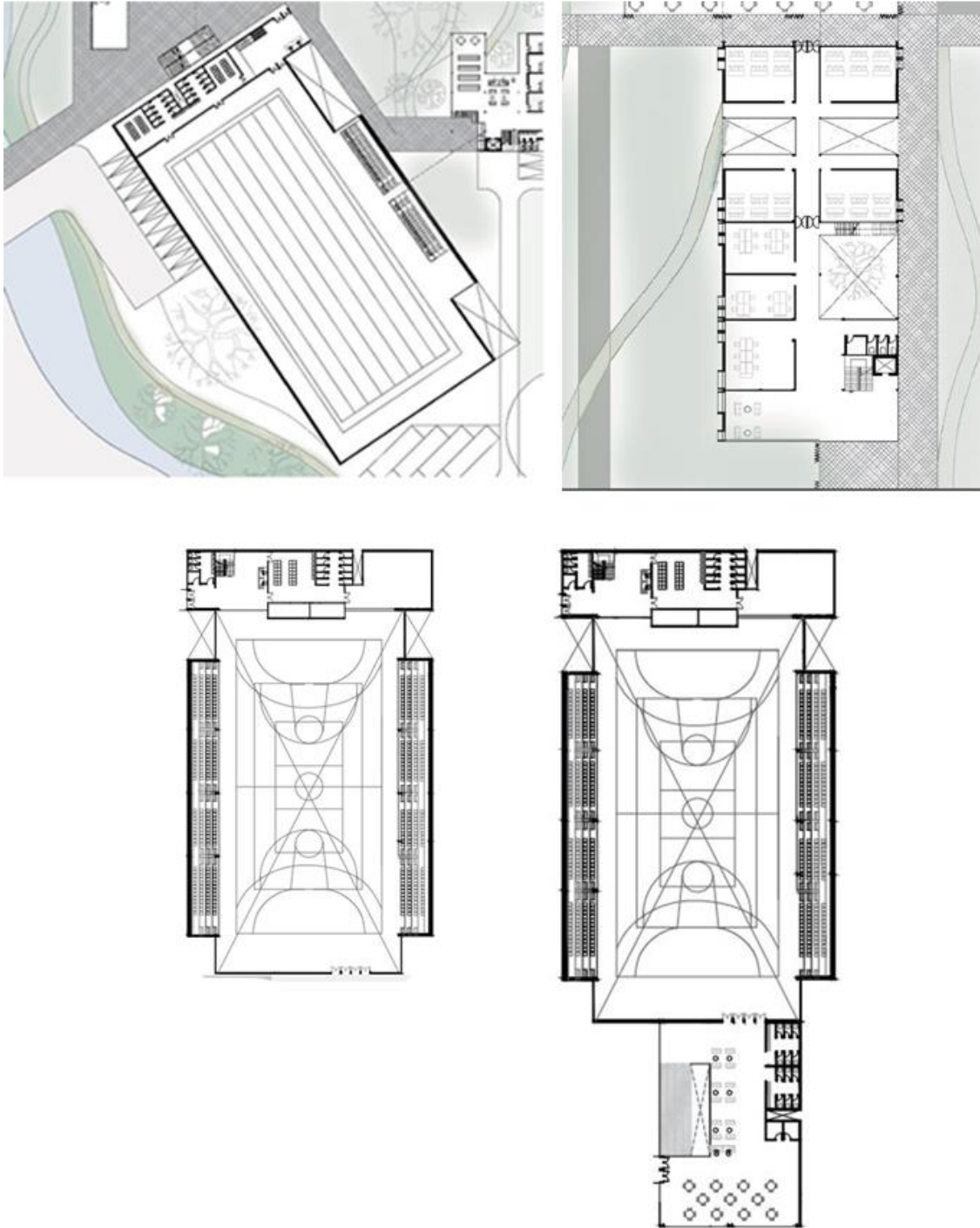


Figure 35: From top left Blow-up plan of swimming complex, Day-care & admin Block, Indoor complex ground floor and first floor.

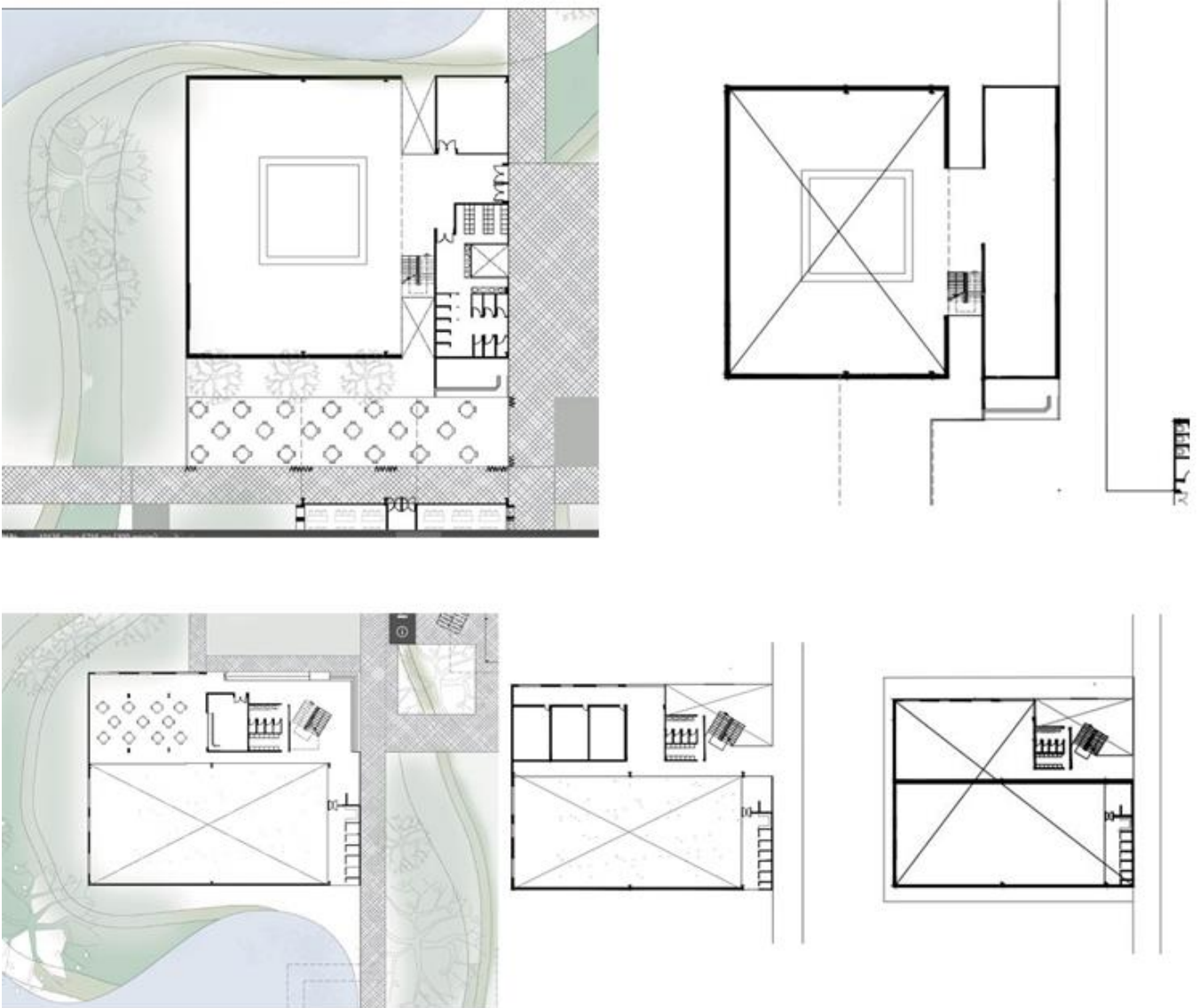


Figure 36: From top left Floor plans of boxing and gymnasium block ground floor plan and first floor plan, Floor plans of trainee amenities block ground floor plan. First floor plan and second floor plan.

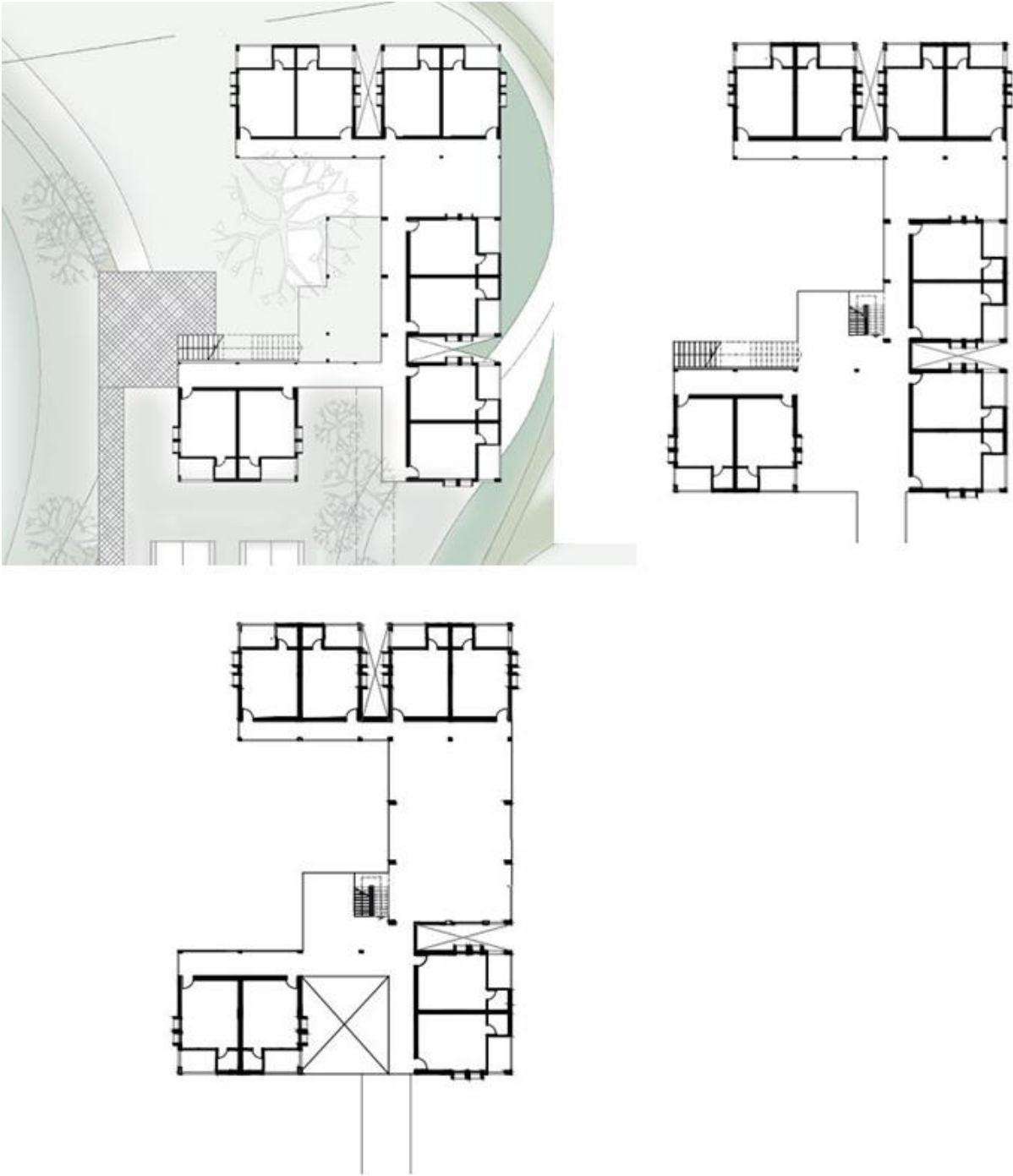


Figure 37: From Top left Dormitory Block floor plans ground floor plan, First floor plan and second floor plan respectively.

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