

Redevelopment of Bhaucha Dhakka Fish Market, at Mumbai's eastern waterfront as an Urban Food Hub

**AJINKYA BHAGWAT JAMADAR
2015BARC027**

**A Thesis Report Submitted For
Design Thesis | BARC1001
BACHELOR OF ARCHITECTURE**

**X SEMESTER
2020**



**DEPARTMENT OF ARCHITECTURE
SCHOOL OF PLANNING AND ARCHITECTURE,
BHOPAL.**

Redevelopment of Bhaucha Dhakka Fish Market, at Mumbai's eastern waterfront as an Urban Food Hub

AJINKYA BHAGWAT JAMADAR
2015BARC027

A Thesis Report Submitted For
Design Thesis | BARC1001
BACHELOR OF ARCHITECTURE

X SEMESTER
2020

Thesis Coordinator

Guide



DEPARTMENT OF ARCHITECTURE
SCHOOL OF PLANNING AND ARCHITECTURE,
BHOPAL.

DECLARATION

I Ajinkya Bhagwat Jamadar hereby declare that the seminar work entitled **Redevelopment of Bhaucha Dhakka Fish Market, at Mumbai's eastern waterfront as an Urban Food Hub**" submitted to the Department of Architecture, School of Planning and Architecture, Bhopal, is a record of an original work done by me. The results presented in this report have not been submitted to any other University or Institute for the award of any degree or diploma.



AJINKYA BHAGWAT JAMADAR
2015BARC027

JUNE 30, 2020

RECOMMENDED

Professor Sandeep Sankat

Mentor

ACCEPTED

Ar. Piyush Hajela

Head of Department, Architecture

SYNOPSIS

The project would be a small part of the larger urban redevelopment of the eastern waterfront of Mumbai. The idea is to propose a socio-cultural hub centred around food. The project would be a platform for social, commercial and gastronomic engagements. It is seen as a socio-cultural public space with a marketplace, boosting socio-cultural and economic activity in the place.

Through the project, the derelict site will attain a new identity in becoming a city level destination for food, in an effort to increase social and commercial engagements at a prime location within the city. The programme would contain a mix of food-related activities such as incubation kitchens, Culinary schools, restaurants, wet food markets, gastro gallery etc. The temporal programming for the informal vendors and fixed programming for other forms of SMEs will help in giving a unique experience, alongside, facilitating both informal vendors and micro businesses.

The high profile redevelopment of the place will result in the gentrification of the area. The local communities have made clear that 'the planners must keep the communities in focus and must have a say in the redevelopment'. The area provided a livelihood for communities for decades.

The food culture which is one of the main focus in development lies in the hands of the people seen as informal vendors and micro-businesses. Given the kind of development that is proposed, it would be harder for small local businesses to compete in the projected scenario. Digging deeper, one can understand that there is a need to give these small businesses a voice in the bigger picture of the market, where big companies with access to greater assets have dominance in the market. The idea here is to get them to the forefront of the market and hence promote the culture, improving their economic activity with a cultural output. This social cause is the driving force in the conception of this project.

Through its programme, the project aims to address these issues in the creation of a vibrant spot for socio-cultural and economic activities. The need for the right to public space + bringing food culture to the public realm - would be addressed by the kind of public space that is being designed. Lack of access to finance + financial instability - would be addressed by sharing infrastructure, seen as a sensitive move towards 'sharing economy' that is penetrating the markets and changing the market dynamics in positive ways. The design scope for the project lies in designing of the public infrastructure of such importance and also in design for sharing with temporal and fixed programming tailored to the function.

Keywords: Bhaucha Dhakka, Urban Food Hub, Mumbai's Eastern Waterfront, Mixed-Use

ACKNOWLEDGEMENTS

I would like to thank all the people who contributed in some way to the work described in this report. First and foremost, I thank my thesis guide, Ar. Sandeep Sankat, for acceptance of this topic and guidance through this journey.

I would like to thank Himanshu S., Falguni B. at HCPDPM Pvt. Ltd. to help me understand the basics of the project and for providing me with sufficient information on this project. Also the authors of various articles, architectural thesis whose insight helped me understand the existing scenario and the phases of this project.

Special Thanks to Ar. Saurabh Tewari and Ar. Sweta Kandari for their teaching and guidance in the early days of conceptualising the thesis. Thanks to SPA Bhopal library for books and references for the project. My special thanks to Ritika, Vikas, Soha, Aakash, Nishant, Mansi who helped me and assisted with anything I needed or wanted to be discussed. Also, special thanks to 'Row Buddgies' for their continuous support. In the end, thanks to my parents for their unconditional support in my passion for architecture.

Moreover, this work is dedicated to the Koli fishermen community, workers from small and medium sized enterprises, activists and many on-street vendors who unknowingly taught me nuances of design.

CONTENTS

SYNOPSIS	3
ACKNOWLEDGEMENTS	5
CONTENTS	6
CHAPTER ONE INTRODUCTION	
1.1 Revamping the eastern waterfront	10
1.2 Urban regeneration and Vision	12
1.3 Central tensions	13
1.4 Need of the project	14
1.5 Site Specifications	15
1.6 Bhaucha Dhakka Fish Market	16
CHAPTER TWO RESEARCH & METHODOLOGY	
2.1 Aim	17
2.2 Objectives	17
2.2 Methodology	17
2.3 Scope and Limitations	18
CHAPTER THREE CONCEPTUAL FRAMEWORK	
3.1 Third space and Hybridity in Architecture	20
3.2 Narrative ; Towards the conception of ‘Light Industrial Mixed use Commerce’ space type	21
3.3 Proposed programme and the need To diversify the programme	22
3.4 Locating the idea of ‘Light industrial mixed use commerce’ Space type in waterfront development	23

CHAPTER FOUR | LITERATURE

4.1 Food and the city	25
4.2 Urban Marketplaces	30
4.3 Fish Industry and SMEs	36

CHAPTER FIVE | SITE STUDY & ANALYSIS

5.1 Site Justification	38
5.2 Study of Natural Factors	40
5.3 Site Context	42
5.4 Activity Mapping	49
5.5 S.W.O.T Analysis	51
5.6 Synthesis Mapping	53

CHAPTER SIX | CASE STUDY & INFERENCES

6.1 Case Study Methodology	56
6.2 Sydney Fish Market / Design by 3XN // Literature Study	57
6.3 Food port // Literature Study	62
6.4 City Centre, Kolkata // Live Case Study	68
6.5 Manek Chowk, Ahmedabad // Live Case Study	73
6.6 Kankaria Lakefront, Ahmedabad // Live Case Study	78
6.7 Shape Grammar	81
6.8 Overall Inferences	82

CHAPTER SEVEN | DETERMINANTS & DIRECTION

7.1 Mixed use typology -Light industrial mixed use	84
7.2 Fixed and temporal programming	85
7.3 Sharing Economy	86
7.4 Porous and permeable public realm	87
7.5 Urban Insertion - Waterfront scenario	87

CHAPTER EIGHT | CASE STUDY & INFERENCES

8.1 Locating the concept in theory	89
8.2 Site planning	92
8.3 Fixed programming	98
8.3 Temporal programming	99

CHAPTER NINE | DESIGN

9.1 Orthographic view	102
9.2 Site plan	102
9.3 3d views	103
9.4 Floor plans	104
9.5 Site sections	106
9.6 Strategies to deal with odour	106
9.7 Fish auctioning and retail	107
9.8 Fish market + Food Hub	108
9.9 Waste Management strategies	108
9.10 Strategies for zoning services	110
9.11 Site Elevations	111

CHAPTER TEN | CONCLUSION

10.1 Highlights	113
10.2 Juror's Comments	117
10.3 Further research	118

ANNEXURE I

CHAPTER ONE | INTRODUCTION

Overview

This section describes the foundational background of the design thesis project. It gives a brief introduction to the aspects important in understanding the redevelopment scenario of eastern waterfront and further positions the design for the socio-cultural hub in the larger domain of urban regeneration.

- The Revamping of Eastern waterfront
- Urban Regeneration and the vision for redevelopment
- Central tensions driving the project
- Site Specifications
- Need & significance of the project
- Bhau-cha-Dhakka Fish Market
- Food and the city

**Text that is emphasised by italics and semibold - are the inferences and highlighted statements.*

1.1 | REVAMPING OF EASTERN WATERFRONT

After getting appointed as the special planning authority (SPA), The Mumbai Port Trust (MbPT) released a plan to revamp eastern waterfront of Mumbai with parks, themed streets and cafes tapping into the tourism and the recreational potential of the area extending from Sassoon Docks to Wadala.

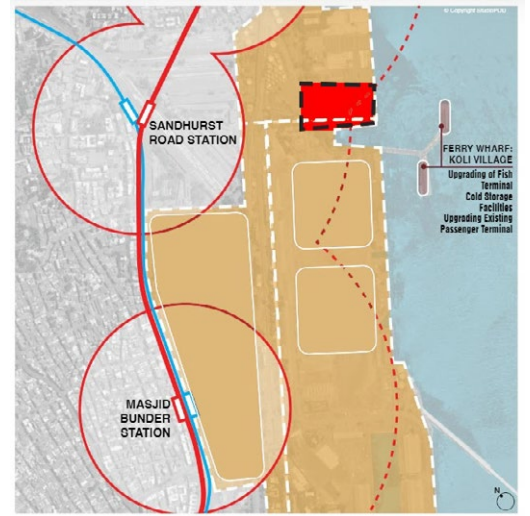
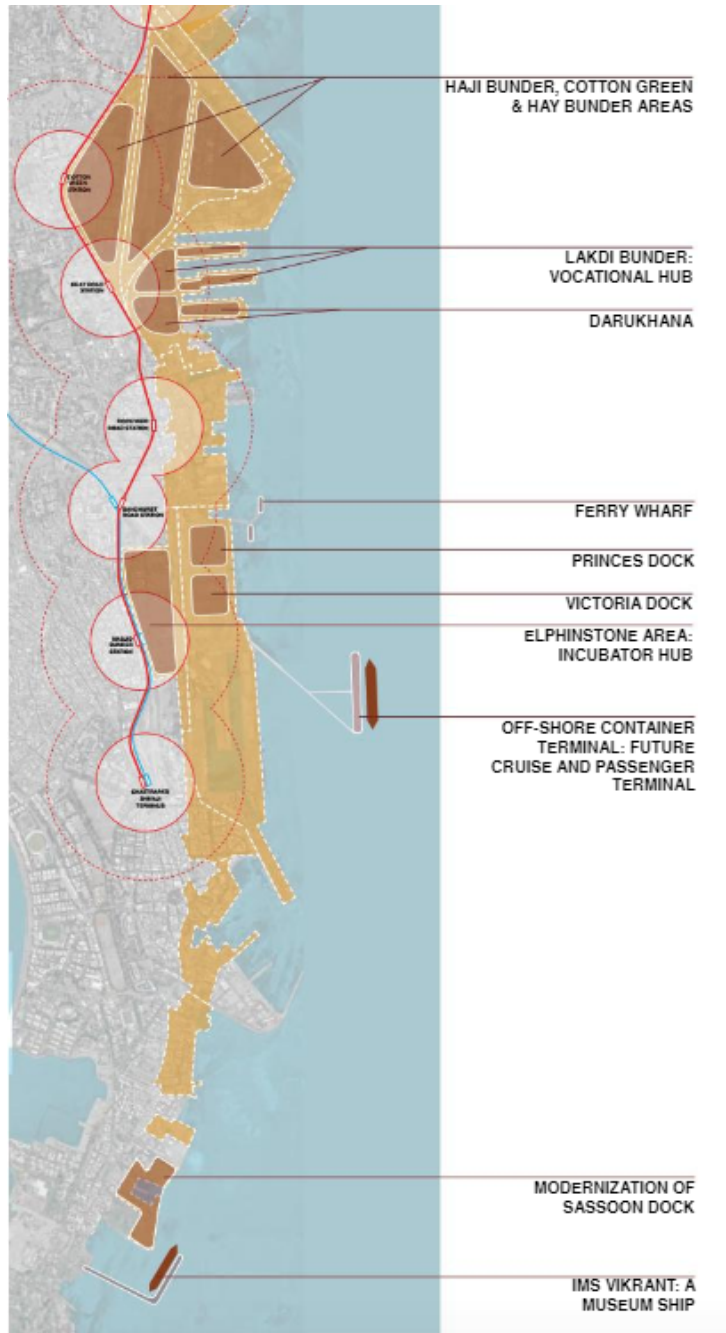
The city's derelict and inaccessible port lands are planned to be a tourist hub. The area has largely been locked out of the public realm owing to industrial, commercial and port activities now undergoing redevelopment to a vibrant public realm hosting world-class infrastructure for tourism and sea transport.

The redevelopment includes projects ranging from housing, commercial activities to port operations and Recreation Tourism District with various themes in the form of piers and streets such as Art and culture, Maritime, Bollywood, Multi-cuisine street etc. The Coal, Tank and Hay Bunder will see MbPT make space for restaurants, cafes and food.

Site Profile Data

MbPT in the process of preparation of the Master Plan for the area of the 7 km long waterfront near Haji and Hay Bunder at Sewree is being planned as a Recreation Tourism District. The project is not coming within the tidal water flow of Mumbai Harbour and it is expected that it will not have an effect on any port activities. Considering the excellent accessibility, available infrastructure, and surrounding the project is feasible. The project is proposed within the port water along the Haji Bunder at Village Sewree. The project has excellent accessibility from rail, road and public transport.

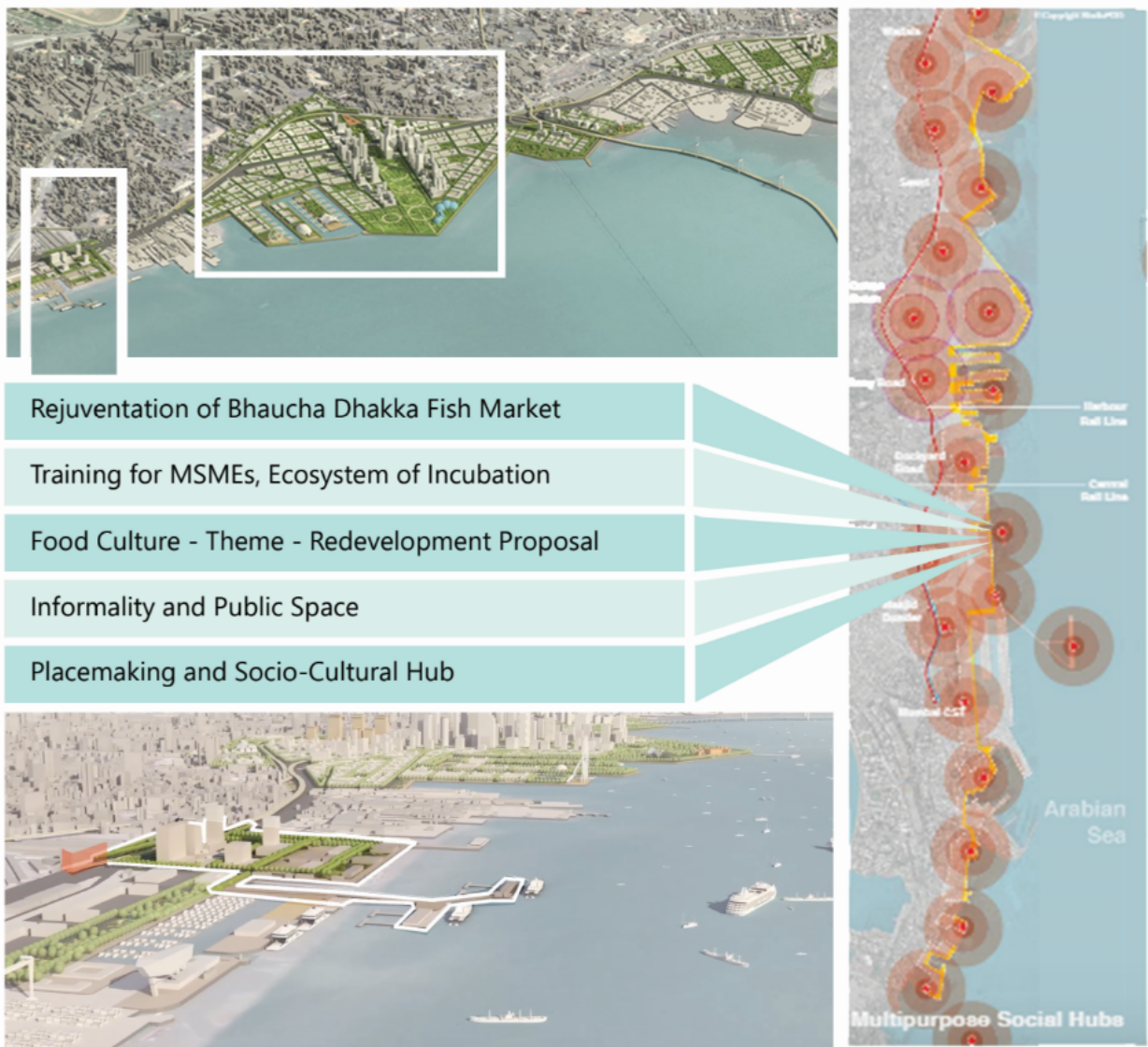




1.2 | URBAN REGENERATION & VISION

The masterplan for the Mumbai Port Complex (MPC) has been proposed to meet dual objectives - of repurposing the port lands and of integrating it with the rest of the city, providing public spaces and facilities to the citizens.

The waterfront area is also proposed as a tourist and recreational zone which will have features such as the Mumbai Eye, Tourist Ferry Services, Cruises and Ropeway Connection to Elephanta Caves among other things.



1.3 | CENTRAL TENSIONS

The project is centred along with three central tensions namely - Grand redevelopment of the Eastern Waterfront, Displacement of the local fishermen community and the increasing need to harness Tourism and Commercial potential.



Grand Redevelopment



Local community & Displacement



Tourism & commercial potential



Grand redevelopment of the Eastern Waterfront - As earlier discussed the project is a part of the redevelopment and hence will be following all the new laws and regulation designated for this Special planning Area (SPA)

Displacement of the local fishermen community - The redevelopment seeks to displace the fishermen market to different locations which are a bold move and shall create trouble for the fishermen, losing their livelihood and opportunities.

Tourism and Commercial potential - The place is well connected with the tourist routes and hence has a high potential for tourist footfall along with the intercity travellers (city public).

1.4 | NEED OF THE PROJECT

Modernisation of fishing activities

The fishing activities and their marketing is limited to the traditional style, is very badly managed, not organised and is very unhygienic for the general public. For the betterment of the existing activities and in order to cater for the upcoming marketing activities there is a clear need of modernisation of these activities in lifting the quality of the traditional marketing activities to the standard market.

Food Culture - Food culture is one of the five important themes in redevelopment proposals for the eastern waterfront, with other four being - Bollywood, Yoga, Marathi Culture, Sea tourism. The existing marketing activity is an unrecognised asset to this redevelopment and hence can be utilized with strategic design input.

Facilitating the Fishermen - It is necessary to support the thriving market system of the Koli fishermen through shared infrastructure. Proper infrastructure shall increase the overall market trade and hence shall be beneficial for the community. Developing a modern marketplace will attract lots of consumers to the place. Also, the probability of an increase in food joints with this culinary genre is more and can mutually benefit the market.

Through the introduction of incubation, a much-needed ecosystem of incubation, entrepreneurship and training for SMEs would be addressed.

Accommodating Informal sector - Considering the given theme of 'Food culture', one would enjoy delicacies of the street food of Mumbai. But unfortunately, the informal vendors in the region have no right to public space and their working life is troublesome. Design can be developed in such a way that we can incorporate the Informal Vendors helping them earn and while giving the public and unique experience of food.

Placemaking - Needless to say, that Mumbai needs lively spaces for the public, unfortunately in present condition, the docklands have locked out the public from these areas, hence, it is imperative to do good placemaking so that lively destinations for the public can be created.

1.5 | SITE SPECIFICATIONS

The site is located at the Malet Bunder which is adjacent to the prince's Dock. Prince's dock is being repurposed to be a full fledged Programme for a Marina, which is going to bring about the footfall of localities and the tourists to the site. The marina will cater to tourist destinations along the waterfront and will connect to the Elephanta caves Island. Presently, Malet Bunder is used by the fishermen community for loading and unloading of their goods. And the site is also surrounded with edible oil depots of the State Trading Company.



Site Area

- 32000 m²

Climate

Temperature undergoes seasonal fluctuation. May is the warmest, temperature averages 32° C, January is the coldest month, and averages 24°C. Humidity is often very high in the months when the temperature is at its peak.

Motivation

Due to the conflicting activities of the public realm and the perceived unwelcoming condition of the fish market present on the site, the authorities are trying to displace the fishing community of its marketplace and would be proposing a commercial district. The displacement of the fishing community shall affect their livelihood and also the allied business in the area.

The situation can be looked at as an opportunity, in modernization of the fishing market, supporting allied businesses and making a vibrant commercial and recreational spot. A hybrid Programme can be deployed to create a win-win situation for the communities and the public in general.

The food culture which is one of the main focus in development lies in the hands of the people seen as informal vendors and micro-businesses. Given the kind of development that is proposed, it would be harder for small local businesses to compete in the projected scenario. Digging deeper, one can understand that there is a need to give these small businesses a voice in the bigger picture of the market, where big companies with access to greater assets have dominance in the market.

The idea is to get them to the forefront of the market and hence promote the culture, improving their economic activity with a cultural output. This social cause is the driving force in the conception of this project. A project like this would help in developing and broadening my design skills for public space and civic infrastructure with sensitivity towards socio-economic dynamics.

1.6 | BHAUCHA-DHAKKA FISH MARKET

The Bhaucha Dhakka Fish Market is operational on one half of the pier abutting the prince's dock. The fish market shares the wharf with the ferry wharf. In the redevelopment scenario, the wharf is repurposed as a jetty for the marina being developed in the prince's dock.

As mentioned earlier, the fish market is set to be displaced. The project envisions an inclusive development for the public without the compromise of fish market displacement but enhancing it and promoting a mix of allied activities with it.

CHAPTER TWO | RESEARCH & METHODOLOGY

2.1 | AIM

To redevelop the Bhaucha Dhakka Market and Malet Bunder precinct at eastern waterfront into a socio-cultural hub with reflections on Social, Cultural amenities and an active public realm.

2.2 | OBJECTIVES

- To redevelop the Bhaucha Dhakka Fish Market.
- To develop an exemplary model of social inclusion and to develop socio-cultural amenities of cosmopolitan taste and of urban significance..
- To develop a Mixed-use architectural ensemble with reflections on the cultural theme of food culture.

2.2 | METHODOLOGY

The site programme has been analysed for opportunities and constraints. Studies are done to understand the scenarios and vision for the eastern waterfront redevelopment.

With the input of diversifying the programme, additional live and literature studies have been done on various social, cultural and economic aspects deemed necessary. A programme has then been derived and shall ultimately be translated into the architectural design.

2.3 | SCOPE & LIMITATIONS

Scope

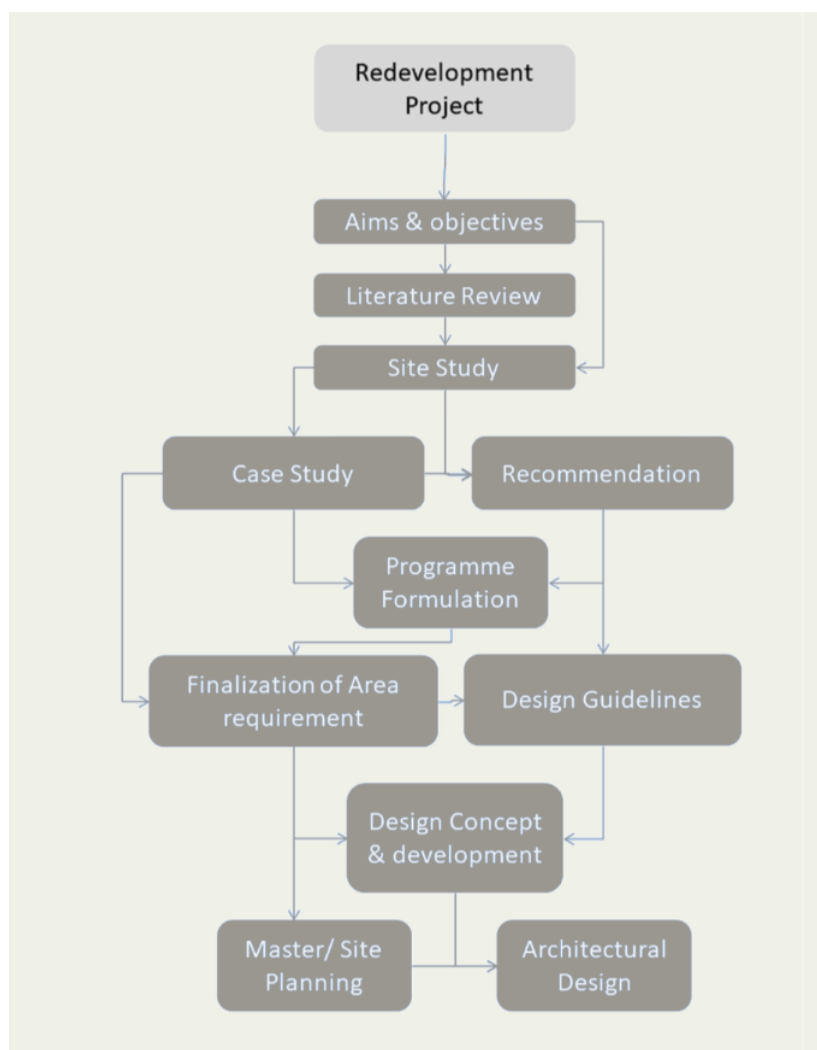
The scope of the project is limited to the master planning of the entire site area, developing an architectural design for the mixed-use buildings and detailed architectural drawing for one part of the scheme. All other details have not been covered in this exercise and can further be worked upon.

Limitations

Due to the limitation of time for the project and the availability of technical data for certain bits, the limitations of the project are as follows -

- Limited to architectural design details of the project.
- The technocentric part of the project is not detailed out although its impact on space and layout planning has been considered.
- Economic factors and management level interventions/ planning is limited to strategies and incorporating design strategies accordingly.

Methodology chart



CHAPTER THREE | CONCEPTUAL FRAMEWORK

This section of the report shall consist of the overview of research papers, literature studies from the academic course subject - seminar. Apart from that, the section shall also contain the relevant literature studied during the entire journey.

The list of topics is listed as follows -

- Third Space and Hybridity in Architecture
- Narrative; towards conception of 'Light Industrial Mixed-use' space type
- Proposed programme and the need to diversify the Programme
- Locating the idea of 'Light Industrial Mixed-use' space type in waterfront development

**Text that is emphasised by italics and semibold - are the inferences and highlighted statements.*

3.1 | THIRD SPACE AND HYBRIDITY IN ARCHITECTURE

The hybrid space as an entity

In communal sense, the third place is the social surrounding separate from the two generic social environments of home and the workplace (which can be regarded as first and second spaces respectively)

Third spaces in the urban realm - Religious buildings, restaurants, shopping centers, malls, markets, recreation centers, public libraries, or parks can be considered as third spaces

A theory that seeks to explain the singularity of every setting as a "hybrid." It is a conception of the term from critical urban theory and social sciences.

The Two types of the meaning of which are:

- The corners of the bazaar in which the oppressed plot their liberation.
- Secondly, this space is free for emergence (maybe only temporarily) to unite oppressed and oppressor.

The conceptualisation of Third Space as a civic space in the built environment under pressure from malls and corporates, transforming public space into an extension of the market. The theory could explain the dynamics of poverty, social isolation and social integration and help to anticipate the most successful kind of interventions.

“ The importance of hybridity is not to be able to trace two original moments from which the third emerges, rather hybridity to me is the ‘Third Space’, which enables other positions to emerge. ” (Rutherford 1990: 211)

According to Bhabha, “ this hybrid third space is an ambivalent site where cultural meaning and representation have no ‘primordial unity or fixity’. Its is a mode of articulation, a way of describing a product, and not merely reflective, space that engenders new possibilities. ” (Bhabha 1994)

It is a space of new culturally important forms of production that blurs the limitations of existing borders and categorizes culture and identity.

The investments in peculiar ensembles, spatial forms like urban market centres, materialise into the spaces of consumption. This results in a number of social, public spaces where consumption is carried out.

3.2 | NARRATIVE; TOWARDS CONCEPTION OF 'LIGHT INDUSTRIAL MIXED-USE' SPACE TYPE

Light-industrial facilities are those that are generally less capital-intensive, than the heavy industries and are more targeted to customers than to companies since they make consumer goods only. This study is being conducted as plug-in research for the thesis project. The thesis project envisions mixed-use commerce at a location with predominant light industrial activities. Viewing this place as a place of consumption, the study aims to devise strategies for light industrial mixed-use commerce with insights from the study of urban markets, their evolution and developmental trends.

Search for an inclusive development model- creating a hybrid of part industrial, cultural, commercial, and social amenities? Can light industrial space type hybridise with other cultural, commercial, and social space types create a model mutually benefiting each other?

This study is located in identifying a mixed-use space type at the tension between a contemporary hybrid marketplace and light industrial activity zone.

The identified attributes of the urban marketplace are studied in the purview of their history, evolution, existing forms and developing trends. Past, present forms and speculated forms are studied for the purpose of developing a contemporary hybrid marketplace - that carries the inertia of traditional market experiences and yet is sensitive to the speculated forms of design of spaces of consumption.

This hybrid market space type is then layered on the light industrial activity in viewing the possibility of developing a mixed-use with them both. The benefits of doing so are studied in the frame of the thesis site at eastern waterfront redevelopment.

3.3 | PROPOSED PROGRAMME AND THE NEED TO DIVERSIFY THE PROGRAMME

SITE PROGRAMME

The Bhaucha dhakka fish Market is Operational on one half of the pier abutting the prince's dock. The fish market shares the wharf with the ferry wharf. in the redevelopment scenario the wharf is repurposed as a jetty for the marina being developed in the prince's dock. The fish market is set to be displaced. The project envisions and inclusive development for public without the compromise of fish market displacement but enhancing it and promoting a mix of allied activities with it.

Currently the site of intervention belongs to the State trading Company, which has the lease for the land from MbPT. The site contains oil depots containing edible oil.

PROPOSED PROGRAMME

The proposed programme contains a mix of activities from core redevelopment of fish market, promoting seafood and other types of food cultures, commercial and exposition activities. The project will be a hub of colacting facilities of food related commerce from SMEs to anchor stores.

The programme envision a strong presence of public realm at the site in order to make the water edge accessible to public, assisted with recreational facilities.

NEED FOR DIVERSIFYING THE PROGRAMME



- Modernisation of fishing activities is limited.



- Food culture, one of the five important themes in redevelopment proposal.



- Supporting the thriving ecosystem of the fishermen through shared infrastructure.



- Addressing the needed ecosystem of incubation, entrepreneurship and also training MSMEs.



- Accomodating informal sector with their right to public space.

- Placemaking for creating a lively destination.



Architectural response to such a mix can be catered by a food hub.

3.4 | LOCATING THE IDEA OF 'LIGHT INDUSTRIAL MIXED-USE' SPACE TYPE IN WATERFRONT DEVELOPMENT

The co-location of light industrial areas with a mixed-use market is a smart way to build and protect employees and also the protection of industries creativity in our cities.

But we need to develop new ways that our cities grow sustainably with the increasing demand for the development of increasing numbers of workplaces, combined with vacant land, a new type that blends diverse programmes and lighting industrial programmes can help organizations protect industrial land and their vital and local skilled job opportunities.

For our cities, this re-imagined form of urban development mix is rational, in ways that:

- Urban industrial spaces are relatively rare and viewed as low value, dirty and noisy industries. However, with new innovations in materials such as noise cancellation and clean emission technology, this is changing.
- In order to support the functioning of cities with residential and workspaces, the modern urban industry such as distributed storage can be cleaner, green and essential.
- *If the industrial site does not come close to the market, it can adversely affect workers, supply chains or customers, affecting congestion and productivity efficiencies.*
- The industry supports a variety of professions and jobs with different backgrounds. Some developers may see the possibility of developing mixed-use as threatening, through limited site availability.
- To achieve robust urban development, economic activity must be seen in all of its modern forms. Urban planning must channel imagination and innovation. This stimulates creativity, which is a mechanism, important to market and economic growth.
- *The combination of industrial and market space eventually offers considerable opportunities and turns an inadequately utilized site into a vibrant and connected community.*

CHAPTER FOUR | LITERATURE

This section of the report shall consist of the overview of research papers, literature studies from the academic course subject - seminar. Apart from that, the section shall also contain the relevant literature studied during the entire journey.

The list of topics is listed as follows -

- Food and The City
 - ◆ Bridging Food & Architecture
 - ◆ Food Security and Urban Food hubs
 - ◆ Food Preparation through Business Incubator Kitchens
 - ◆ Food Distribution through Farmers' Markets, Restaurants, and Food Retailers
- Seminar Topic 1 - Hub as an archetype, in design for 'Sharing Economy'
 - ◆ Sharing Economy
- Seminar Topic 2 - Inquiry into the spatial attributes of Marketplaces
 - ◆ Evolution the Market spaces and their archetypes
 - ◆ Notes on Marketplaces
- Urban Marketplaces
- Fish industry and SMEs

4.1 | FOOD & THE CITY

Current Food Issues

Food has become marginalized and is always taken for granted as most of the people actually are unaware about where their food comes from and what different process it goes through and reaches through them. food production more distance from the city residents which increases the carbon footprint.

In Countries like India, food demand will increase up to 70% by 2030 and create a major issue on Food security within the country. city and promote urban agriculture which can bring efficiency in the food network and make available fresh, safe, diverse and nutritious food to the people.

Urban CASE

Due to such conditions the open spaces within the city is continuously decreasing and thus urban farming practices in mumbai has decreased and has kept the residents of the city unaware about its food production. With these major migrated populations lives in the slums (Y, 2018). These major parts of the city living in the slums are Food Insecure in large proportions. According to the Household Food Insecurity Access Scale, Food Insecurity was found in a large number of Urban slums of Mumbai as much as 59.7% of Urban slums of Mumbai is Food Insecure. (Nilesh Chatterjee,2012)

Wholesale markets and Urban farms in Mumbai

There are various different NGO who have actively taken part in the Urban Farming. Process and have set up these farms within the dense fabric of Mumbai in various innovative ways and taking full advantage of it. These type of Projects and farms are beneficial only to the people who have actively taken part in the whole process of farming and is not accessible to the common Public Moreover, there are also few types of Farmers market within the city which are opened only once a week and are open to the Public, the main intention behind farmers market is to provide fresh and hygienic food to the people, but these type of market have farmers coming from far away from the cities, increasing the carbon footprint and also they very farmers market compared to the overall density and food requirements of the Mumbai city.

Bridging Food & Architecture

According to Ferruccio Trabalzi, the built environment is designed around food, including ideas to regenerate sectors of the urban economy around the consumption and production of food.

Tuscany exemplary case of where a successful regional identity with a formidable market appeal is present. This is achieved by bringing together local culture, architecture and simple food traditions. The point of interest lies where in food and architecture exists as an amalgamation of the two.

When one looks at urban India, the cosmopolitan Mumbai steals the show. Bandra, the suburb of West Mumbai, that once was a fishermen village, now stands tall with the most upbeat crowd of the Mumbai city. Bandra now boasts a variety of new gastronomic hunts.

One such example is the Pali village café, located on Pali hill road, Bandra. It's kept minimal, and the simplicity has outdone itself. Be it the undone walls, with plaster peeling off, or the very rustic atmosphere brought about by the metal chairs. This restaurant has managed to conjure the old charm of the vintage in the most subtle way possible. The Junkyard Café, also in Bandra, the interiors are such that, they have redefined the whole meaning of sustainable and re-use. This is achieved by using old rug sacks as cushions and colourful petrol barrels.

The point being, these places become a canvas for cultural reflection.

The relentless movement of the assembly line with a forced distribution of food. The idea where, "only food matters, not the place." Was replaced by terms such as ambience, service, customer care etc.

Restaurants projected themselves as places where people gathered, for meetings and friendly get-togethers. This was often teamed with exotic music, cultural performances, to increase the footfall. Restaurants then started being categorized according to social status, more than the kind of food being served.

Cultural & Regional Identity

Culture is not composed of elements which can be disassembled and recomposed. Cultures mature and sediment slowly as they become fused in the context and continuity of tradition. Culture is an entity of facts and beliefs, history and present material realities. Hence an authentic culturally differentiated architecture can only be born from differentiated patterns of culture, not from fashionable ideals in design."

(Pallasmaa, 1988)

Food Security and Urban Food hubs

- Food security demands a diversified food system that includes urban communities as locations for food production, food preparation, food distribution, and waste reduction/reuse.
- The heart of the CAUSES Urban Food Hubs are high-efficiency food production sites that utilize bio-intensive, aquaponics, and hydroponic production methods.
- Co-located with these urban food production sites are commercial kitchens that serve as business incubators and training facilities for food processing and nutritional health-related activities.
- Given their location in urban neighbourhoods, the Urban Food Hubs also focus on waste reduction and reuse through composting, water management, and related approaches to minimizing pressure on urban land and infrastructure systems
- In addition to improving food security, the Urban Food Hubs thus also contribute to job creation and urban sustainability in its economic, social/cultural, and environmental/physical dimensions.
- The aim is to increase urban food production, establish local food processing and food preparation to 'add value' to locally grown food, expand food-related business opportunities, improve nutritional health through access to fresh food via innovative distribution systems including farmers' markets, food trucks, and collaborative models, and to improve productivity through composting and waste reduction and reuse.

Food Production

The heart of the Urban Food Hubs is a highly efficient food production system that utilizes bio-intensive production methods including low-till box gardens, hydroponics systems, and neighbourhood-based aquaponic systems.

A second food hub is in the process of installing two types of hydroponics systems in a small hoop house. Hydroponics refers to growing vegetables in nutrient-rich water rather than in soil. The method produces substantially higher yields by supporting a larger number of crop rotations. The necessary nutrient levels are maintained by monitoring the nutrient level in the growing medium (the nutrient-rich water), adding liquid fertilizer as needed.

Aquaponics refers to a food production system that combines growing fish (aquaculture) and growing vegetables without soil (hydroponics). By using the excrement from the fish as fertilizer for vegetable production, aquaponics systems eliminate the need to add fertilizer. To be usable as a plant fertilizer, however, the nutrients in the fish waste must first be converted into plant-available nutrients. As the plants absorb nutrients, the water can also then be reused in the fish tanks. Alternatively, the plants can be grown in soil that is irrigated with the nutrient-rich water from the fish tanks, a technique known as fertigation. The coproduction of vegetables and protein creates a number of benefits.

- Efficient water use: Aquaponics systems use only 10 per cent of the water used to grow plants in soil, offering a 90 per cent savings in water use.
- High productivity levels: Aquaponics systems can produce large amounts of vegetables without the need for commercial fertilizers.
- Reduction of waste: Because the fish waste is used as fertilizer for the plants, a minimal amount of waste leaves the facility.

The plants in the aquaponics system are typically grown hydroponically in the nutrient-enriched water released from the fish tanks. To maximize flexibility, the system used for the Urban Food Hubs is configured as two connected loops: a fish loop and a plant loop. When the two loops are connected, the system resembles a common circular flow configuration. Since the two loops are connected manually, a wider variety of plants can be grown.

The flexibility of the system also reduces energy use and operating costs. Both fish and plants can be rotated from cold weather species/crops in the winter months to warm-weather options in the summer food Preparation through Business Incubator Kitchens

The food preparation component of the Urban Food Hubs is centred on a commercial kitchen that can serve as a teaching and training facility to improve information about healthy eating, healthy food preparation, and age-appropriate diets. To maximize the capacity-building benefits of the cooking classes, food demonstrations, and nutrition classes offered at the Hubs.

This train-the-trainer approach is especially valuable in a diverse community like D.C. Food is not only about nutrition but has social and cultural dimensions as well. It creates community and is often associated with cultural, ethnic, and class identities. By forming partnerships with neighbourhood-based organizations and inviting their input and participation, the education programs and training events offered through the food hubs can address a broader range of cultural perspectives than what could otherwise be offered.

In addition to serving as teaching facilities, the kitchens also serve as business incubators where those interested in launching food-based businesses can clean, process, and preserve the locally grown produce that can then be marketed to local farmers' markets, restaurants, and grocery stores.

The kitchens are designed to be functional, energy-efficient, and food safety compliant. Demonstration areas also provide visible workspaces, and well-defined workstations for receiving, storage, preparation, recycling, and other functional areas to provide training for proper food handling, food safety, and food management.

Food Distribution through Farmers' Markets, Restaurants, and Food Retailers

To reduce the number of food deserts and provide fresh, nutritious food to underserved neighbourhoods. However, it has proven challenging to attract a sufficient number of vendors to offer locally grown food especially in low-income neighbourhoods that may lack the necessary purchasing power. This presents a viable business opportunity for small urban growers.

A new addition to the Food Hubs are the produce trucks that are operated by the local business partners. The food trucks make fresh produce available in food desert neighbourhoods that lack access to public transportation. The principle behind this food distribution model is to bring fresh food to the customer instead of expecting the customer to come to local markets.

This points to another important function of food hubs, namely to connect small growers and producers of value-added food products with prospective buyers. The market research, marketing, presentation, packaging, and customer service skills necessary to successfully link producers and consumers can be offered at a hub.

4.2 | URBAN MARKETPLACES

The attributes of urban marketplaces

Following is the list of characteristic attributes of the urban marketplaces. These are studied in order to learn about their significance in the present context, their evolution and for the trajectory of their development. The attributes are -

- Spatial Factor
- Operational and Management factor
- Contextual factor
- Social factor
- Cultural factor
- Network factor
- Adaptability and flexibility factor.

Learnings about the spatial attributes of marketplaces

Physical Form

Physical form refers to the formation of the urban structure and the space that contributes visibly to the character of the place. It provides a foundation for all human actions and serves as a frame. As we know, a city's most lasting characteristic is its physical morphology and its growing pressure to reflect the most recent stylistic trend, which retains evidence for contemporary and future generations of ancient urban culture.

Streets are enclosures and are a platform for urban social interaction. The surrounding context describes an urban square. The physical form of a place is usually harmonious in its scale. The boundary of which is defined by the density of the built and unbuilt.

Although the mass continuum describes territoriality. The volumes are produced and are subtractions from the solid mass of the build fabric. While it may not be a pure geometric form, it is defined sometimes by an axis, or simply as a side effect of urban growth.

Scale and hierarchy

Scale represents the dimension of an object and viewing that of that object with reference to other objects in its context. Scale is first of all concerned with the dimension of the building. It is also concerned with components in relation to the human body. It describes the physical mass of the space.

It varies from a very large open area, a small open area or a street crossing between a small open area, a small street or a small shop area, to a very small shop or vendor.

This difference of size from large to small often distinguishes a public and private type of space, in which larger proportions contribute to its substantial public character, while smaller are characterized by smaller sizes and are more private.

Smaller scales are as important as others, since the smaller parts sometimes form a larger whole. Hierarchy refers to the importance of the city marketplace. Factors such as its location, and its use for particular religious or social significance define this significance.

Hierarchy can extend from the sector to small groups or from a district level. The places in town are more formal, the spaces are often monumental and whereas, the neighborhood, require a smaller and informal location. The physical joint on the site also affects the position of the hierarchy.

Enclosure and the mass/void

Clusters are the fundamental elements that directly express the function of a place and social unity. Enclosure has significant social consequences and essentially expresses a union, the formation of a shared space for a common objective.

Good open space is often used along with commercial enterprises for social events. It is one of the important components of public places. These open spaces play different roles and take various forms depending on their environment and the way they are surrounded by the constructed mass.

In the event of open space for marketplaces of various sizes, it is used as breathers, fillers and connectors. The large open space dominates the overall picture of a market place that is by nature the most public. They are owned by none, but they are shared by the space users.

Edge of a space

Naturally, a public square enhances its presence with the help of an edge. The space will never get vibrant if the edge condition fails. Looking at the world in two parts, one inside the building and another outside, the place where both meet is the edge.

The edge of the market locates the border of public and private territory and must both enable interactions and protect privacy. It consists of physical surfaces surrounding the space. The articulation of these planes is largely based on the

hierarchical level of the necessary place and formality. Accessibility to the place is articulated to some extent by them.

In the case of shops in the markets, most shops are continuously positioned side-by-side, creating a sense of edge between the market and the inner blocks. Shop located side by side with shared walls maximizes the business opening. These factors often serve as a barrier on the other side between the consumer and the enclosure.

When the boundary is opaque and the activity on the ground floor is less connected, the edge is isolated, as the inner and outer world separates. when the boundary is porous enough and transparent with the activity on the ground floor the edge condition is coordinated.

An additional two pieces separate the integrated edge condition. In the marketplace when the edge provides direct physical links between dealer and customer it is considered an active edge and is regarded to become a passive edge condition when visually connected but not directly accessible.

Multiple linkages and access movement

Urban spaces require connections that at various times represent both space and the environment. The links that provide people with access to the place can be physical and visual in nature. Visual access if people can see in a space before entering the space and whether the space is accessible to the public.

Physical access, Visual permeability or its connections to the whole is an important quality for the pedestrian Movement through public space, an important factor in the generation of life and an active urban environment. The linkage between space is essential for pedestrians, and successful spaces generally integrate into the local system of movement.

In order to achieve the required goals, both variables function at several levels of accessibility and linkage, which complement or contract. Normally Linkage forms the basis for further affecting or through integration or separation with the external context. Access refers to the ability, including the amount and variety of elements that can be obtained, to access people, events, facilities, programs, knowledge about a location.

There is a market trend, maximum people and maximum activity go through the central area. The center is also accessible throughout the city, from as far as possible and is therefore most closely associated with any part of the city by necessity.

Floor articulation

The ground floor shapes the open space. For open areas it is possible to manipulate the articulation of the floor plane in various ways in order to create or give the room a certain character. Within the extensive open space for sports, the use of high or low plinths, sunken courts, stairs, etc. The edge provides a structure for the place and the further the horizontal plane determines the surface. Wide plinths, which can be used to sit comfortably, a series of steps and a bench, these are some elements which promote this instinct.

There are two major types of flooring in urban areas-hard pavement and soft pavement. The material used and the way it is used and how it is connected with other materials significantly affects the floorscape . A change in the flooring may be used to define a difference in the character or function of the room or to arrange the area aesthetically.

Activity in the Market

The physical form of any place is the base for the activity taking place in the area, Those who are the market users and benefactors, are the ones who own them, who create life for the markets and who transform, modify and shape the market.

Diversity and Vitality in Urban Marketplaces

Vitality distinguishes successful urban centres and others. The number of people in the place at different times of day and night, the number of events and celebrations per year, active urban street life, and the magnitude to which a place feels vibrant, all shape the urbanscape. Different people use the markets; sellers, customers, few people who pass by and some who restrain by and participate directly. The sellers are permanent people on the market, the buyers move through, interacting in the place.

The medieval market towns in Europe, paved the Public Square in the core, where markets and processions took place. These compliment the main exchange activity and bring many individuals with different preferences. Market places also give every class of people or groups a chance to earn a living through activities that can be independent and primary or interrelated with other activities.

The main activity on the market is caused by the formal activity at the shops / office allocated to the place (Land Use). Secondary activities penetrate the left over primary activity supporting space. These secondary activities are mainly informal such as hawkers, food supplies, tea stall, lahris, walk-through vendors etc.

The marketplace as a civic node

Modern Market

Urban space in the cities as a result of planning schemes on the infrastructural, housing and commercial requirements and no more result of a part of the natural needs and growth of the city. An inclination towards technology and economic benefits meant that the resultant urban and commercial space took the shape as a large monolithic giant shopping complex known as the mall.

The imposition of rational order on urban space has no more the homegrown quality of the city. These mega-scale commercial areas were utilized only during the day and abandoned by night. These malls are primarily day time active commercial zones and this renders the place unsafe during the evening hours.

Replicated hundreds of times throughout the world. They were pre-planned, centrally managed, privatized public space. These are analogues to large sculptures with a static character. Whereas it is necessary to work on the dynamicity by aiming for a dynamic character in urban civic space.

The characteristic urban spaces in the modern city are those which are people's places, the parks, the place for public rallies, the ceremonial areas, the grounds where fairs and exhibitions take place, outdoor stadiums and shopping malls etc. All these spaces exist independently and exclusive of each other. They are different places which are destinations for the people of the city to go and experience and no longer survives the concept of a whole unified urban open space.

It didn't just happen that a shopping mall as a typology appeared. The planners do not make the decision that suburban people without the need for a social life need a place to go. The centre was first built as a community centre for shopping, cultural events and social interactions. Now the center of their neighbourhoods is the shopping, social and community hub.

Development of urban marketplaces

The street as a marketplace

The streets became the market square, it was basically a broadened street since the traffic is a dynamic element in the growth of the town.

Market square as a lateral expansion

As the pedestrian and vehicular traffic increased and started to interfere with the market activities, lateral expansion of the main street was developed. Thus a space framed from all three sides was formed.

Grouped squares

At times the separation of the market square from the church square often led to the development of grouped squares. Decorative elements like fountains were created as religious or secular mementoes without much influence on three-dimensional shapes. Steps and staircases became impressive architectural elements in the whole organization adding to movement in depth.

Spatial unity

Architecture and urban order followed rationality. There was a strong desire for spatial unity: a single mass was not dominant. Identical arcades were used as connecting architectural elements in order to increase the unity of the façade which filled a rhythm to the open area of the square. Three-dimensional distinctness and structural clarity defined these squares.

4.3 | Fish Industry and SMEs

Koli community

Kolis are the original inhabitants of Mumbai City. As back then Mumbai was actually a land of seven islands, these communities had made their settlement there for fishing activities coming from Gujarat and Rajasthan. These Communities stayed in Koliwadadas spread throughout Mumbai in different parts and were major centres of the city. After the arrival of Britishers they were moved to the the fringes of the city which is right now Cuffe-parade area and Bombay back-bay reclamation area (Dave, 2018)

The Traditional settlement patterns of Koli Community were known as Koliwadadas and there are very prominent Koliwadadas throughout Mumbai such as Sion, Colaba, Worli, Vasai.

The Koli Community have experienced various changes in their social, economical and cultural aspects due to various reasons and rapid growth and industrialization of Mumbai (shodhganga). Though the Koli Community has still managed to continue their fishing activities alive by practising it into deep sea with huge trawlers, though a small group of koli community has still managed to fish within the mangroves of the Mithi river by creating artificial ponds and filtering the water to breed the fish in healthy environment.

Although this system and practice takes a lot of effort and time for minimum wages to support their family, thus a lot of young people from the community don't want to continue this practice. Due to all such impacts the community has faced a lot of challenges and themselves are facing the challenge of losing their cultural identity.

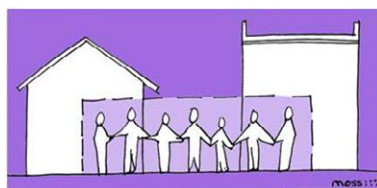
'Hub' as an archetype in design for 'sharing economy'

learning from emblematic typologies of diverse disciplines

2015BARC027 | Ajinkya Bhagwat Jamadar
Semester IX | Seminar

PRESENTATION OUTLINE

- Introduction
- Rationale
- Aim, Objectives &
- Scope
- Methodology
- Findings from literature
- Case study
- Analysis
- Discussion
- Conclusions
- Bibliography



Hub - As per Oxford dictionary - the effective centre of an activity, region, or network.

Archetype - The word translates to the first or primary pattern. An archetype is an organising pattern.

Sharing Economy - is the optimization of underused tangible and intangible assets by pooling and sharing them through platforms.

INTRODUCTION

“The stuff that matters in life is no longer stuff. It’s other people. It’s relationships. It’s experience.” (Brian Chesky).

The “sharing economy” is the ongoing evolution of economy and the transformation of social and physical fabric in such a **scenario of ‘sharing assets’**.

This installs a **new behaviour in public domain**, to no longer own an asset but to pay for the rental service of that asset.

Architecturally, the companies give a ‘status’ to commodities. This has transcended into the physical environment, resulting into the spaces like coworking spaces and makerspaces and places of collaboration.

Designers design with sharing economy in mind - with product designers designing products, for shareability amongst diverse groups whereas the architects modulate design of spaces for collaboration.

Also, the narrative of ‘sharing’, fits into a **transitory move towards the efficient use of resources**.

An architectural enquiry into such an evolving economic landscape can enable envisioning ‘design for sharing economy’. **What would it be like to design for the ‘sharing economy’? How they interact or inform one another?**

Keywords: Sustainability, Resource Pool, Collaborative consumption

RATIONALE

It is important to note that the trend of sharing economy is beyond well-known companies and **has the scope for progress**.

Designing for sharing is crucial for designers. The purpose of this would be **to encourage shareability, a broader type of attributes to enhance its performance**.

There’s a need to reflect on the spaces where the practices of sharing happen and also look for its design considerations. An architectural programming for the processes of sharing, can help in **contribution to academia with design attributes**.

The research **aims to study ‘hub’ as an archetype in the ‘design for sharing’**.

Emblematic typologies have been studied for their founding idea, their evolution, value creation logic, challenges and opportunities for growth.

Drawing from the typological initiatives in disciplines of working spaces, makerspaces etc, this exploratory study focuses on **emerging patterns** in the market and the **discourse of development in purview of the phenomenon of sharing economy**.

AIM & OBJECTIVES

To derive learnings from various disciplines, **in studying 'Hub' as a typological solution in the transition of architectural discourse towards the 'sharing economy'**. For which, the objectives of the study are as follows:

- To critically analyse architectural implications and influences of 'sharing economy' on disciplines such as workspaces, urban mobility, fabrication labs etc.
- To understand economic, ecological and social benefits of sharing infrastructural facilities.
- To discuss the typological framework of a 'Hub'; Hub as an archetype.

RESEARCH QUESTION

An exploratory study in a landscape of 'design for sharing economy'. What would it be like to design for the 'sharing economy'? Can we derive an archetype for SE, to maximise its potential?

SCOPE

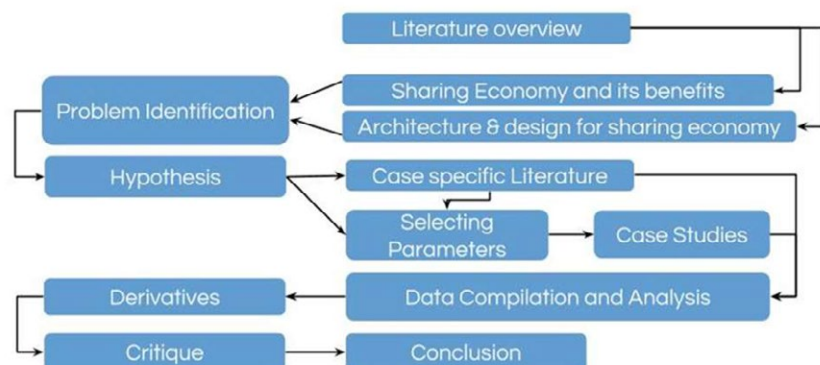
Study on 'SE and its archetypes', would help in categorising existing types of businesses and help understand implications of SE on architecture and the urban fabric.

METHODOLOGY

The paper is structured in a way that the **aspects** in focus have been discussed initially.

Then the case studies with elaboration on **case specific data** collected are discussed.

Discussion about archetypes and the conclusion part bring together aspects, inferences and analysis from case studies.



FINDINGS FROM LITERATURE



Defined as - a set of initiatives that **increases** the availability and the **efficiency of subutilised resources** in the society by organising the peer to peer exchanges.

By combining environmental concern of **resourcefulness** of a particular system and its socio-economic opportunities, sharing economy holds a greater promise in terms of **shared value creation**, in turn addressing sustainability factor. Such consumption can be seen as a **competitive alternative** to inefficient traditional economy.

- Access over ownership
- Sharing is nothing new
- From scarcity to

Abundance

Top Left : <https://www.slideshare.net/KseniaBenifand/how-the-sharing-economy-is-a-more-sustainable-economy>

- Sharing is 'social'
- Sharing is 'Sustainable'
- Sharing is 'Diverse'

Typological categorisation in SE

- **Shared infrastructure providers**
(Service driven)
- **Commoners**
(Community driven)
- **Mission driven platforms**
(Sustainability driven)
- **Matchmakers**
(Competition driven)

FINDINGS FROM LITERATURE

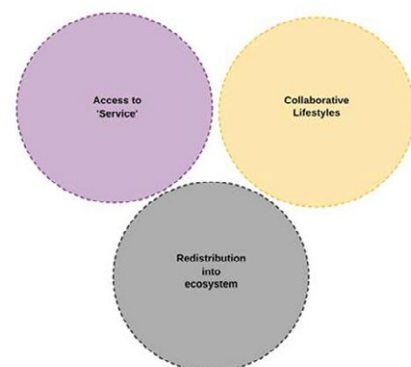
The idea was developed in tandem with technological innovations. Nonetheless, we should **production-oriented processes rather than consumer-oriented ones**. The production and consumption balance should be at the core of development of values.

Is it a substituting model or a complementarity? Depend on its infrastructure, a transitory move towards circular economy.

'Access' based - these models offer access to a service rather than sell it as products.

'Redistribution' based - Used or pre-owned goods are redistributed to an on-demand ecosystem. In some cases, goods are sold directly.

'Collaborative' lifestyles- users with similar needs come together to share less tangibles such as time, place, expertise. Example - coworking spaces.



Existing archetypes of 'Sharing Economy'

CASE STUDY 1 - MAKER'S ASYLUM

Maker's Asylum was **India's first public makerspace**. It is a hobbyist's destination which allows them to construct collaborative ideas.

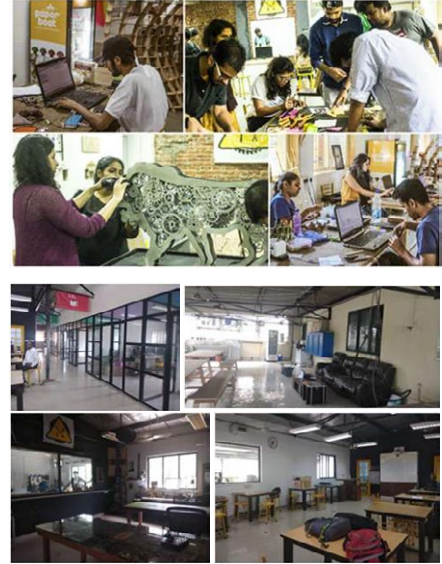
This is a **community-based platform that provides the tools and talent, to help ideators to prototype their idea.**

This model is an example of a workspace **based on idea of collaborative consumption.**

The space houses various **co-located laboratories** to facilitate the prototyping of **interdisciplinary ideas**. It is to focused on **driving community engagement** under our two fundamental bases, namely -

- Access to Infrastructure
- Access to Education.

It **seeks to expand** to other cities and has collaborations with organizations like Jaipur Textile Lab for women.



CASE STUDY 2 - DYLOGG CO-WORKING

In creating very progressive conversations in the city, the Dylogg coworking space **sees itself to be a catalyst.**

They have tried to create a **space that works throughout the week**, making efficient use of space.

Its hosts as a **coworking during the week**, and **hosts open events** like stand-up comedy, workshops etc. during the weekends.

This **model is very much efficient in terms of efficient management of the space**, tuning it with flexibility to accommodate other functions.

This case is studied for its spatial considerations, ideals for collaborative spaces, challenges, opportunities.



Top and bottom right: <https://www.coworker.com/india/bhopal/dylogg>;

ANALYSIS

Collaborative consumption is environmentally promising and **is helpful in sustainable socio-economic growth.**

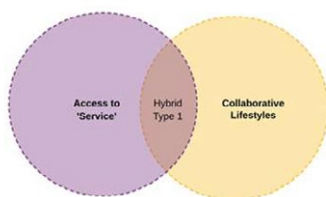
From the study of maker's asylum we understand how the open plan **design of the space facilitated an interdisciplinary workspace** for different kinds of users. It's very idea of **co-locating the fabrication and prototyping** and ultimately the access to these facilities.

Whereas, from the case of Dylogg coworking we understand the **importance of temporal programming of underutilized space.** The temporal programming of this coworking space allowed the place to active for the whole week with the weekends hosting up stand up comedy shows or workshops or film screenings. This not only helps the public but also benefits the initiative economically.

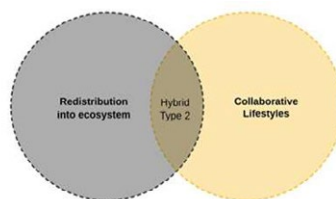
Attributes identified from the study of maker's asylum are **openness, transparency, interactive spaces, mix of both open & compartmental plan** with prominence to open plan. Attributes identified from the study of Dylogg coworking is openness, **temporality**, interactive spaces and a balanced mix of open plan and compartmental plan.

The attributes are derived from the idea of making space interactive and collaborative with **core archetype dictating the design of the space.**

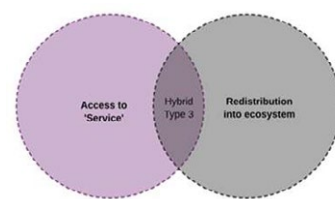
DISCUSSION



Businesses started as 'access' based, are now incorporating collaborative lifestyle in their core functionality. OxfordCaps which started as a platform for 'shared infrastructure' of accomodation, now brings users of similar needs to share less tangible assets.

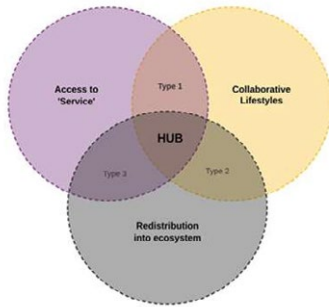


What started as collaborative practices are now incorporating 'redistribution' of the product in the market. For example - MBDC certifying systems, which started as a framework developed by like minded people has now evolved into a consultancy.



These are fundamentally about sharing a resource pool, but now let user be a contributors in redistributing in the ecosystem. For example - Rapido, it is a resource pool of bike taxis based on the aggregation model, allows users to redistribute their asset in the ecosystem.

DISCUSSION



'Hub' as the emerging archetypes as **derived from the observation of patterns** of development in the market.

The suggested term 'Hub' has been used as it **imputes a 'nodal' character to this hybrid form** of existing archetypes.

The Maker's Asylum is an exemplary scenario which illustrates attributes of all the three types, thus **hinting the possibility of coexistence of all the three archetypes**.

With this as an inference one can design a typology in ways

that the **design programme can embody characteristic features of all the three archetypes**.

Through its rudimentary form, this model **can have diverse applications** as observed from the fragments from various disciplines. The model can serve like a DNA which **can be manifested in a variety of ways** for a variety of sectors in the market.

CONCLUSION

An alternative form of logics for the value creation and value capture is here. Widespread proliferation of the collaborative consumption asks for deeper understanding of the concept and urges for design solutions to maximise its potential.

The research contributes in studying the **patterns and tendencies of the business towards evolution of core archetype to that of a 'hybrid one'**, which is inclusive of the

characteristics of all the other archetypes found in the domain of collaborative consumption.

Due to the 'nodal' character of exchanges through this hybrid form, The term **'Hub' has been used as it imputes a 'nodal' identity to this hybrid form**.

This **archetype** can be a **conceptual base** for initiatives aimed at efficient, vibrant and a viable socio-economic model for development.



LIMITATION

Study is of typologies and their socio-economic & environment promises. The study is limited to typological understanding and derivation of an archetype. It can further be explored in terms of design translation.

BIBLIOGRAPHY

Research articles

Acquier, A., Carbone, V., & Massé, D. (2019). How to Create Value(s) in the Sharing Economy: Business Models, Scalability, and Sustainability. *Technology Innovation Management Review*, 9(2), 5–24. doi: 10.22215/timreview/1215

Planning for sharing - providing infrastructure for citizens to be Makers and Sharers; Anna Hult and Karin Bradley, *Planning Theory and Practice*, 2017, Vol.18, No.4

Websites

Architecture and the "New" Sharing Economy (Article) < Back to Blog. (n.d.). Retrieved from <https://www.ankrommoisan.com/blog/2015/11/19/architecture-and-new-sharing-economy>

Share, Like, Love: Why designing for the sharing economy is different: Roca Gallery. (n.d.). Retrieved from <http://www.rocagallery.com/share-like-love-why-designing-for-the-sharing-economy-is-different>

Power, J., & Birch, L. (2017, June 17). Archetypes – their nature and importance. Retrieved November 6, 2019, from <https://archetypalspirituality.org/2017/01/17/archetypes-their-nature-and-importance/>

Thank You

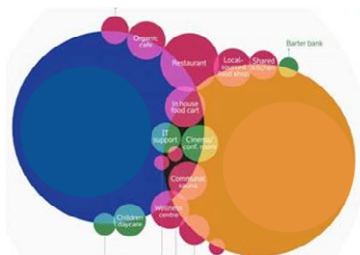
Inquiry into spatial attributes of urban marketplaces

Devising strategies for light industrial mixed-use commerce

2015BARC027 | Ajinkya Bhagwat Jamadar
Semester X | Seminar

PRESENTATION OUTLINE

- Introduction
- Rationale
- Aim, Objectives & Scope
- Methodology
- Findings from literature
- Case study
- Analysis
- Discussion
- Conclusions
- Bibliography



Urban Marketplaces - place where we purchase and sale commodities.

The term covers many trading types such as marketplaces, market squares and food stores etc.

Mixed use - A mix of functions; suitable for several different functions a mixed-use building.

Light industrial - usually are less capital-intensive and is more of a consumer-oriented rather than business-oriented, as it typically produces smaller consumer goods.

INTRODUCTION

The study dwells in the larger domain of market space types usually found in urban areas and then focuses on a small and particular space type.

Macro Domain of research
- Urban Marketplaces

Micro Domain of research
- Mixed use commerce

This study is being conducted as a plug-in **research for the thesis project**. The thesis project envisions mixed use commerce at a location with predominant light industrial activities.

Viewing this place as a place of consumption, the study **aims to devise strategies** for light industrial mixed-use commerce **with insights from study of urban markets**, their evolution and developmental trends.

The study of urban marketplaces will facilitate understanding the space types and their characteristic features. This study shall help in **developing the mixed use space type** being envisioned.

Furthermore, this study shall communicate the advantages & disadvantages in developing a light industrial mixed use commerce in the given context.

RATIONALE

Projects for development may be categorized as "**mixed-use**" if **they have more than one use or function** in a shared building or development area.

On this of the site within the context of the eastern waterfront redevelopment project, the idea of making the most from the given parcel of land is of utmost importance. Therefore, **sharing the developmental area is imperative** for the upcoming projects.

Beyond just sharing the developmental area, is there a possibility of developing close knit programme, where the mix of activities mutually benefit each other?

If so, what attributes would this space type have? And what benefits can be achieved from this typology.

This study shall address the above mentioned.

With that as motivation, the study seeks to improvise on the mixed use space type and tries to view in in purview of light- industrial commerce.

Insights & results froms the study shall then be used in the design for project.

AIM & OBJECTIVES

The study is for design for an urban space of consumption, aims to **improvise on a typology such as the marketplace, layering it up with light industrial activities** as a mixed use typology.

For which, the objectives of the study are as follows:

- To understand the nature of contemporary market spaces and to understand their evolution, Reflecting on developmental trends of market spaces.
- To understand the characteristic features of mixed-use market spaces.
- To attempt outlining spatial strategies for light industrial mixed-use commerce.

RESEARCH QUESTION

Search for an inclusive development model - **Can light industrial space type hybridise with other cultural, commercial, and social space types create a model mutually benefiting each other?**

SCOPE

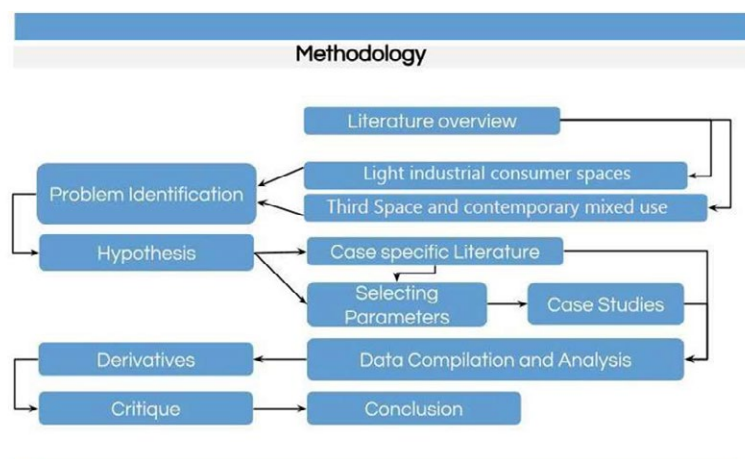
Study on marketplaces and mixed use development shall facilitate in developing or improvise on the existing space type in architectural development of consumer spaces.

METHODOLOGY

The paper is structured in a way that the **aspects** in focus have been discussed initially.

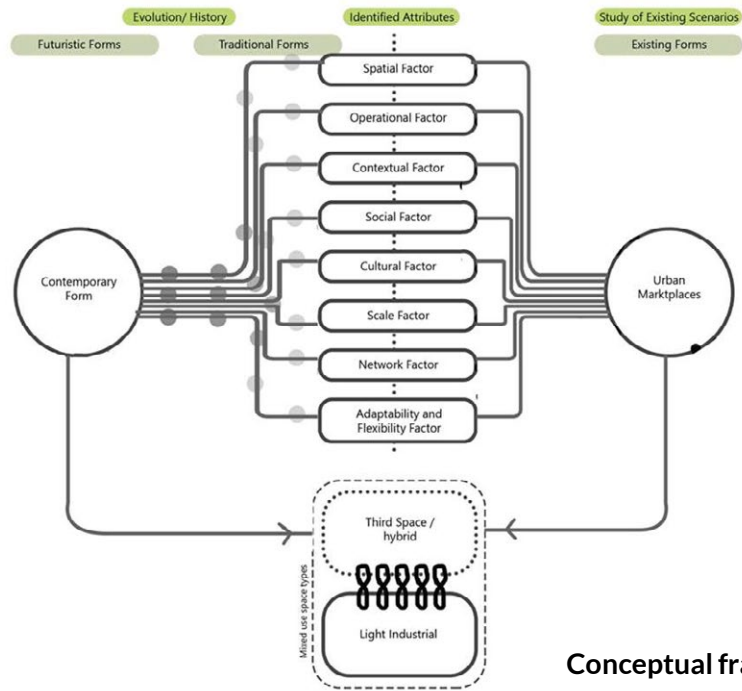
Then the case studies with elaboration on **case specific data** collected are discussed.

Discussion about archetypes and the conclusion part bring together aspects, inferences and analysis from case studies.



LITERATURE

- Markets and city: Historical Perspective
- Reflecting on Today's market trends
- qualities of a successful public market
- Food port - and food hub types
- The new design for Sydney Fish market
- Third Space and hybridity
- Light industrial mixed use literature



Conceptual framework

LEARNINGS FROM LITERATURE

Development of marketplaces

The street as a marketplace

The streets became the market square, it was basically a broadened street.

Market square as a lateral expansion

As the traffic increased and started to interfere with the market activities, lateral expansion of the main street was developed. Thus a space framed from all three sides was formed.

Grouped squares

At times the separation of the market square from religious or historical spaces often led to the development of grouped squares.

Spatial unity

Architecture and urban order followed rationality. There was a strong desire for spatial unity

The marketplace as a civic node

It didn't just happen that a shopping mall as a typology appeared. The planners do not make the decision that suburban people without the need for a social life need a place to go.

The centre was first built as a community centre for shopping, cultural events and social interactions. Now the center of their neighbourhoods is the shopping, social and community hub.

LEARNINGS FROM LITERATURE

Light Industrial Mixed use

Using **limited amount of urban land** wisely is a challenge and often fraught with controversy with many **competing interests to balance**.

Light Industrial allows for low-impact processing and R&D units. **Idea would be to expand the possibilities by creating a new zone for the waterfront** “Light Industrial Mixed Use.”

Light Industrial would continue **but commercial, & recreational uses should be layered in to increase vitality, livability** and spur economic development.

Other cities have employed various methods to achieve this mix of uses (e.g. require a minimum Floor Area Ratio FAR for industrial uses with **density bonuses for other uses** once the industrial FAR is met)

Principles of Smart Growth

- Mix land uses.
- Take advantage of compact design.
- Create a range of housing opportunities and choices
- Create walkable communities.
- Foster distinctive, attractive communities with a strong sense of place.

Some moderately sized blocks are necessary to accommodate light industrial uses in a flexible, mixed use environment, striking a balance between economic development and urban design considerations.

In 2013, EcoNorthwest prepared an Economic Impact Analysis for the Port of Hood River that recommends the very same shift from pure industrial to mixed use that we advocate:

“ . . . what is the best use of remaining Port property at the waterfront? Many cities provide evidence of a transition from industrial uses to other uses as property values rise. The Port has already accommodated a shift from traditional industrial and warehousing toward light industrial and commercial. The Port should consider furthering this transition, focusing on the kinds of businesses that are most compatible with waterfront recreational amenities.”

LEARNINGS FROM LITERATURE

A NEW MARKET EXPERIENCE AT THE CONVERGENCE OF TRENDS

People are looking for a place to meet, interact, and engage and search even in grocery stores everywhere.

The traditional supermarkets are continuing to grow in ways to make shopping more multidimensional.

The traditional shops are diversifying their programmes.

In today's markets, people meet, shop, cook, socialize and learn progressively at local hubs. Many of the latest hybrid spaces "change our perspective in viewing urban marketplaces."

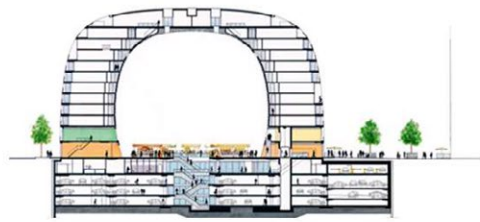
Mixed-use development combines the physical and functional aspects of a residential, commercial, cultural, institutional, and industrial environment.

Third Space & Hybridity

The conceptualisation of Third Space as a civic space in the built environment under pressure from malls and corporates, transforming public space into an extension of the market.

"The importance of hybridity is not to be able to trace two original moments from which the third emerges, **rather hybridity to me is the 'Third Space', which enables other positions to emerge.**" (Rutherford 1990: 211)

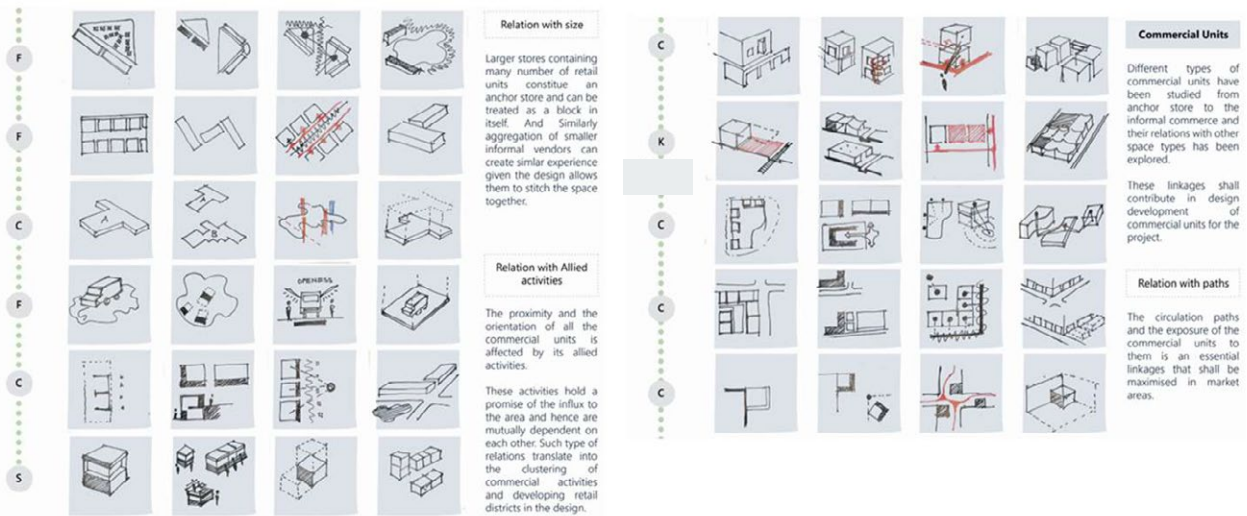




GROUND FLOOR PLAN 3.2.2.3 Page 52

Derivations (Shape Grammar)

	Space Type	Modules	Relations	Volume	SHAPE GRAMMER		Design Features
M					<p>Shape grammar is a tool in which the spaces from different cases are compared in terms of modules, relations and crude volumes.</p> <p>These volume can then be incorporated for initial stages of design by being considerate to relations as derived from the study.</p>	M	
S					<p>Social Spaces</p> <p>Social spaces like the social dining of Mank chowk, the social aspect of circulation paths of sydney fish market and the rooftop spaces generated for social activities is shown. The linkages of the space with architectural design elements has been shown in the relation tab.</p>	M	
F						C	
C						S	
S							
Sydney Fish Market							



ANALYSIS

The **resulting mixture** as seen from the cases and it **can be translated into a design** at places with light industrial activities and demanding markets.

As seen from the case of Sydney fish market and Food port we can see that - **A good way to create and protect opportunities could be to co-locate light industrial spaces with a mixed-use market.**

With a growing demand for the building of workplaces, combined with lower vacancies and brownfield land, we need to develop in new ways that our cities will grow sustainably.

A new typology that mixes urban market and light industry can help to offer a solution to organizations trying to protect industrial land and the vital, and the skilled local employment opportunities they provide.

For our cities this re-imagined form of urban development mix is rational:

- Industrial spaces in urban development are relatively uncommon because there remains a **stigma of low value, dirty and noisy industries**. However, this is changing with new innovations in relation to materials like noise cancellation and clean emission technologies.
- **Failing to put the site industry in proximity to the market can cause a negative impact**, such as congestion and productivity effects, on labour, supply chains or customers.

DISCUSSION

- Urban Development needs to harness creativity and innovation; there would be a **need to view industrial activity in all its modern forms to achieve this.**

In turn, this encourages innovation, a process essential for economic success and business.

- Ultimately, combining industrial and market space offers significant opportunities, transforming an inadequately-used site into a vibrant and well-connected community

The govt. is already devising strategies for light industrial commerce in terms of **'cluster level approaches'** - where they are trying to bring together the people involved in business activity in one cluster, trying to minimise chains and helping them create opportunities for each other.

While there are these efforts at this in the wake of Incubation ecosystem in the textile industry, similar approaches

can be taken for other industries and the solutions as showcased by Food Port and Sydney Fish Market are but ways of contributing to this. In the present scenario of entrepreneurial and incubation ecosystems for SMEs, it is imperative that space types as such shall emerge and create opportunities in the urban and improve developmental practices.

CONCLUSION

This study is located in identifying a mixed-use space type **at the tension between a contemporary marketplace and light industrial activity zone.** Clearly, as seen from the examples of Food Port and Sydney fish market, it would be beneficial for urban areas to have light industrial mixed-use types in specific areas.

The **hybrid market space type that is layered on the light industrial activity could be developed as a mixed-use** of them both. This shall benefit the thesis site at eastern waterfront redevelopment. The site is located at Malet Bunder, adjacent to princess dock which has the potential for creating a light industrial mix use with the allocation for the fishing community and the marketplaces.

Together these space types can mutually benefit each other, where one provides the essential footfall to be captured or tapped while the other space type has the potential to provide good services. Therefore it is viable in co locating both the space types, sharing the same developmental area.

FURTHER RESEARCH

Further research can be done on the integration of light industrial character in other types of spaces such as residential or workspaces.

Such variables of space types and different industries can further be studied and explored, for the creation of new hybrids and models that can benefit the communities and the business in general.

Research on these lines shall address few of the factors as per global SDGs as put forth by the UN body, in the purview of Infrastructure development, industry, innovation, sustainable communities, responsible consumption and production



CHAPTER FIVE | SITE STUDY & ANALYSIS

This section of the report talks about the studies done for the site with respect to the climate aspects, urban aspect, the aspect of existing activities in and around the site, the activities of the fishermen etc whose inferences have been incorporated in the further process of design.

- Site Justification
 - ◆ Site selection
 - ◆ Comparison with potential sites
- Study of Natural factors
 - ◆ Sun Path and Shadow analysis
 - ◆ Temperature and Precipitation
 - ◆ CRZ offset and Wave Rose diagram
- Site Context
 - ◆ Existing site
 - ◆ Relation with the surrounding context
 - ◆ Contextual mapping
- Activity mapping
 - ◆ Existing activities on site
 - ◆ Temporal activity Mapping
 - ◆ Fishing activities
- S.W.O.T Analysis
- Synthesis Maps
 - ◆ Built Fabric
 - ◆ Lynch's Attributes
 - ◆ Development Control
 - ◆ Natural Factors

**Text that is emphasised by italics and semibold - are the inferences and highlighted statements.*

5.1 | Site Justification

Site selection

The site is located at the Malet Bunder which is adjacent to the prince's Dock. Prince's dock is being repurposed to be a full fledged Programme for a Marina, which is going to bring about the footfall of localities and the tourists to the site. The marina will cater to tourist destinations along the waterfront and will connect to the Elephanta caves Island.

Presently, Malet Bunder is used by the fishermen community for loading and unloading of their goods. And is the only inland part of land that supports fishing activities. Hence it makes sense to relocate them to the nearest land to the existing site which actually supports their activities.

Historically Malet bunder was used for fishing activities which provided a landing for the fishing boats which were small in size then.

Due to the increase in the size of the fishing vessels, the malet bunder further could not accommodate the depths of the newer vessels that were large. So when shifting the activities towards the malet bunder side, it is imperative to construct a new wharf for fish landing.

The inability to accommodate the depths of newer vessels was the reason the fish landing activities were then shifted to the wharf named Bhaucha dhakka in the first place. Presently, the Malet bunder supports loading and unloading of cold storage supplies(ice), the supply of water and the essential servicing for the boats. While the area just adjacent to it is surrounded with edible oil depots of the State Trading Company (STC).

The area belonging to the STC is defunct and derelict and lots of unused structures are found on the site. In Fact 1/3 of the area is allocated a parking which is not a good use of the site.

So, for the purpose of development the Malet basin area + area belonging to STC + area belonging to Govt. Inspection has been taken together as a site. The basin that already supports activities + the defunct area + the area of the building that is to be relocated has been stitched together into one.

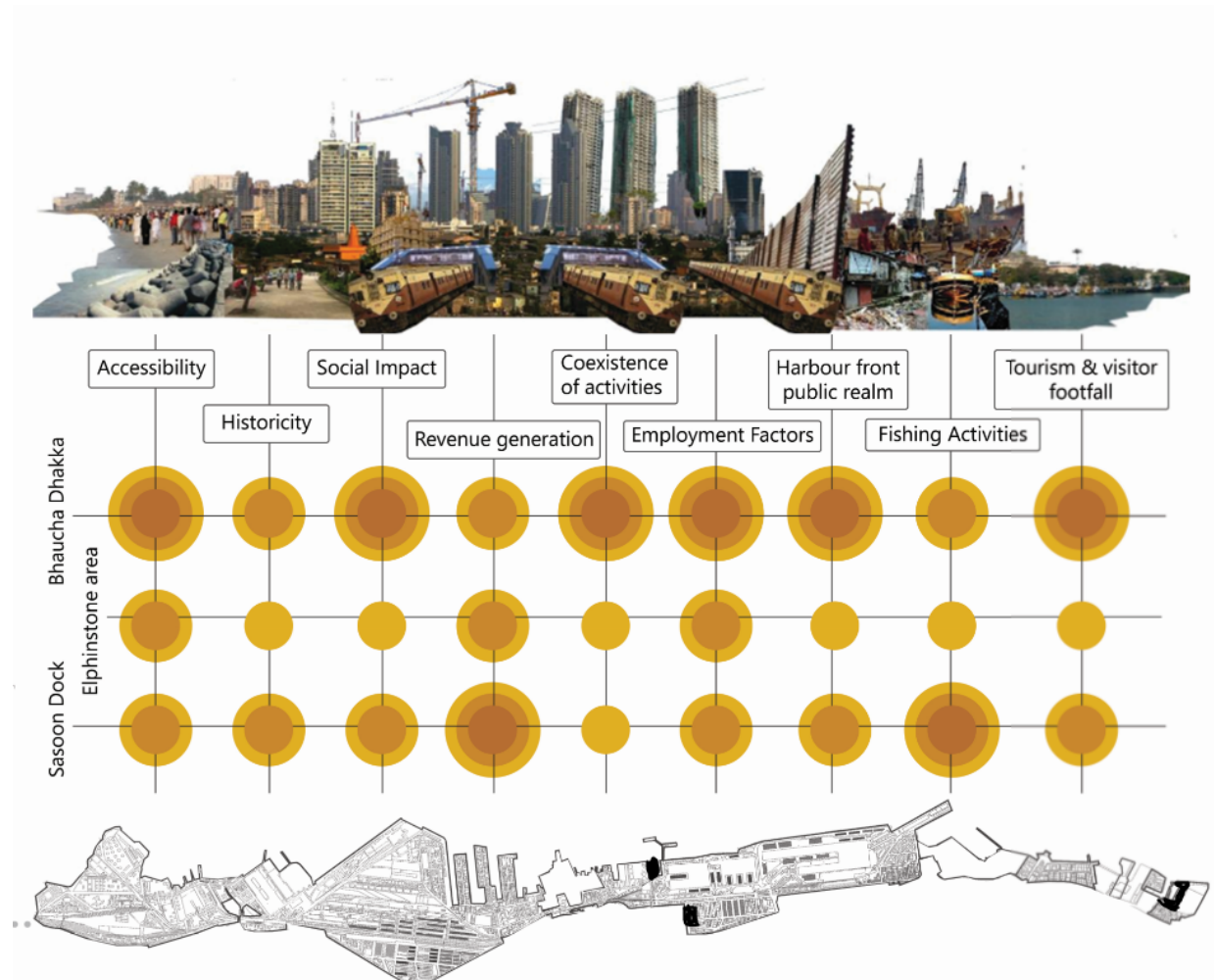
The area taken as the site, are basically fragmented areas that have been stitched together to act as one site - capable of holding the programme that is proposed.

Relative compassion with potential sites

One of the things with respect to the site selection was to justify why this site in particular? A selection had to be done within different potential sites - like Malet Basin, elphinstone area and then the Sassoon dock near the Colaba area. So,

In order to support a program like that an analysis had to be done in terms of what these sites have to offer and which suits the best for the particular programme being envisioned.

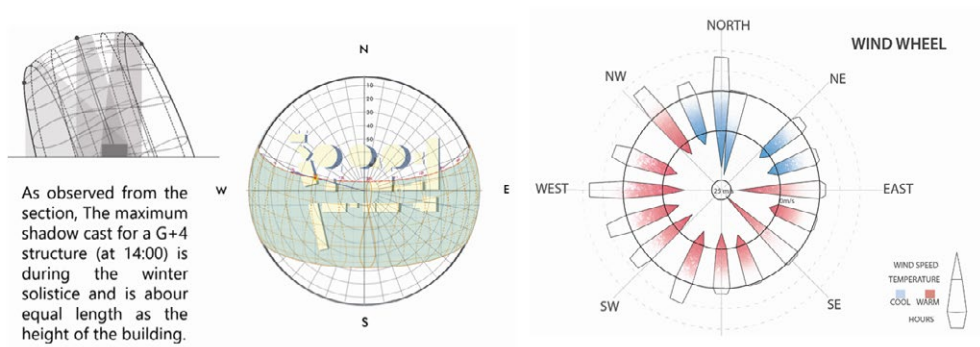
These sites had to be compared in terms of the aspects of accessibility, historic and cultural value, social impact, revenue generation, potential for coexistence of activities, Employment factors, Harbourfront public realm, Fishing activities and Tourist and visitor footfall.



5.2 | Study of Natural Factors

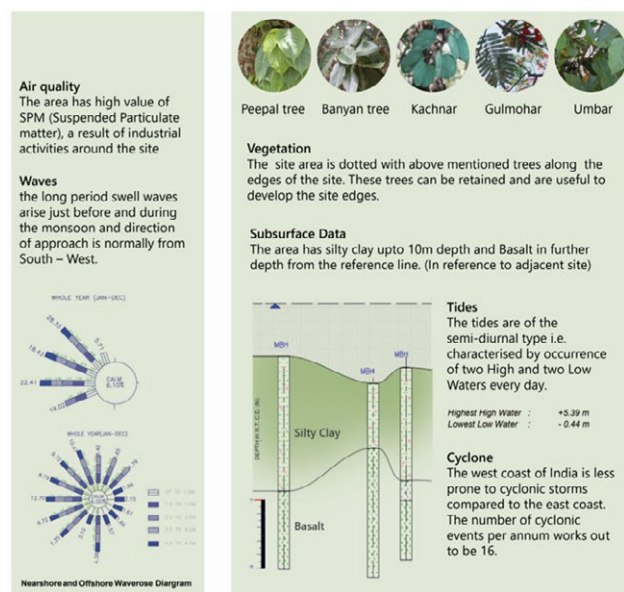
Sun Path and Shadow study

Sunpath diagram & Windwheel



Sun Path has been studied in terms of dealing with the climate of the place and understanding what the shadow patterns would be and accordingly the design has been moderated in creating shade at lower level streets dedicated to the public realm. And also it was particularly important in terms of reducing the heat gain to the building blocks being proposed.

Sun path for shadow pattern and reducing heat gain;; wind rose for being able to optimally channelise wind to reduce the unpleasant odour; and waverose to strategies counter measures for high waves from the sea.



Temperature and Precipitation

Design criteria in the warm and humid region is to minimise heat gained by providing shading.

Wave rose diagram

This data was collected to know about the nature of waves in that area. Also It was taken in order to come up with counter measures in accommodating the emergency situation that is when tidal waves are high. In order to accommodate the height of the high tide waves the design of the waterfront has been done in such a way that the CRZ offset of 50 m has been split into two different levels with the use of a podium.

The level difference created will segregate areas in case there is rise in water levels and provide about half the area to be useful in such emergency cases.

Also the area has been dealt in such a way that the water coming into these areas will have a special channel and will be collected at an underground tank 20m away from the HTL. this tank will be able hold extra water and shall act as a water sink - which is one of the resiliency measures for water surges.

CRZ offset

As per the data found for the site, the area comes under CRZ zone 2 - which are the urban areas located in coastal regions and under the new regulation 2018, the FSI norms have been defreezed. Also the special norms developed for this place as it is declared as a Special planning Area. These two factors are instrumental in terms of the development that can come in these places. The CRZ offset of 50 m has been taken according to the CRZ rules for the area.

The strategy of dealing with this huge offset is to regard it and concentrate the recreational open spaces into these areas. Also this aligns with the idea of creating a promenade at the waterfront.

5.3 | Site Context

Existing site

The existing site has derelict and defunct buildings which will be wiped out because of the redevelopment scenario.

Of the 3 oil depots present on the site, 2 are proposed to be reused as volumetric enclosure punctured in and out to accommodate overhead pathways.

Relation with the surrounding context

Adjacent to the site is princess dock located at the southern side of the site, and is proposed to be marina. "Princess Dock by restoring water bodies by re-excavation of existing part basin, for providing sheltered yacht berthing and marina ancillaries." The plan is to create a "much needed" and "iconic" marina for Mumbai along with its supporting ancillary activities. Considering the historical-cultural importance of India's financial and commercial capital, the idea is also to look at the marina from the perspective of opening the "city to tourism by sea".

The project capitalises on the footfall generated by such an activity that is near the site. These activities will mutually benefit each other - in purview tourism activities, cultural amenities, Waterfront spaces etc.

On the western side of the site boundary is a parking area owned by the government. Which will be designed as a multi-level parking building that caters to the surrounding areas. It is assumed that this multi level parking will support all the public activities of the marina and surrounding area. And it should be encouraged for such parking places to be utilised to their maximum potential by actually being coherent with the programme at an urban level.

Which is why the project does provide much car parking space for the public but banks on the multilevel public parking just adjacent to the site.

On the northern side is the land that is used for industrial purposes and has a different tenure pattern. Because of this ownership issues the land is considered as a different fragment. And in turn that defines the project site boundary as earlier mentioned about stitching of different areas to make the marked site area.

Site plan



3. Govt. Inspection office



4. View of Malet Basin



Contextual mapping



- Large chunk of the land is **unbuilt and scarce** industrial buildings are dotted with numerous trees.
- The area comprises of **abandoned warehouses, Large volume oil depots, BPCL industrial buildings** and Mixed-use residential.
- The material palette ranges from RCC structure, Brick walls, asbestos sheet walling with wooden shutters to sheds having steel framing and metal sheet roofings.
- **Structural condition** of the buildings in the area is **poor, needs maintenance/ upgradation**. The buildings are in state of decay with vegetation growing on the structures and warehouses are in derelict condition.
- Buildings lack architectural character and are **spatially inefficient** with the long dark corridors for coupled with warehouse storage; large inaccessible volumes, and improper services in terms of lighting and drainage.

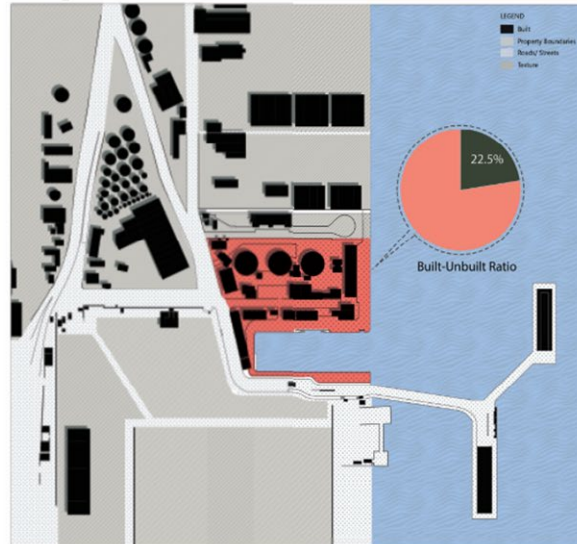


FIGURE GROUND MAP



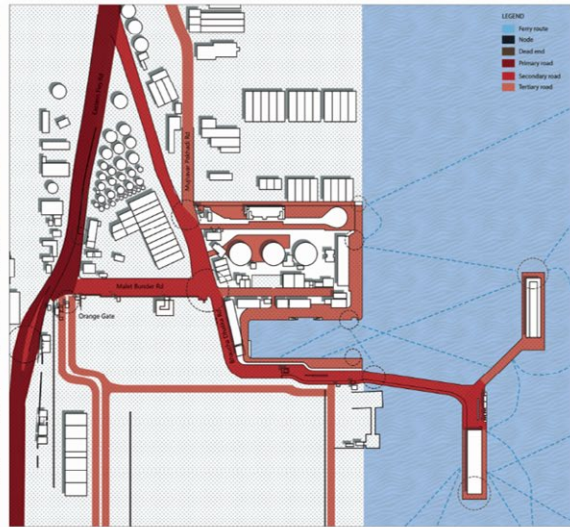
- Varied activities can be identified in the precinct, which can broadly be categorised as **fish market related activities, fishing boat allied activities, ferry services, industrial and its allied activities, residential, Govt. and commercial offices.**
- **Clustering of similar activities** can be seen as a pattern influenced by the physical makeup of the place.
- **Conflicting activities** are seen at the extended pier - ferry services conflict with the fishing market, although the market operates only in the morning hours; it creates uncomfortable scenario for the public using ferry services.
- **Informal vending activities** can be seen at nodes witnessing public flux.
- Large chunks of land occupied, **becomes redundant after the particular working hours**; creating conditions conducive for anti-social behaviour.



LANDUSE MAP



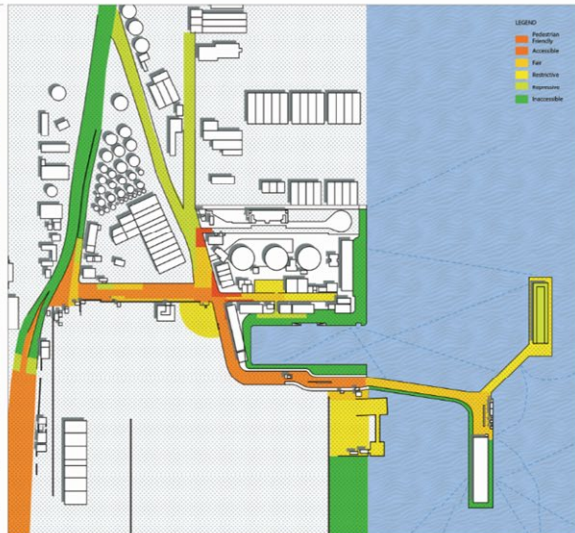
- A major arterial expressway passes by the precinct- The eastern fwy is major road for the inward and outward flow of trucks and container carriers.
- Secondary roads of 18m width, 15m width branch out and serve as an entrance to the selected site. Furthermore, tertiary roads branch out towards the inner edge of the site and is used to serve the malet bunder and the fish market.
- The area near orange gate is a critical junction which is optimised for its traffic circulation pattern - improving the efficiency of the entire network.
- The area has high potential as a multimodal hub - with waterwise connectivity, robust road network connectivity and proximity to 'Sandhurst' station of 'Harbour' line.
- This multimodal connectivity promises a continuous flux of people.



TRANSPORT NETWORK & TRAFFIC MAP



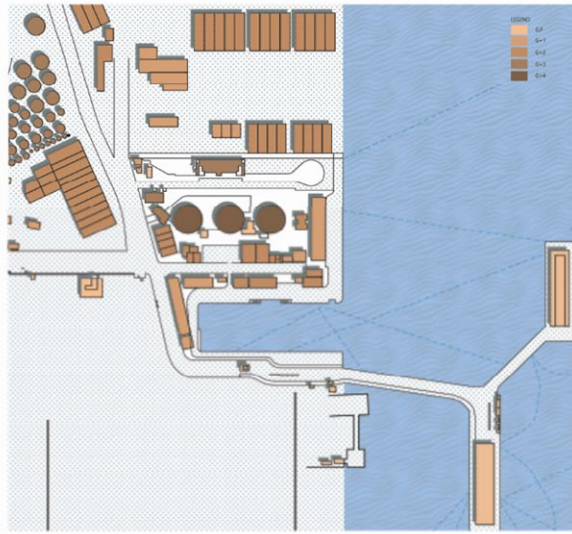
- Fishing jetty and the ferry wharf are accessible to the general public and rest of the area is restrictive. The access is limited to only the registered members of the company/business.
- The high boundary walls edged with large trees and rows of trucks parked at boundary, both being secured by high surveillance constitute the type of edging conditions for the precinct.
- The Malet bunder has special security w.r.t its location at the waterfront & need for high surveillance and security, the fishing boats are licensed and the trucks-carrier are inspected by an govt. inspection office.
- The area has limited access and is unsafe in terms of crossings, thus worsening pedestrian accessibility.
- Due to small size of the ferry infrastructure, the area presently only serves landings towards Uran, Mora and Alibaug.



SPATIAL ACCESSIBILITY HEAT MAP



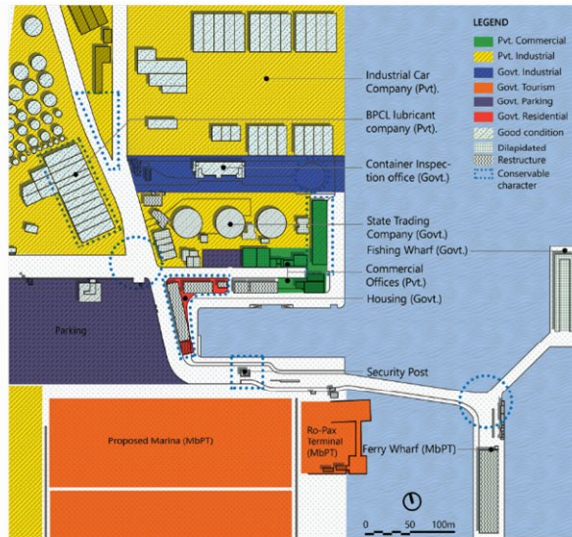
- Building heights in the precinct are an average of G+2 structures. Building heights increase beyond 500m radius from the site.
- While warehouses go upto G+2, Oil tanks reach upto G+4 and mixed use residential being G+3 in average.
- Mature trees present in the area have canopy top reaching upto 8-10m and thus, the buildings are often covered under their canopy.
- Except for few buildings made up of RCC, many structures like oil depots and warehouses with gable roofs have inaccessible terraces. Also, these terraces are unused for the public involved in present activities and that indicates underuse of good vantage points present on the site.
- With the existing pattern of heights of residential built around malet bundar, the buildings visually cover up the boats with the given level differences.



BUILDING HEIGHT MAP



- With BPCL in use; the adjacent operational Govt. inspection office and the on going development of parking leaves the demarcated site as an area for intervention and is in derelict condition.
- Warehouse and gabelled structures are in need of redesign, while the mixuse block are in worse conditions and can be redesigned due for its dilapidated condition.
- Large cylindrical containers might be reused for their volumes.
- Tenure patterns make the ownership issues complex, tenants hold long leases which effects the redevelopment scenario.
- Although the vision for the redevelopment considered this precinct as a big chunk of land, MbPT has devised a plan using an existing road network with optimised traffic in design for the Marina.
- Adjacent to the site, MbPT along with the tourism department have started off with the work for Marina and RO-PAX.

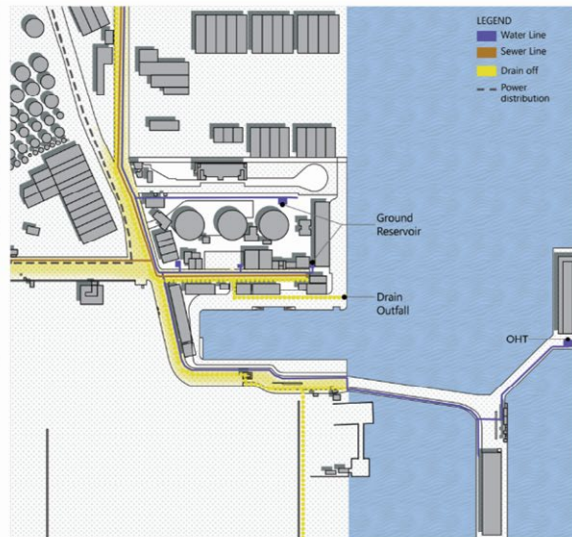


Building Condition & Ownership



- The site is gently contoured with a drop of 7m in a distance of 200m
- The drainoffs are diverted into two valley, valley inclined towards Malet bunder and other valley along longitudinal axis of the site.
- Flats can be observed at the Malet bunder during low tide, which is levelled with waterdepth during high tide.
- The site is surrounded by many trees at the edges of the site and also along the edges of the roads.
- Especially older and taller trees are observed at the junction of main roads. While trees within the site are of relatively smaller canopy.
- Gulmohar, Fox tail Palm, Jasmine, Banyan, peepal, kachnar etc, are some of the identified trees in the site area.
- The trees are old and are mature, reaching at heights higher than the buildings themselves- more than 9m in height. Hence retaining them is imperative.

Green cover & Slope mapping

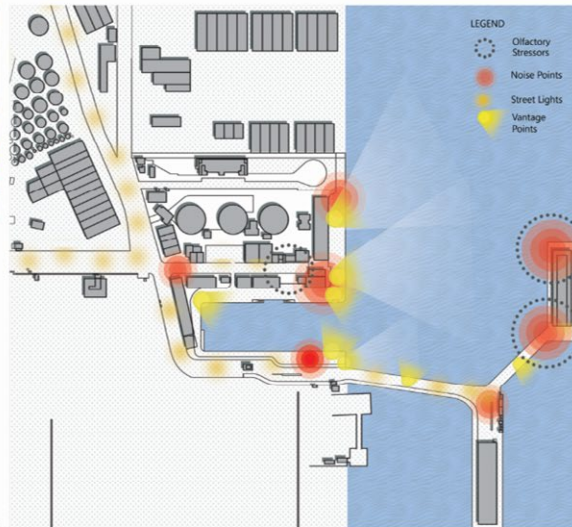


- MCGM is supplying pure drinking water within the limits of SPA with the rate of 135 LPCD. The demand of water increases with the footfall.
- The water lines in the area are along the roads and follow upto the the wharf following the jetty extention.
- Due to flat topography getting the sewage connectivity by gravity is difficult. Some outfalls from the premises to the Sea. These areas get flooded during high tide.
- The out fall of the storm water is in the sea. The drainoff gets polluted along its way and then it enters the sea. Hence, Prooper water management is required.
- Solid waste is segregated at local collection centers and then transferred. The dry waste is recycled through private operators. Decentralized treatment would be beneficial.

Available Infrastructure



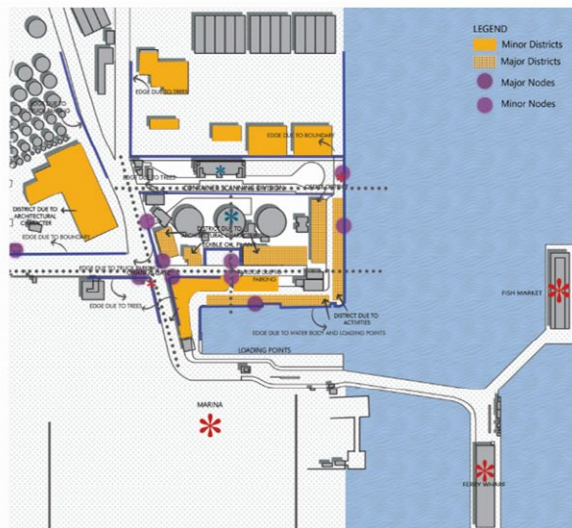
- The subarterial road adjacent to the site, is projected to attract more traffic - which would be a potential source of noise.
- At present, there is noise of the trucks and heavy vehicles that come to the lubricant factory.
- The street light illumination does not cater the inner parts of the area rendering it dark and unapproachable in the evening hours.
- There is a strong presence of pungent smell due to the morning fish market. This olfactory stress is temporal - fades away later during the afternoon times.
- The Site offers some of the best publicly accessible views of the eastern waterfront. Certain vantage points are constrained by the presence of jetty and the built structures on it.
- The smell from the fish market is unbearable for people commuting in the morning. Hence there a solution is required to resolve this conflict.



Sensory Factors



- The fish market wharf and the ferry wharf are major attractions in this area and receive higher footfall in relative comparison with other places.
- Then there are minor nodes at the cross junction of roads and dead ends, which are accompanied by eateries and commercial areas - These nodal character can be preserved.
- The area is blessed with the edges, the waterfront areas presently are occupied for allied fishing activities - providing necessary services for the fishing boats.
- Certain road edges can be identified with their character of container, trucks being parked and occupied for most of the day. - These edges need transformative redesign for accomodating and inviting public.
- Districts/ zones can be identified as seen from the predominant activities - This suggests the zones in terms of activities which can clubbed for the purpose of redevelopment.



Lynch's analysis

5.4 | Activity Mapping

Existing activities at site & Inferences

As this is an industrial zone presently one can identify the traffic of trucks moving in and out of this area and to and from the eastern freeway.

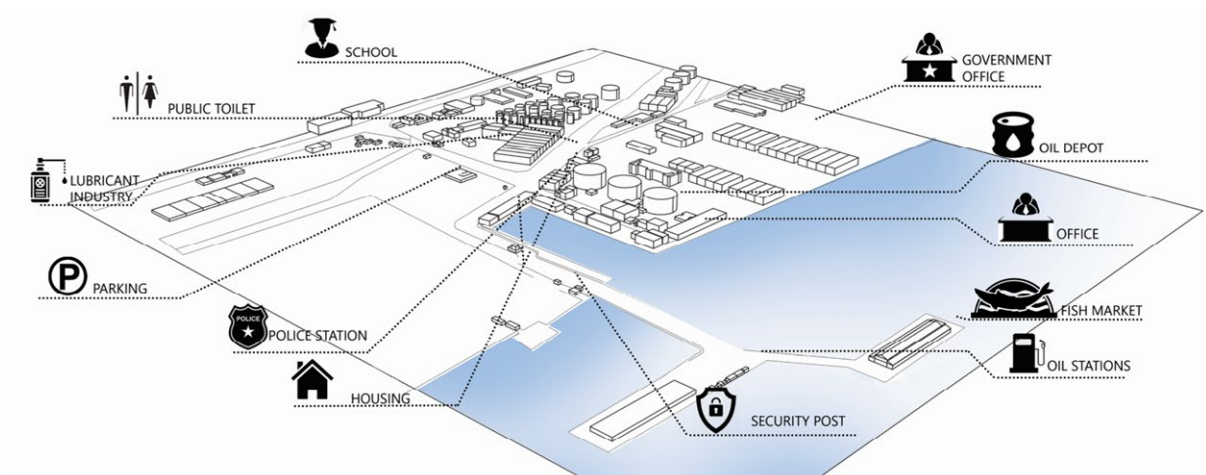
Temporal Activity - Afternoon

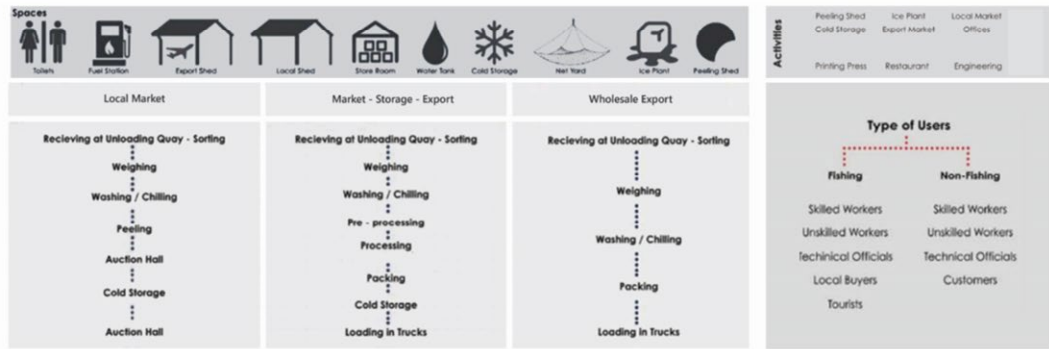
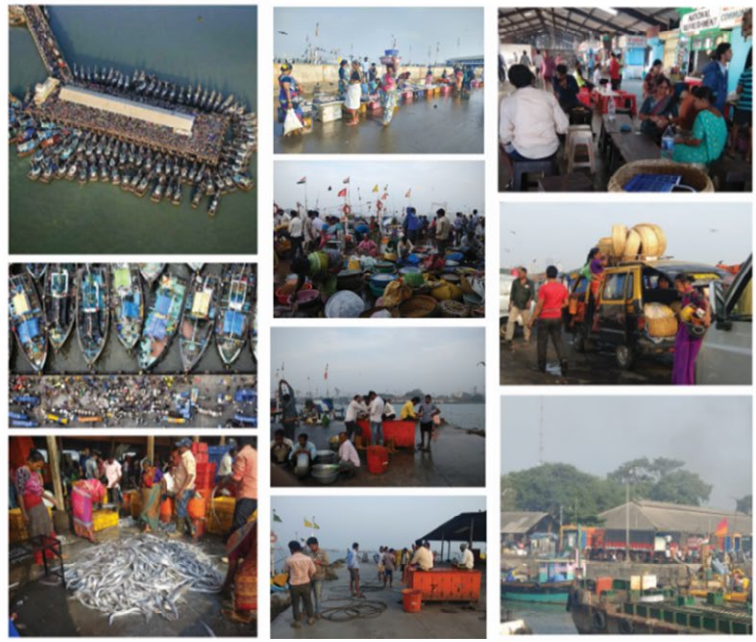
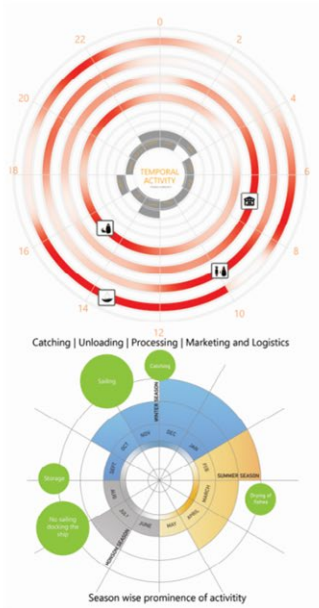
Commercial activities including that of the market are active till the noon time. Also, there is a lot of influx of people commuting to and from this place during day time.

Temporal Activity - Night

Industrial activities are relatively more active during the evening hours with heavy load traffic passing through orange and yellow gates. Public influx is less and affects the allied commercial activities.

Fishing Activities & derivatives





5.5 | S.W.O.T Analysis

Strengths

- Prime location as it is easily accessible from the southern part of the city and has high potential for redevelopment. Its an urban level connect considering its physical location.
- The site is located at the harbour front, with two side edging with the waterbody, critical for the development of the promenade and public realm as posed by the redevelopment vision.
- Adjacency to a public transport in the area, gives the area potential in terms of being a multi-modal hub eastern Fwy, Road connectivity railway connectivity and waterway connectivity and project in such surrounding can cater to this flux.
- The existing fishing market, bhaucha dhakka landing cater to the local as well as wholesale market
- Although near the coastline the, the site has - developable slopes due to the earlier reclamations done while setting up of the industries and dock activities.

Weaknesses

- Inaccessibility to the public owing to its industrial character. Derelict and dilapidated character of the built fabric in and around the site. Less public footfall per unit area. As the user group on the site comprises the bunder services and industrial services, fishermen and visitors.
- Single type, homogeneous land use in the immediate context. Sharing a longer edge with the industrial building in the adjacent context.
- Circulation traffic near the node of orange gate, due to lining up of trucks as the descent down the eastern freeway,
- Conflicting activities in terms of fishing jetty and the ferry wharf. The pungent smell creates unfavorable conditions for the in-transit public
- Safety issues due to the homogeneous nature of commercial and industrial activity which shutdown in the evening hours rendering the area unsafe.
- Security issues due to the proximity of the site to the coastal area with mix of derelict character, making it a prime spot for illegal and terrorist activities

Opportunities

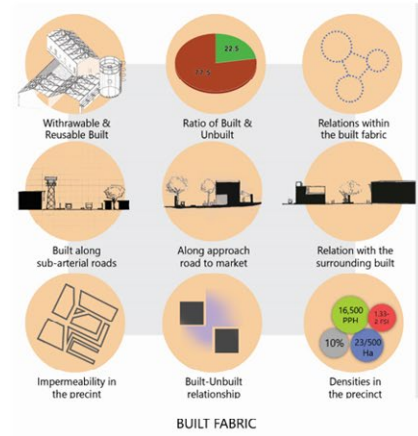
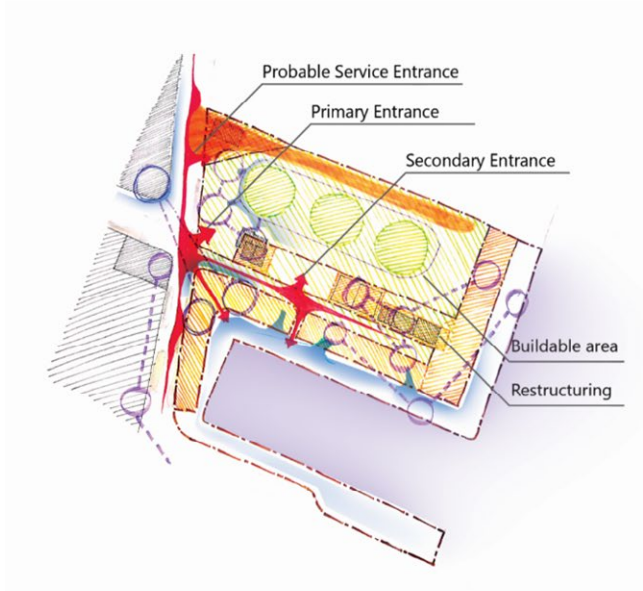
- Rich connect amongst the locals as the site is in proximity to the core residential and commercial areas of the city and is well connected with the local transport. Also, to the visitors and tourists, as the wharf facilitates ferries to the tourist activities.
- In the larger context of redevelopment and opening up of eastern waterfront to the public, the project can align with the considerations for socio-cultural activities, tapping tourism potential, boosting local economy and creating an active public realm.
- The programme and architectural response to the site can be designed in ways that it can mutually benefit the surrounding land use, transformatively in both the existing and projected scenarios
- Less dense fabric of the site with dominance of oil depots allows for ease in development of the site, as it offers the needed space.
- Proposed master plan allows for the development of the area for commercial and tourism purposes. Tapping into the tourism and social potential of the area can benefit multiple user groups and can enrich their current conditions.

Threats

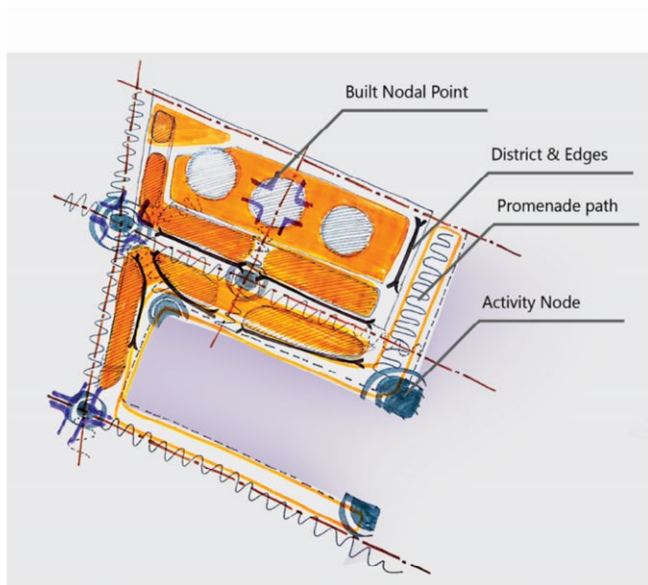
- The existing road network becomes a constraint. Circulation traffic near the node of the orange gate. Schools, offices and housing for the industrial workers needs to be relocated.
- Limited mix of people in the area makes it vulnerable for the outside public to access the site. Poor hygiene prevailing at the site makes an undesirable visiting spot.
- Due to the absence of dedicated zones for activities of processing, vehicular parking certain nodes in the area are chaotic. Development near the HTL needs to adhere with the CRZ guideline.
- Adjacent context of the site, BPCL industries cannot develop immediately due to long lease, ie, will take longer time for achieving the desired quality of public space as put forth by the redevelopment vision

5.6 | Synthesis Mapping

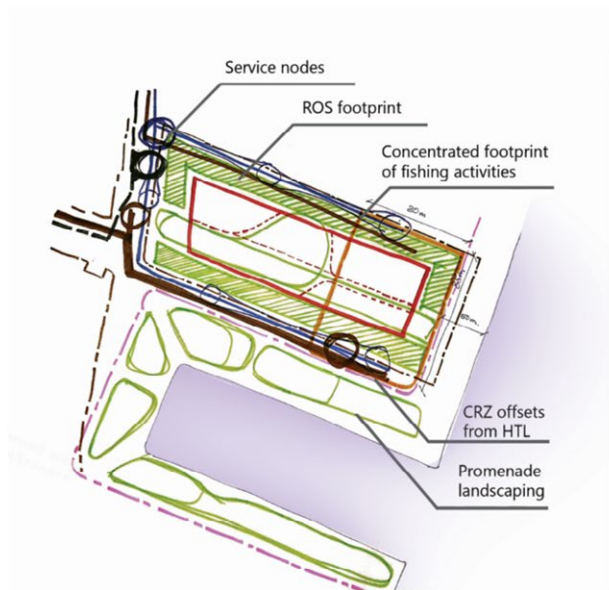
Built Fabric



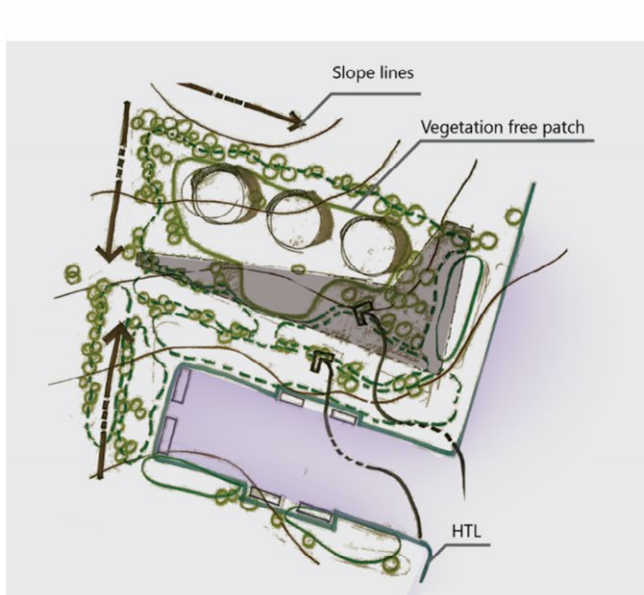
Lynch's Attributes



Development Control



Natural Factors



CHAPTER SIX | CASE STUDIES & INFERENCES

This section contains various case studies that have been undertaken and alongside their inferences have been mentioned. Since there was no direct case study available for such a typology, the project has been broken down into some of the core aspects and then those aspects have been studied in different cases. However, it was made sure that each aspect had enough cases to compare with in terms of dealing with the programme.

The list of topics is covered in this section are as follows -

- Case Study Methodology
- Sydney Fish Market (Literature)
 - ◆ Fish market redevelopment
- Food Port, Louisville (Literature)
 - ◆ Urban Food Hub
- City Centre, kolkata (Live)
 - ◆ Correan Hybrid of a Bazaar
- Manek Chowk, Ahmedabad (Live)
 - ◆ Informality and Temporality in a Marketplace
- Kankaria Lakefront, Ahmedabad (Live)
 - ◆ Socio-cultural Hub
- Shape Grammar
- Overall Inferences

**Text that is emphasised by italics and semibold - are the inferences and highlighted statements.*

6.1 | Case Study Methodology

Overview

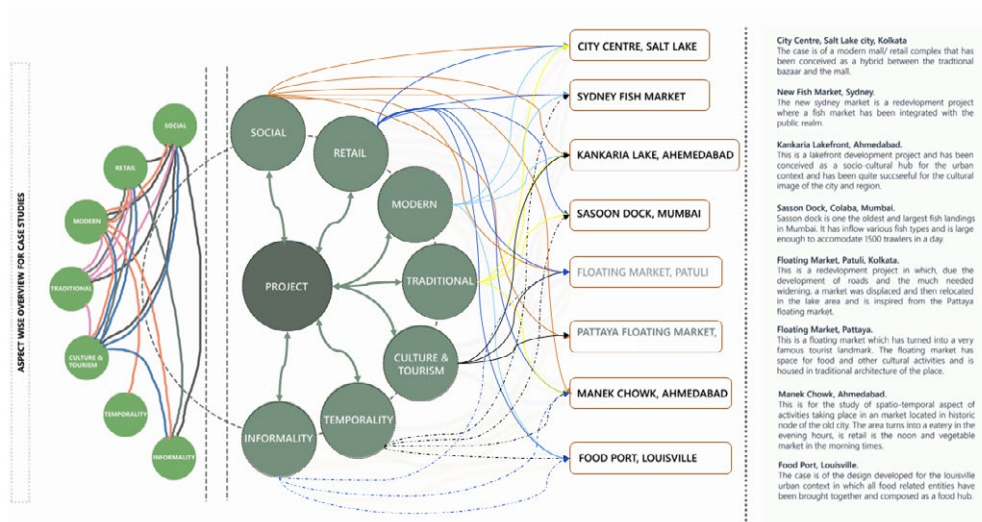
Because there wasn't any direct case study available for such a typology, the project has been broken down into some of the core aspects as that of - Social aspect, retail aspect, cultural aspect, Modernity and traditionality aspect and informality and temporality aspect.

These all aspects have been studied in different cases. However, it was made sure that each aspect had enough cases to compare with in terms of dealing with the programme. And also the design elements were compared qualitatively and shape grammar has been used to translate these elements into the design.

Methodology

Pieces and part method has been opted for the case studies. Different case studies have been taken which have then been studied in purview of aspects shortlisted from the site study.

Apart from pieces and part methodology, design elements and spaces have also been studied qualitatively. Also, an appraisal has been developed for live case studies in purview of their relation with the urban context.



6.2 | Sydney Fish Market / Design by 3XN // Literature Study

Sydney fish market - the fusion of public realm and the harbourside fish market

The project seeks to set in place an exemplary design of integrating the public realm and the contemporary market place that will create a world class food and dining destination on the line harbour that will be dynamic, sustainable and sympathetic to the local community.

Reasons for studying the case?

- Mixed use development for the fish community and local food economy.
- Exemplifying hybrid of public realm & market.
- Redevelopment into an urban public space.



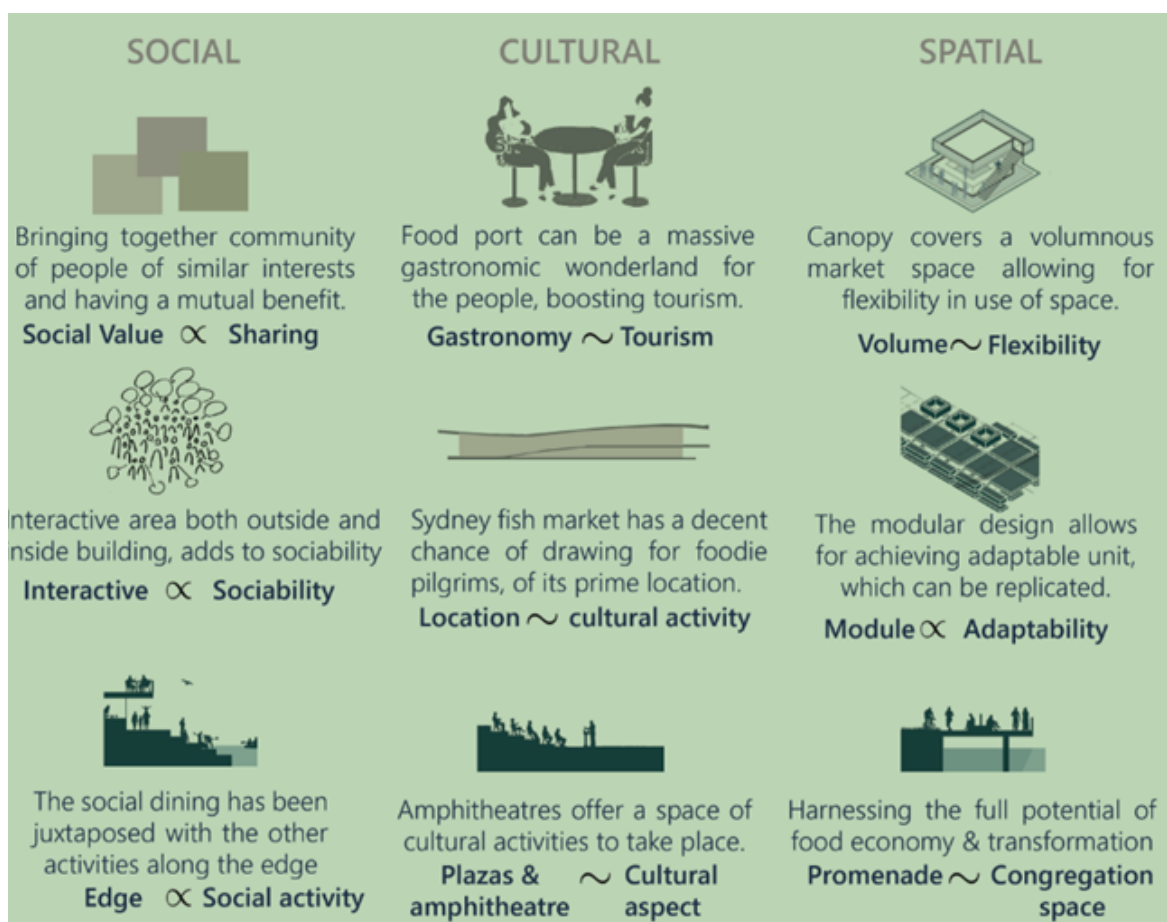
Maximised program for the site, given urban location.



View of the proposal showing public plaza and amphitheatre

The project seeks to set in place an exemplary example of integrating the public realm and contemporary market space that will become a landmark in Sydney's unique harbour-based urban landscape. While markets are traditionally known as open spaces, fish markets are often closed from the public, due to health risks posed by the smell, machinery and processes

Rather than following conventional module, the design provides a strong visual connection to the interior functions, allowing the public an indirect participation in buildings programme



The site of Sydney Fish Market is a 3.6-hectare site at the head of Blackwattle Bay. The design capitalises on the opportunity to link the bay with Wentworth Park to the south, and the entire community with this cultural icon.

While the key operation is predominantly industrial by nature, the ambition is to maintain focus on human scale and fine grain urban Home within the city fabric. Physically separated the operational aspects from the public ones while allowing visual connections between the two.

The ground floor hosts all the functions traditionally associated with fish markets - the landing and loading of fish, the wholesale market, and the auction hall. Semi-open space is populated by rows of vendor stalls. The undulating roof form preserves both the essence of this typology and creates a modern icon for the waterfront

Preserving the authentic market feel is a key objective of this new building. The design excels in its ability to create value for all stakeholders, the fisherman and restaurateurs as well as neighbours & tourists.

Adaptability

Modules allow for interior and exterior spaces to flex, grow and shrink as needs require.

The building becomes a responsive element that changes to meet the current and future needs of the various user groups and stakeholders.

Scale, Experience and Flexibility

A modular framework underpins the functional strategies of the facility and enables representation and ownership of stakeholders and user groups.

This enables spaces and places to overlap, change shape and form, to create new and diverse zones for different operations under the one roof.

Sculptural canopy

The design has been worked w.r.t. the traditional fish market archetype for their design solution with a series of stalls, which are open to the air but sheltered by a large canopy.

The roof triangular openings allow abundant natural light into the building, while their orientation shades the building from the harshest sun. The market has been designed to be as permeable as possible to maximise natural ventilation and minimise the need for air conditioning

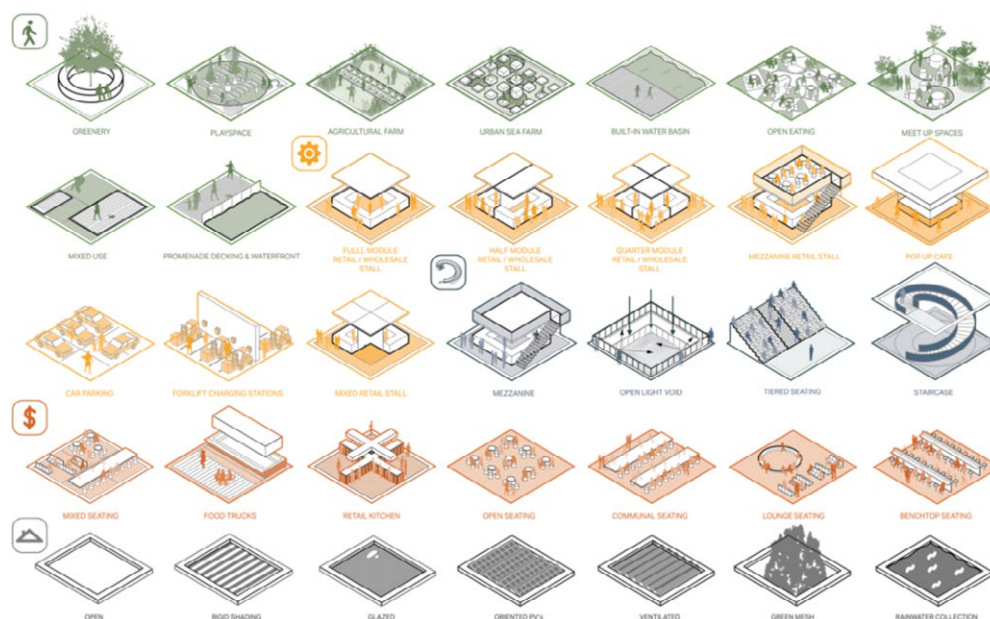
The design utilises the roof geometry for rainwater collection and recycling. With very clearly articulated, and very ambitious, sustainability goals that include a 50-percent reduction in energy consumption, a 50-percent reduction water in consumption, and a 50-percent reduction in waste compared with the existing fish market, this new building has sustainability at its core.

The roof is designed to be permeable and will use the prevailing winds to extract hot air from the building to minimize air-conditioning.

It will also harvest rainwater which will be treated and recycled. and Sustainable strategies to the forefront, combining rainwater harvesting and greywater recycling, biofiltration, mechanical filtration systems.

The stairs also double as seating, creating a public space where people can enjoy their food and the view over the bay. The upper ground house fresh seafood retailers, restaurants and cafés.

The plazas at each end of the fish market allow for informal gathering and contemplative recreation to create more connections between the public and the water.

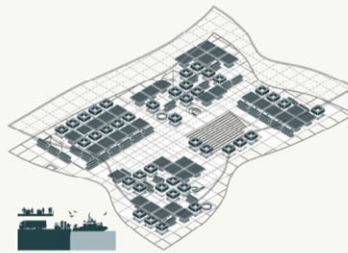


PLANNING STRATEGIES



The site of Sydney Fish Market is a 3.6-hectare site at the head of Blackwattle Bay. The design capitalises on the opportunity to link the bay with Wentworth Park to the south, and the entire community with this cultural icon.

While the key operation is industrial by nature, the ambition is to maintain focus on human scale and fine grain urban form within the city fabric.



Operations



Auctions



External Dining



Pomboms

The ground floor hosts all the functions traditionally associated with fish markets – the landing and loading of fish, the wholesale market, and the auction hall.

Semi-open space is populated by rows of vendor stalls. The undulating roof form preserves both the essence of this typology and creates a modern icon for the waterfront.

Preserving the authentic market feel is a key objective of this new building. The design excels in its ability to create value for all stakeholders – the fisherman and restaurateurs as well as neighbours & tourists.

Adaptability

Modules allows for interior and exterior spaces to flex, grow and shrink as needs require. The building becomes a responsive element that changes to meet the current and future needs of the various user groups and stakeholders.



Boardwalk



Wharf



Raised Deck



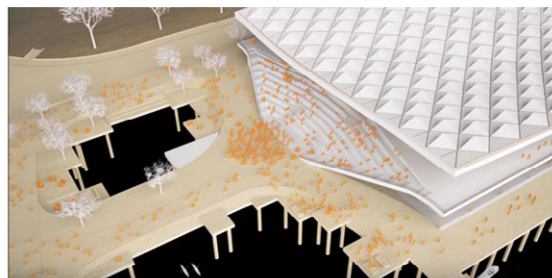
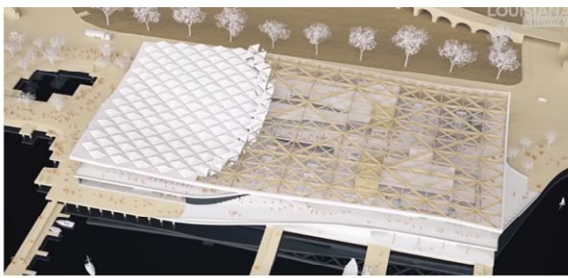
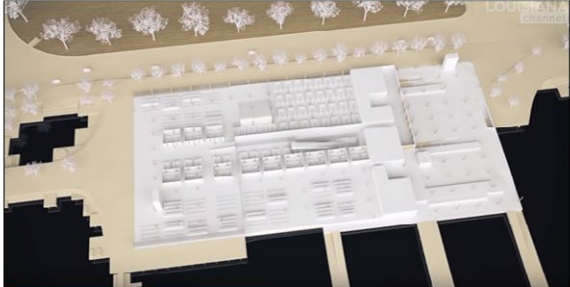
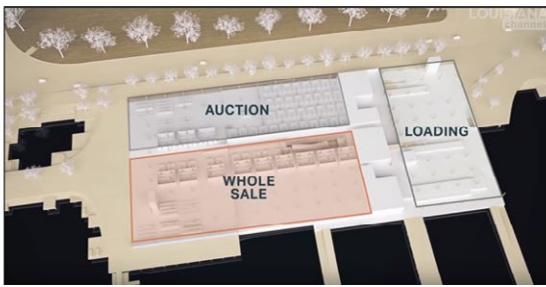
Tiered seats



Tiered seats

Scale, Experience and Flexibility

A modular framework underpins the functional strategies of the facility and enables representation and ownership of stakeholders and user groups which enables spaces and places to overlap, change shape and form, to create new and diverse zones for different operations under the one roof.



6.3 | Food port // Literature Study

Food Port - an active economic and community hub

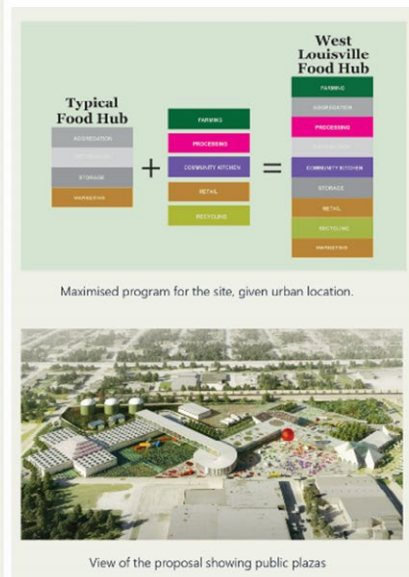
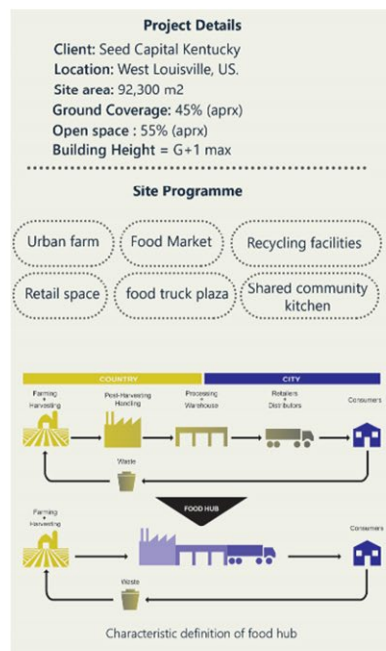
The Food Port acts as a catalyst, exemplifying one of the complex urban relationships between architecture and food. The diversity of the program reflects the full food chain, as well as a new foodscape of public spaces and plazas.¹

FOOD PORT

Active economic & community hub



The Food Port acts as a catalyst, exemplifying one of the complex urban relationships between architecture and food. The diversity of program reflects the full food chain, as well as a new foodscape of public spaces and plazas.



Reasons for studying the case?

- Mixed use development: for the community and the local food economy.
- Exemplifying one the very complex urban relationships
- Urban public space.

A light Industrial gastronomic hub

The local food movement demonstrates the individual and commercial consumer demand to change the relationship, but the scale of most local businesses and their distribution networks makes it difficult.

¹ OMA masterplans a food port in west louisville, kentucky by OMA ArchiExpo. (n.d.). Retrieved February, from <https://projects.archiexpo.com/project-21140.html>

Food hubs have the potential to alleviate this bottleneck of inefficiency by consolidating supplies into shared facilities for localities and locating them strategically within cities

It defines a new model for how the relationship between consumer and producer can be defined & addresses uncaptured market demand & inefficiencies within the local food industry



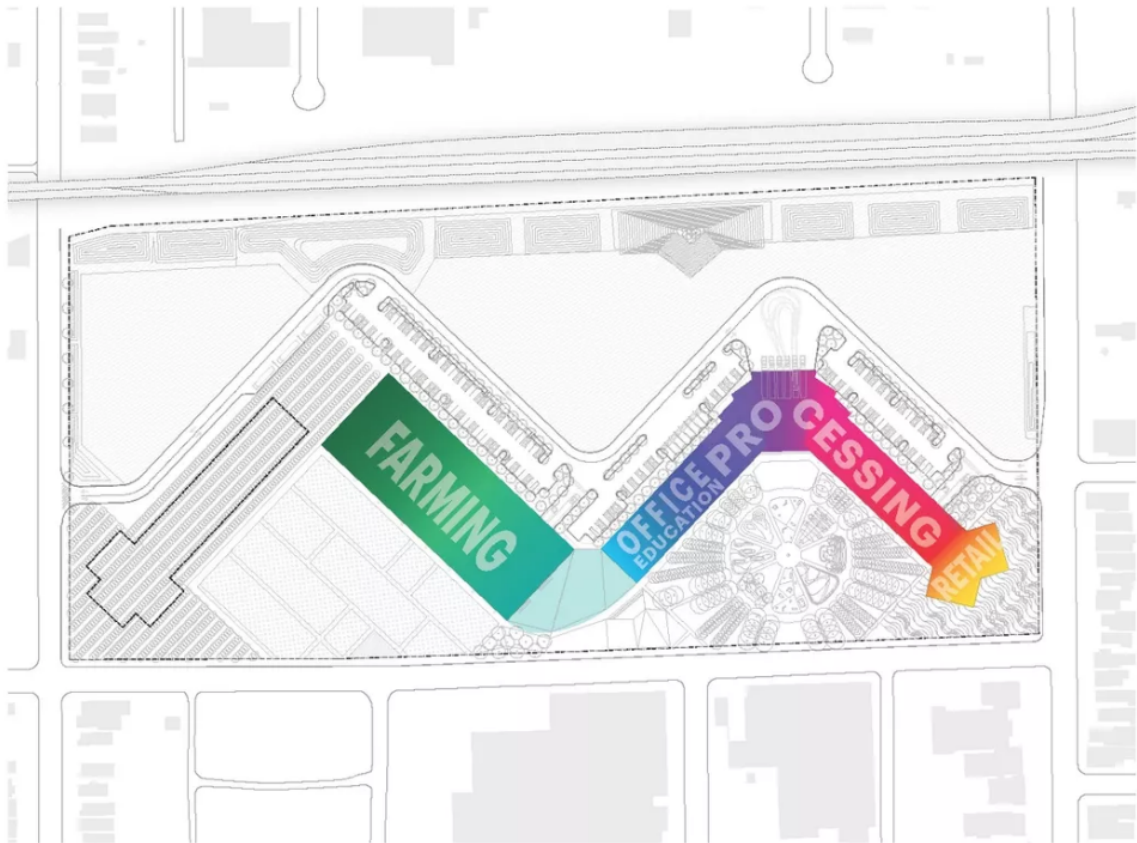
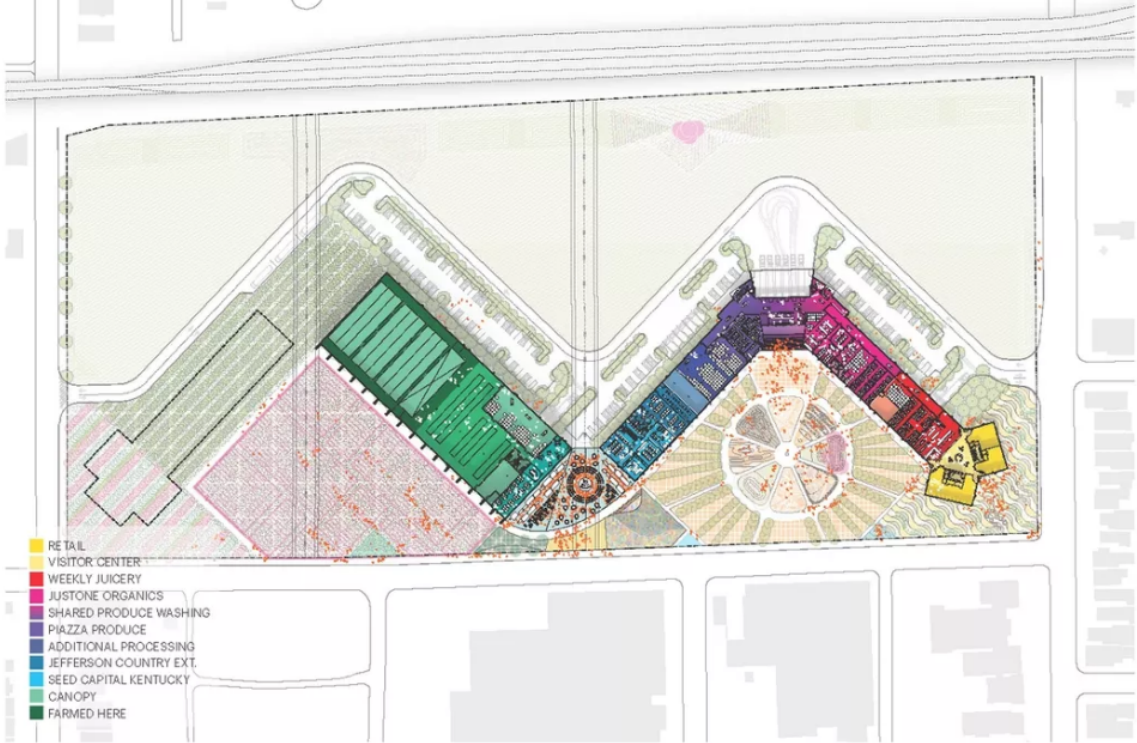
Mixed Use development

FoodPort is more like a mixed-use development than a conventional food hub. Most hubs' single entities are businesses or organizations, while the FoodPort focuses on co-locating existing businesses that are symbiotically related.²

² Gan, V. (2015, March 17). Kentucky's West Louisville FoodPort Represents a New Generation of Food Hubs. Retrieved from <https://www.bloomberg.com/news/articles/2015-03-17/kentucky-s-west-louisville-foodport-represent-s-a-new-generation-of-food-hubs>



Level 1



Composition

Market Square - where farmers can sell fresh produce;

Kitchen Incubator - A kitchen incubator for startup catering wholesale food businesses, giving a chance to "start a business, create permanent jobs."

It will offer budding food businesses a place they can rent to cook or bake for clients, where, entrepreneurs will be able to rent the space by the hour

"If you're a catering business and you don't have enough space to prepare 50 meals, you could rent the space for four hours,

Food Truck Plaza - Food trucks and restaurants moving in to take advantage of the relational benefits in the future,

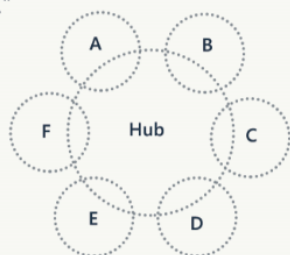
Training Ecosystem - A farming demonstration area and accompanying classrooms, a library and a retail area for food trucks.

Recycling & C2C Facilities - Anaerobic digester to convert the facility organic waste back into usable energy. Considering its wide array of services, the FoodPort is certainly comparable in scale to a school, a hospital.

"food hub" as a business that manages the aggregation, distribution, and marketing of the food products.



"If you **co-locate businesses**, you create a **shared excitement and it sort of feeds on itself**," Farbman says. "Cities are waking up to the idea that food can be part of our identity."



There is a very simply and straight division of the public and service circulation. All the public functions have been placed near the public courts whereas admin and processing functions next to service court. This results in uninterrupted flow of both.



'Light Industrial' is a great thing to do

"If you have a city or philanthropic organization interested in reviving a city, locating 'light industrial' is a great thing to do," Farbman says. Talking about a bunch of jobs, the potential for multiple shifts, but you're also talking about movement of service vehicles.

Economies of small scale

One common thing is creating economies of scale for small and mid-sized enterprises. Individually, these produce enough to reach large regional markets; together, linked by a food hub, they can. Rentals expected supplements culinary training program. "We're going to train individuals in culinary skills, and provide them with a certification used in the industry," Heller said.

Fixed and temporal programming

The Public Courts created give way to a lot of Informal activities as well as temporal markets and exhibitions to be conducted. The setting of these courts hence keep changing and result in an active public space.

The building thereby not only supports but provides a fixed setting to this changing public landscape in front of it. The Public Courts created give way to a lot of Informal activities as well as temporal markets and exhibitions to be conducted.

Speed is Crucial; hence, proximity

Not only are the large container terminals near, but the Food hub will also have access to multiple berths for sea-going vessels especially equipped for refrigerated cargo. "We work with perishable goods, so speed is crucial" stated Hoogsteden.³

Food Hub as the most sustainable location for its plant; to the site proximity to where ingredients arrive at the port. This will allow the manufacturer to minimise road miles.

Advantage of Food Hub is that various shared facilities can be used on the site. For instance, quays and services for transport, storage, access control and customs can be shared efficiently.

³ Gan, V. (2015, March 17). Kentucky's West Louisville FoodPort Represents a New Generation of Food Hubs. Retrieved from <https://www.bloomberg.com/news/articles/2015-03-17/kentucky-s-west-louisville-foodport-represent-s-a-new-generation-of-food-hubs>

6.4 | City Centre, Kolkata // Live Case Study

City Centre - the in between hybrid typology of retail, between bazaar and Mall

A hybrid, a Cultural hub and a Commercial centre at a scale. As a City Centre incorporating the demands for a commercial and Cultural needs of the place.

Reasons for studying the case?

- Architectural mix of traditional bazaar and modern retail.
- Socio-cultural aspect and the mix character
- Climate aspect, Hot and humid climate

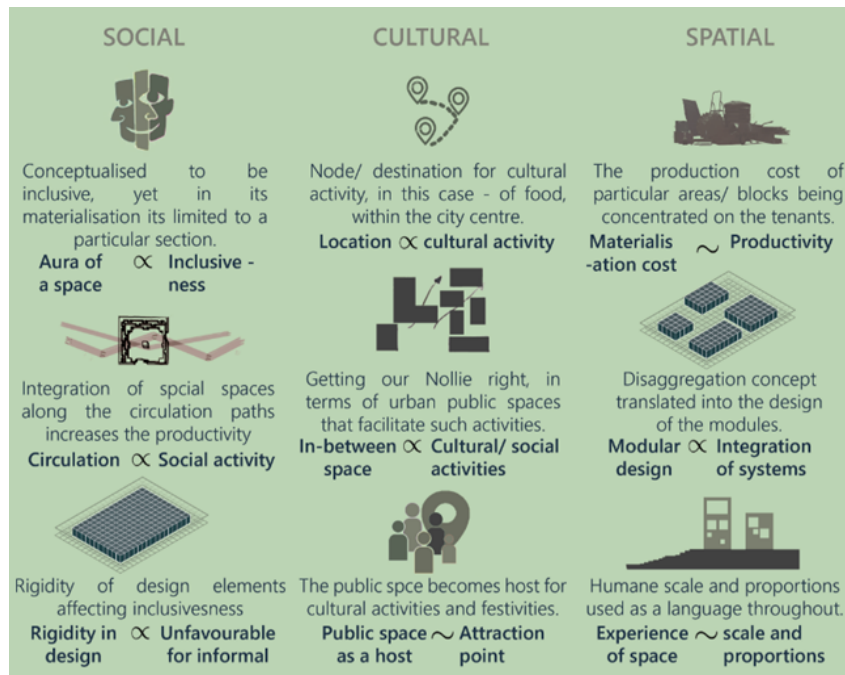


Design Philosophy

- Disaggregation of blocks
- Open to sky spaces
- Plurality in space types

To create a space which can form the node for experiencing commercial, cultural and social activities. Few of the principles given by Charles correa are evidently visible through the open to sky space, breaking up of blocks, plurality in types etc. There has been an effort to create an inclusive environment, but has been limited in terms of giving a posh ambience as that of a mall.

The architect has tried to unify the distinct elements with a strong architectural language and facade scheme. The architectural derivation for humane proportions and scale of the built is evidently seen.



PLANNING STRATEGIES

Street as a binding entity

Street as an activity holder Various activities clubbed by the means of streets and plazas.

Reinterpreting tradition

A typology in between a street market/ Bazaar and a modern idea of a mall. Creation of street oriented shopping experience with a network of corridors and plazas. It is a close knit composition of built and unbuilt. Maintains the essence of indian market/ Bazaar through open clustered planning

Disaggregation commercial blocks

Segregation of activities through levels, define an uninterrupted user-specific moment. Clustered organisation relying on relative spacing - relies on physical proximity within the block.

Permeability

Dissolves the idea of central control by having multiple entries and a highly penetrable environment. Air conditioned spaces are inside, so what greets the visitor is always the embrace of open space and the penetrable built form.

Pivotal elements - Coffee shops, restaurants and eateries are located in pivotal Locations.

Open Spaces

The Kund space is provided on the longer axis of the site to have maximum exposure to the roadside. The kund is attributed to a nodal character as all the streets end up at this point.

Modular space types

Repetitive cellular spaces share common characteristics visual treatment, space and orientation wise, function wise. Different Sizes and shapes varying from the smallest dukaan to large air conditioned boutiques and department stores

Elements of the street

Informal nodes spark interest - the informal cells at the nodes create interest and add to the street character.

- Diffused light into the corridors are covered with pergola with a polycarbonate sheet to get the diffused light.
- Material used for the corridors are as that of a street and not that of a mall
- Trees as comforting images - trees are placed in the corridor to comfort the user and add the character of the street to it.
- Shops open out to the pedestrian spaces that are wide enough to accommodate a crowd but not wide enough to accommodate a large community - a tension that replicated the traditional marketplace

Facade Treatment

Minimalist approach - clean and clear facade without much ornamentation. Mild colours break the monotony. Elevation with many different heights - again breaking the monotony.

Planning of services in the building

The services have been laid out in a distributed fashion with each block behaving as a separate unit. The electrical, fire fighting and plumbing services function as independent services in each block.

HVAC

The HVAC system is not developed as the modern malls as there is a provision of natural ventilation.

Blocks A to D have HVAC provisions till first floor. Vertical segregation in services.

Block F and G have separate units as they function independently.

Block E has split units for the shops which each owner installs in order to take in the conditioned air in the shop.

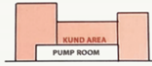
Chiller (room area = 200 sqm) and cooling tower is placed on top 'A' block.

Electrical

There are 3 step down transformers which convert voltage to 220v and 110v and the wires are circuited through cable trays and each block has different metre room installed. Substation area = 300 sqm.

Plumbing

The plumbing system is such that the pump room and purification tanks along with the storage tanks are below the kund area of the mall.



The supply comes from Municipality and is treated and then stored in the tanks. Each block has a OHT from which the water is supplied. Pumping room = 600 sqm

Fire fighting

The fire exists are present in each block and lead to the kund or the outer of the mall, there are 2 fire exits staircase in each block.

The fire fighting water tank is also present under the kund area and has a capacity of 4.5 lac litres.

Structure and Materiality

The column and beam construction has been done in the building complex and the columns have a grid of 8 x 10 m.

The material used for construction is RCC and the roof for lighting has been made using teflon sheets.

Material used for the corridors are as that of a street and not that of a mall.

Visual axis in the building

The built mass has been organised such that there are clear visual axis generated and this gives maximum frontage to the shops on the ground floor and eases pedestrian movement.



Pivotal Nodes in the building

The kund has been seen to act as the centre point of the whole design, all the blocks have staircase leading to this area and it is a hub for various temporal activities, this eases the way finding in the building and the kund functions as the main service area for the whole commercial complex.



Nature and the built form

The semi open and open spaces that have been integrated with the built form have trees and green patches in them and this forms a node for people to sit around the shaded part.



The trees ease ventilation in the building and add aesthetic value to the building.



Street as a binding entity - The in between space between the blocks

Street as an activity holder - Various activities clubbed by the means of streets and plazas.

Informal nodes spark interest - the informal cells at the nodes create interest and add to the street character.



CLIMATE RESPONSIVE FEATURES

Topography: Flat levels, No contours
Climate: Hot and Humid / 12° - 45°
Humidity: max. of 83% and min. of 30%
Wind Direction: South west to North east

Double height spaces allow for maximum natural light and



Double height spaces give a sense of openness and pose as welcoming spaces to the visitors

Varied heights of different blocks help in shading of the inbetween spaces



Built form surrounding the kund shades the inbetween space during afternoon hours as per the sun path on the site.

Shading Devices



Pergolas, Squared urban windows, translucent roof & skylights are different elements that play with the natural light.

Orientation of the building blocks facilitates channelling wind



Openings on Southwest and Southeast direction to facilitate tunnel effect between blocks.

Layout is pivotal to open to sky or courtyards spaces enhancing ventilation



The interlinking corridors facilitate constant air circulation Kund in a southeast direction to have the pleasing sun in the daytime.

Disaggregation of building blocks helps in incorporating greenery



Trees and shrubs in the interior of the mall act as pivotal points to corridors and vistas created and adds to factor of incorporating nature.

Facade Treatment

Minimalist approach - clean and clear facade without much ornamentation.

Mild colours breaks the monotony. Elevation with many different heights - again breaking the monotony.

Lounge and Restaurants

Double height outdoor settings.

The eatries have a connection with the social space - in this case the kund.



The layout of the building around courtyards has enhanced the ventilation in it, the courtyard spaces prove as public spaces as well as perform functions in the natural ventilation of the



There is seamless transition in the built form and unbuilt / open courts. The scales and proportions of the build have been managed very carefully especially in purview of ascend and the descend through a particular space. The play of levels has also contributed to creation of social spaces and strategically designing water tanks under the kund area.

The project is very much successful in terms of creating a commercial and a cultural hub for new activities and making the place a civic destination. But, the lack of strategies for informal commerce adds to its gentrifying quality, absence of movement logic for exposure are factors which could be into design considerations.

6.5 | Manek Chowk, Ahmedabad // Live Case Study

Manek Chowk and the Kinetic urban space

A nodal point for socio-cultural activities centred around food, as served by the informal vendors till 3am late night. An urban artifact characterised by its spatio-temporal nature.

Reasons for studying the case?

- Thriving presence of informal food vendors.
- Exemplary artifact of spatio-temporality.
- Public space of urban significance in the city core.

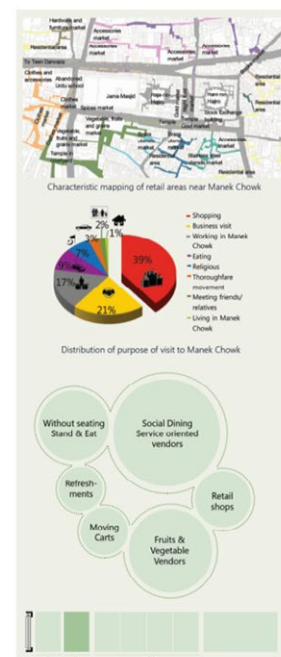
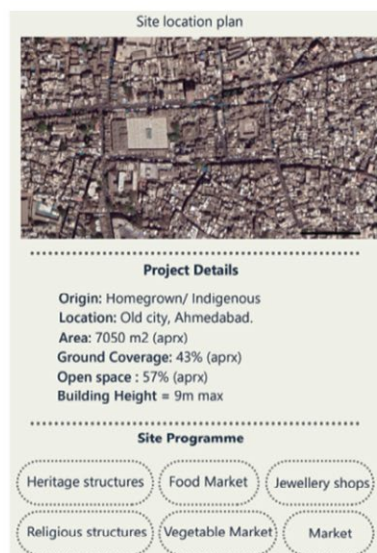
Manek Chowk is an urban public space located in the historic walled city of Ahmedabad. It thrives as a vibrant community space.⁴ It is a vegetable market in the morning, a bullion market in the noon and the street food market at night. Manek chowk late night food idea had come generated because there are many jewelry shops. In day hours it is filled up with the hustle bustle of people hence is a safe place.

It is said that in order to increase the security by accommodating the hustle bustle in late night through a civic and social activity of foodscape, the community encourages this spatio-temporal construct.

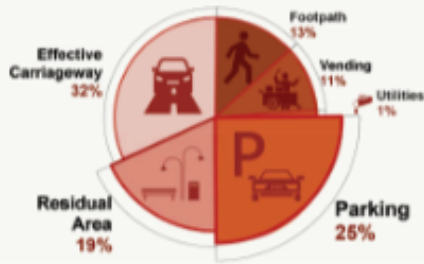
MANEK CHOWK & the Kinetic urban space



A nodal point for socio-cultural activities centred around food, as served by the informal vendors till 3am late night. An urban artifact characterised by its spatio-temporal nature.



⁴ Reimagining Manek Chowk - WRI cities hub



Multi-focus decentralised entity



A Rectangle binding in-between space with mutiple points of focus - having spatial implications as well as, demostrating decentralised system for services.

Creation of an enclosure

Layer of closed shutters of shops and offsetted hoardings, the foreground turns into a background. These elements enclose the huge open space giving it an interior scale.



Organised performance

Constant juxtaposition of activities make it seem like a random jumble of chaotic but, a detailed observation demostrates an organised performance.

A juxtaposition of chrome and glass of new retail and historical background ; seems as new as it is ancient modern yet unchanging.

Unfolding of a space

Vendors start dismantling their wares to make space for the commercial transactions. From just mere mobile storage to a operational unit.



Layered entities

Holds layers of activities from formal markets, informal economic activities, social and religious activities etc. interdependent on one other.

⁶ Thesis study, Sharma N., Role of rituals in transformation of a city and its urban components - Ahmedabad | EMBARQ | WRI India. November 2014.

Street Vending

Commercial activity in Manek Chowk thrives not only because of its formal retail sector, but also due to the presence of informal vending. The vending area here could be classified into the following three types:

1. Floor typology
2. Movable typology
3. Immovable typology

The following text provides a brief description of the three vending typologies present in Manek Chowk -

1 - Floor Typology

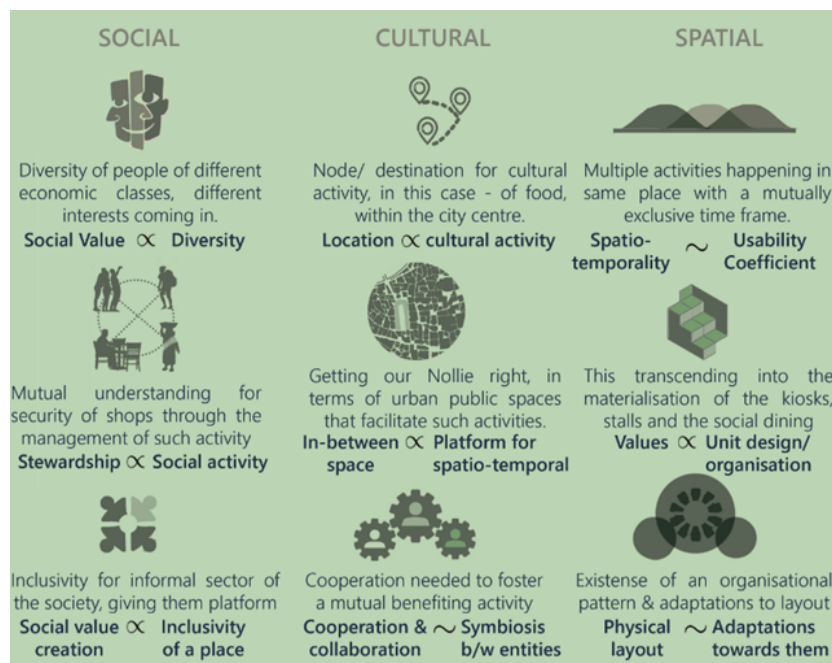
This typology comprises vendors who display their product on ground. The area occupied by this typology is the least when compared to other typologies

2- Movable Typology

Vendors who fall under the movable typology are equipped with a cart. They usually sell various products from degradable to non degradable household items.

3- Immovable Typology

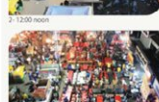
This typology is the most prevalent in Manek Chowk. They are either taken homo or locked/tied to a fixed pole.





The Amorphous space

The trade markets started around 1500s and has G+2/3 floors constructed of Brick and timber.



Being the city centre, the land prices were high and thus the shops have very small frontage.

Ground floor is narrow deep space for profit, while rear is used for storage. A narrow deep layout ensures security.

The upper floors are offices for paperwork.

A typical shop

The trade markets started around 1500s and has G+2/3 floors constructed of Brick and timber.

Each shop has one entry only with dimensions being 19.05 x 2.00 m.

A typical shop has parallel load bearing walls with timber beams.

Optimum x Activity/ pattern process

Density in x Shop fabric exposure

Section A-A', Section B-B', Section C-C'

The width of the chowk is about 30m, which is intervened by the temple buildings and shops.

Manek Bata Temple

Towards Swaminarayan Temple

Site Plan - Manek Chowk

Dynamics of an urban space

- The area is cleaned early in the morning around 6:00 am. Cows and buffalos wander in this area and feed on the organic waste and grass brought by its owner.
- The filled buckets are then kept outside each shop by a common hired helper. These buckets are used throughout the day as the shops are not equipped with wash basins.
- Either side of the central space is flanked by jewelry shops with the central area used for parking by the shopkeepers. They function during the day, i.e. 11:00 am to 6:00 pm.
- Informal vendors line up selling everyday items such as plastic accessories, clothes, and spices.
- In the evening, parking reduces as the shopkeepers head back to their residences and this space is then taken over by food vendors who have designated spaces assigned over the years.
- Electricity is borrowed from the adjoining shops. During the day, carts and equipment are stored near the tomb area behind the shops.
- The line gutters serve as washing areas for the vending carts. The food court functions till 3:00 am in the morning.
- The food vending area spills out beyond this central space to the southern square and also to the area near the northern parking lot. The activities of the day then repeat cyclically.
- It is this multi-ownership and multiplicity of various activities that makes this space kinetic.

The idea of sharing

Manek chowk as an traditional yet contemporary urban square exemplifies the idea of sharing. The sharing here is seen in terms of services, time and space.

Shared services, Shared space, Social dining

The idea of impermanence

With its ever changing forms and positions, the urban space has now transcended the commonly accepted notion of temporality to acquire the notion of permanence.

Idea of organised performance

This urban square is an example of how activities can be organised to mutually benefit to one other and also how different stakeholders can engage in an organised fashion.

6.6 | Kankaria Lakefront, Ahmedabad // Live Case Study

This project envisions a comprehensive lakefront precinct, set in Ahmedabad, which will stand out as a memorable urban space. Creating an inclusive public space; a public place like this has the potential to be the image of the city.

Reasons for studying the case?

- Mixed use development for the community and the urban precinct as a whole.
- Exemplary Urban socio-cultural public space.

KANKARIA LAKEFRONT

& Urban socio-cultural hub



This project envisions a comprehensive lakefront precinct, set in Ahmedabad, which will stand out as a memorable urban space. Creating an inclusive public space; a public place like this has the potential to be the image of the city.

Site location plan



Project Details

Client: Ahmedabad Municipal Corporation
 Location: Maninagar, Ahmedabad.
 Site area: 69,830 m² aprx (promenade)
 Total Precinct: 153 ac (aprx)

Site Programme



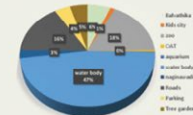
Kankaria Lake is one of the biggest lakes in Ahmedabad, With an approximate circumference of 1.4 miles (2.3 km)

It is a 34 sided polygon having steps which leading down to water level. It is located in the southern part of the city, in Maninagar area.

The lake was officially inaugurated in a week long event known as "Kankaria Carnival". Kankaria Carnival is a week long festival being held here in last week of December. Many cultural, art and social activities are organised during carnival.



Before the lakefront redevelopment



Pie graph showing the area distribution

An urban Socio-cultural hub

Public spaces tend to develop different activities due to involvement of various factors and participation of various stakeholders over a period of time. These activities and functions are related to the immediate needs of those using such spaces.

Values attached to the urban design here lies in recognizing the different systems that worked independently and not as one entity. And to bring it all together to recreate the image of this place.

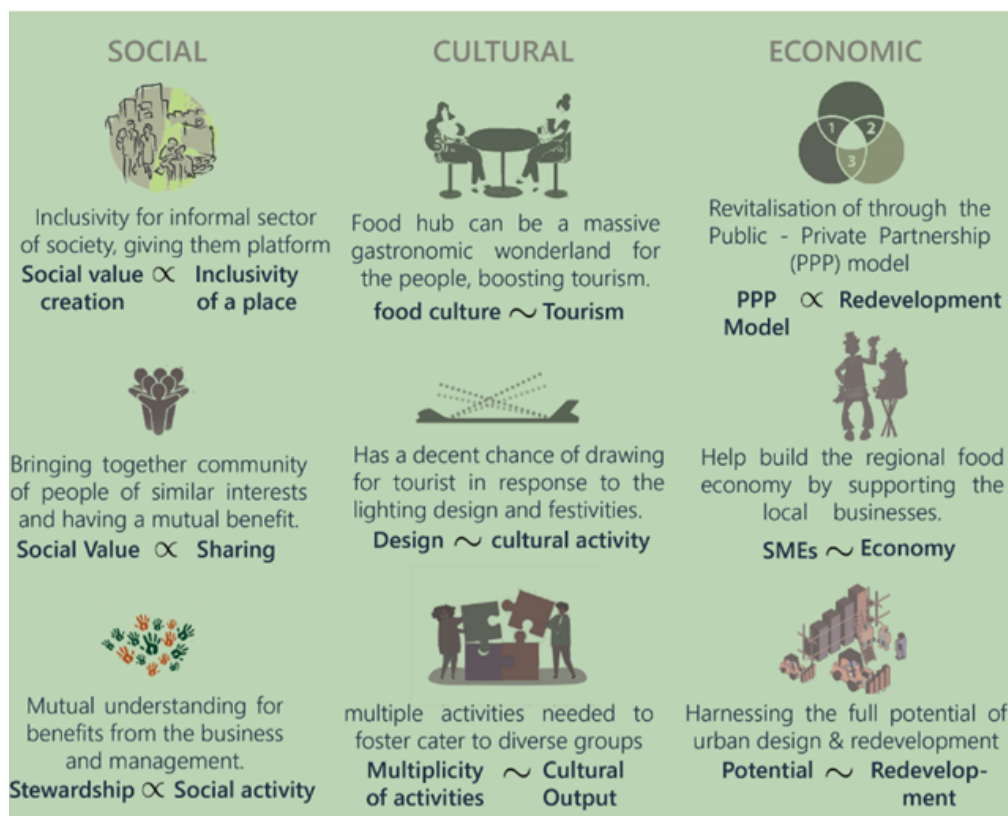
Urban Design here is to understand this notion of place making because of the locally developed cultural environment and by enhancing the experiences of the same using tools of design and management.

PLANNING STRATEGIES

Not selling the same to international brands (Trends of creating global image), Is exemplary towards creating a mutual benefit for the local community and the government.

Tool to enhance Socio-cultural activities. Medium to enhance the socio cultural value of the place, in this case by providing and boosting morale of Local vendors by upgrading facilities for them and giving them access to the public.

features - Landmarks and food plazas are created according to the nodes developed in the area. Landscape and street furniture becomes important features, defining spaces. User friendly edge conditions become an important feature, be it the low height boundary ramps for accessibility.




PLANNING STRATEGIES

Tool to enhance Socio-cultural activities

Medium to enhance the socio cultural value of the place, in this case by providing and boosting moral of Local vendors by upgrading facilities for them and giving them access to public

Not selling the same to international brands (Trends of creating global image): is exemplary towards creating a mutual benefit for locals community and the government.

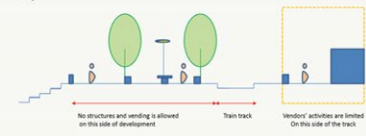


Area of intervention of the redevelopment

Urban Design controls

Urban design controls establish a control for possibilities intervention by limiting the recreational facilities in an organised way.


The planning is simple with a designed section, circumscribing the lake - with the tertiary zone with varied uses in terms of activity.



No structures and vending is allowed on this side of development

Train track

Vendors' activities are limited on this side of the track



Activities related to immediate needs of those using spaces

Contextual factors and start developing patterns

Becomes culture when its accepted & practised by many

Urban design as a tool enhancing the culture

Inclusive for multiple stakeholders

Attractions for children are amusement parks, watersports.

Elderly people use it for morning walk, yoga and recreational activities.

For cultural exposure for Haats and vending activities.

Themed approach

The way the spaces are 'themed' in purview of various age groups coming to the public space.

Also these themed places add to the diversity within the activities affecting the time and economic activity.

Eateries and restaurants associated with the area, Ex, Balcon 7 & Forest theme.



Space for temporary expositions

Influence zones of 3 performance spaces

Performance spaces have been taken care of by considerations of influence zone and the services areas.

BALVATHEKA
Activities happening here
• restaurants
• a hotel, houses
• playground
• publicly display
• vendors shops
• minor houses
• toy house and playground
• Balcon

Area of the site 20.2 x 4 meters

AKHILABANDU EYE
Activities happening here
• restaurants
• tethered balloons
• heritage zones
• DFO restaurant
• Minor shops
• Archery
• Mini golf
• Desert safari
• Rain Water restaurant
• Rock climbing
• Tree adventure
• Hot Balcon restaurant


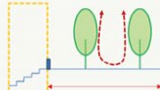
Area of the site 60.00 meters

Design principles

The entire lakefront is designed in simple circular rings of following elements : Pathway, trees, Cycle track, train track, street furnitures like lamp posts, benches and dust-bins, informal activity zones like food plaza, and other recreational activities.

Serial Vision is generated by placing different activities and also by enhancing the entrance points to various existing facilities.

Sense of Enclosure is created majorly by trees and street furnitures on the pathway due to lack of any substantial buildings.

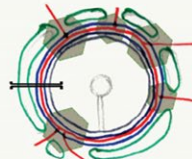



Design features

Landmarks and food plazas are created according to the nodes developed in the area.


Landscape and street furniture becomes important features, defining spaces.

User friendly edge conditions become an important feature, be it the low height boundary or the ramps for accessibility.



Signages

The Lakefront is strategically designed with signages at regular intervals helping both the flows from both inside and from outside.



Amenities

Service points with toilets, drinking water etc. are provided at regular intervals and entrance nodes. Planning of service points wrt distance and nodes.

Seating & Shelter

The stone benches get heated up during the day and is critical during the summer times & rainy season. shading measures are needed.



Edge Conditions

The design measures for differently abled and developed a nice seamless edge b/w paths and entrance, the lake and the promenade.

Culture of Art

From wall paintings to stone murals art has become an inherent culture of this place. Different events promoting the same are conducted.




6.7 | Shape Grammar

As an analytical Tool

The shape grammar method is used for the analysis and synthesis of a design or space type in a particular context. In the analysis part, the shape grammar method is used to extract basic compositional principles of the hayat house.

Space Type >> Modules >> Relations >> Volume

SHAPE GRAMMER

Shape grammar is a tool in which the spaces from different cases are compared in terms of modules, relations and crude volumes.

These volume can then be incorporated for initial stages of design by being considerate to relations as derived from the study.

Social Spaces

Social spaces like the social dining of Manek Chowk, the social aspect of circulation paths of sydney fish market and the rooftop spaces generated for social activities is shown. The linkages of the space with architectural design elements has been shown in the relation tab.

Design Features

Design elements like the traditional setting developed in a space in between two historic surfaces; Adaptive use of the shops tains and shop gates for temporal storage; the structural canopy of the sydney fish market has been shown.

From and to context

The highlighted design elements shown are either informed by the context or the context is defined by the presence of these elements.

Relation with size

Larger stores containing many number of retail units constitute an anchor store and can be treated as a block in itself. And Similarly aggregation of smaller informal vendors can create similar experience given the design allows them to stitch the space together.

Relation with Allied activities

The proximity and the orientation of all the commercial units is affected by its allied activities.

These activities hold a promise of the influx to the area and hence are mutually dependent on each other. Such type of relations translate into the clustering of commercial activities and developing retail districts in the design.

Commercial Units

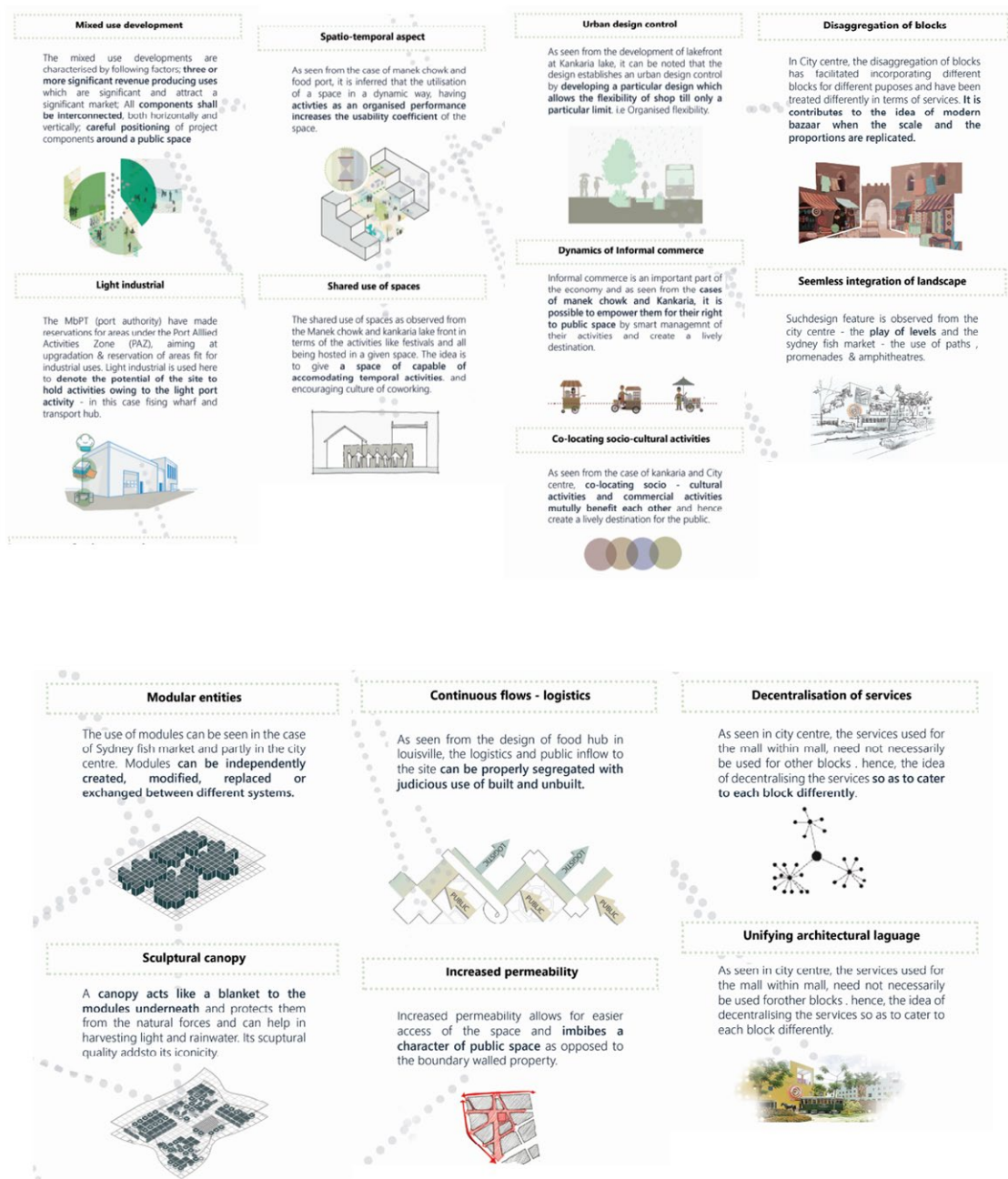
Different types of commercial units have been studied from anchor store to the informal commerce and their relations with other space types has been explored.

These linkages shall contribute in design development of commercial units for the project.

Relation with paths

The circulation paths and the exposure of the commercial units to them is an essential linkages that shall be maximised in market areas.

6.8 | Overall Inferences



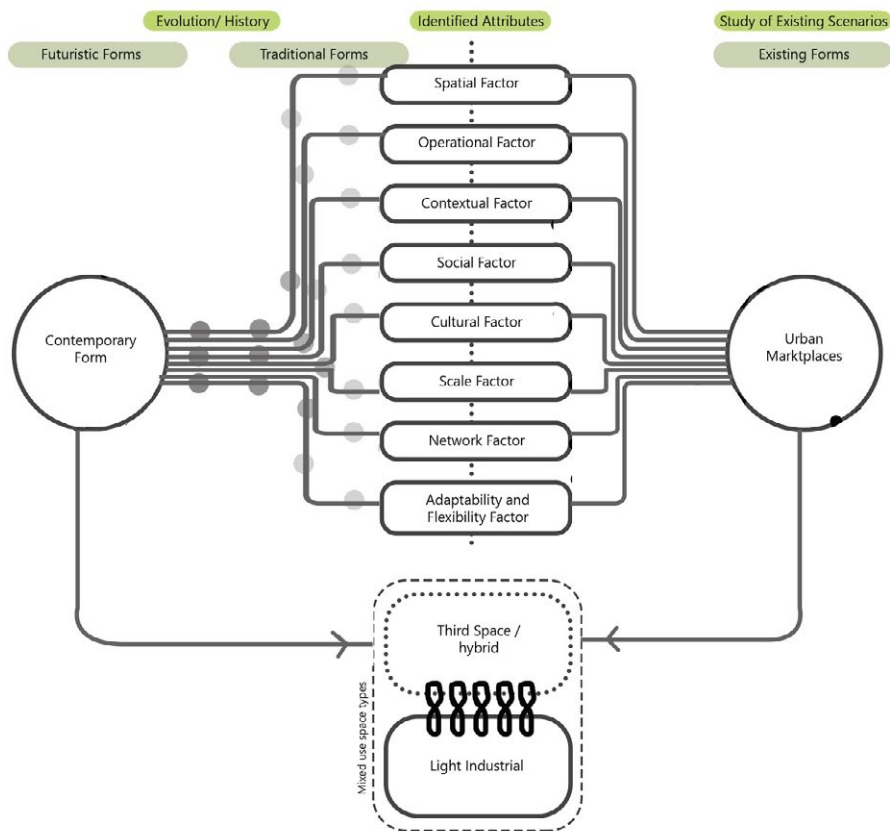
CHAPTER SEVEN | DETERMINANTS & DIRECTION

This section talks about the design determinants that have ultimately influenced the design. Basically, these are the conceptual elements around which the design revolves and have been translated into it.

- Mixed use typology
- Third space and hybridity
- Fixed and temporal programming
- Sharing Economy
 - ◆ Shared use of space
 - ◆ Sharing infrastructure
- Porous and permeable public realm
- Urban Insertion - Waterfront scenario

**Text that is emphasised by italics and semibold - are the inferences and highlighted statements.*

7.1 | Mixed use typology -Light industrial mixed use



A new Market Experience at the convergence of trends - People are looking for a place to meet, interact, and engage and search even in grocery stores everywhere. The traditional supermarkets are continuing to grow in ways to make shopping more multidimensional. The traditional shops are diversifying their programmes. In today's markets, people meet, shop, cook, socialize and learn progressively at local hubs. Many of the latest hybrid spaces "change our perspective in viewing urban marketplaces."

Mixed-use development combines the physical and functional aspects of a residential, commercial, cultural, institutional, and industrial environment. Using limited amounts of urban land wisely is a challenge and often fraught with controversy with many competing interests to balance.

Light Industrial allows for low-impact processing and R&D units. Idea would be to expand the possibilities by creating a new zone for the waterfront "Light Industrial Mixed Use."

7.2 | Fixed and temporal programming

Here, the architecture shall be represented in terms of public buildings which are of mixed use character. Where social inclusion and cultural reflection with their spatio-temporalities become the identity of these spaces, outweighing the notion of the gentrified urban.

The programme contains a mix of food-related activities such as incubation kitchens, Culinary schools, restaurants, wet food markets, gastro gallery etc. The temporal programming for the informal vendors and fixed programming for other forms of SMEs will help in giving a unique experience, alongside, facilitating both informal vendors and micro businesses.

So to translate the design aspect or to deal with spatio-temporality was to do it with the help of fixed and temporal programming. The fixed programming dictates the way one deals with the built fabric. Not only does this built fabric satisfy the functional requirements of the programme but it can also shape the construct of spaces that support the temporal activities. It varies from the scale of the built to the scale of urban furniture; If these elements are designed with these concepts in mind - then the design becomes cohesive in what it is trying to address.

Both these concepts are interdependent and have a continuous to and fro thought, in sorting the programme as to which concept will cater to which function. In this thesis, the fixed programming has been used in the form development, in design phasing (in order to understand the practical side it - as too how the project can be executed). So even before stitching together the built parts these buildings also have to work independently and that is the design challenge. And this was the rationale behind the physical makeup of the built as seen in the design.

Why create permanent solutions for things that are impermanent? (A question by Rahul Malhotra, Ephemeral Urbanism) and when we ask this question with respect to market activities that are temporal - be it the fishing auction or be it the farmers markets. One can start asking the question - how can we create impermanent solutions that support these activities? or maybe even support multiple activities? Also to note, these impermanent solutions can be of different scales - be it urban furniture or be it built spaces that morph. The thesis tries to address the functional requirements with a similar thought.

7.3 | Sharing Economy

The “sharing economy” is the ongoing evolution of economy and the transformation of social and physical fabric in such a scenario of ‘sharing assets’. This installs a new behaviour in public domain, to no longer own an asset but to pay for the rental service of that asset.

Architecturally, the companies give a ‘status’ to commodities. This has transcended into the physical environment, resulting into the spaces like coworking spaces and makerspaces and places of collaboration. Designers design with sharing economy in mind - with product designers designing products, for shareability amongst diverse groups whereas the architects modulate design of spaces for collaboration.

Also, the narrative of ‘sharing’, fits into a transitory move towards the efficient use of resources. An architectural enquiry into such an evolving economic landscape can enable envisioning ‘design for sharing economy’. What would it be like to design for the ‘sharing economy’? How do they interact or inform one another?

Designing for sharing is crucial for designers. The purpose of this would be to encourage shareability, a broader type of attributes to enhance its performance. Defined as - a set of initiatives that increases the availability and the efficiency of sub utilised resources in the society by organising the peer to peer exchanges.

By combining environmental concern of resourcefulness of a particular system and its socio-economic opportunities, the sharing economy holds a greater promise in terms of shared value creation, in turn addressing sustainability factors.

Typological categorisation in SE

- *Shared infrastructure providers (Service driven)*
- *Commoners (Community driven)*
- *Mission driven platforms (Sustainability driven)*
- *Matchmakers (Competition driven)*

By combining environmental concern of resourcefulness of a particular system and its socio-economic opportunities, the sharing economy holds a greater promise in terms of shared value creation, in turn addressing sustainability factors. Such consumption can be seen as a competitive alternative to inefficient traditional economies.

7.4 | Porous and permeable public realm

As seen from the site study there is a need for the place to be permeable and porous. And that also aligns with the vision for the redevelopment scenario where the major focus is on engaging the public with waterfront activities. So instead of creating buildings with boundary walls the concept of porosity needs to be taken into consideration while designing for an urban space.

This concept of porosity/permeability in built form implies that the building has no front side or a back side, hence special care has to be taken to in the design of elevation of built blocks, the servicing areas need to be concentrated in the centre of the building through numerous cores that are connected with each level. This also has an effect on the security, as the number of access points increase. But these scenarios can be dealt by smartly orchestrating pathways for different kinds of people.

7.5 | Urban Insertion - Waterfront scenario

The project would be a small part of the larger urban redevelopment of the eastern waterfront of Mumbai. The design on this part of the waterfront has to be sound with development around the site also - for which surrounding programmes were understood and edge conditions were developed accordingly. The idea is to create a seamless transition to other parts of urban development.

One of the effects in fulfilling this criteria, influenced the design of the wholesale auction area where despite the ability to create a market shed, a network of semi covered areas has been developed by creating overhead pathways/bridges. This allowed a different activity on lower levels and other activities on the upper level.

And also the aspect of porosity/permeability aligns with this criteria of creating an integrated landscape in the waterfront area.

CHAPTER EIGHT | CONCEPTUAL DESIGN

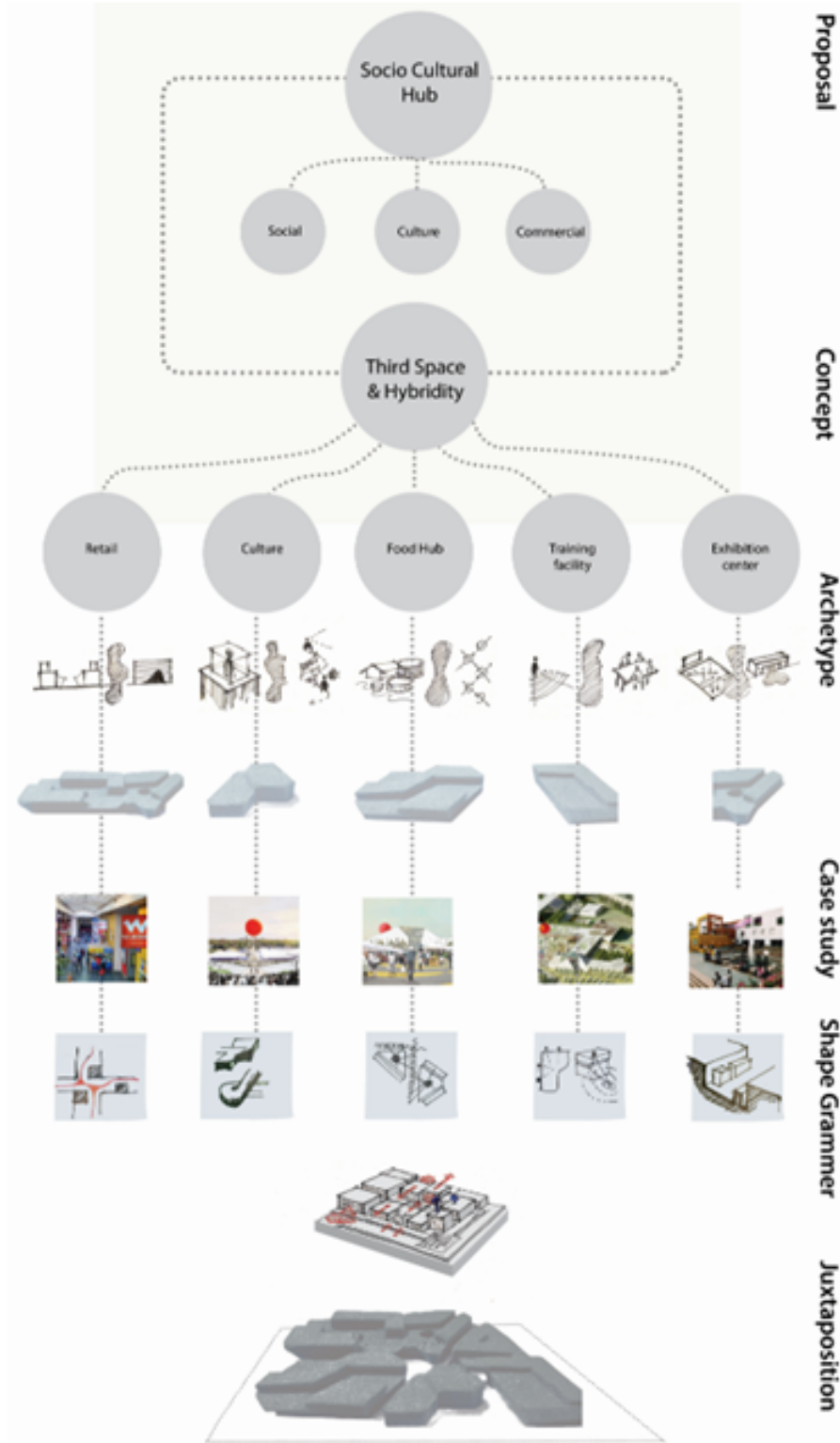
This section of the report contains the sketches and concepts that were later translated and inculcated in the final design.

- Locating the concept in theory
 - ◆ Third space and Hybridity
 - ◆ Sharing Economy
- Site Planning
 - ◆ Zoning
 - ◆ Block wise approach
- Fixed Programming
 - ◆ Form development
 - ◆ Design phasing
- Temporal Programming
 - ◆ Informal Vending
 - ◆ Vending types
 - ◆ Time wise activities

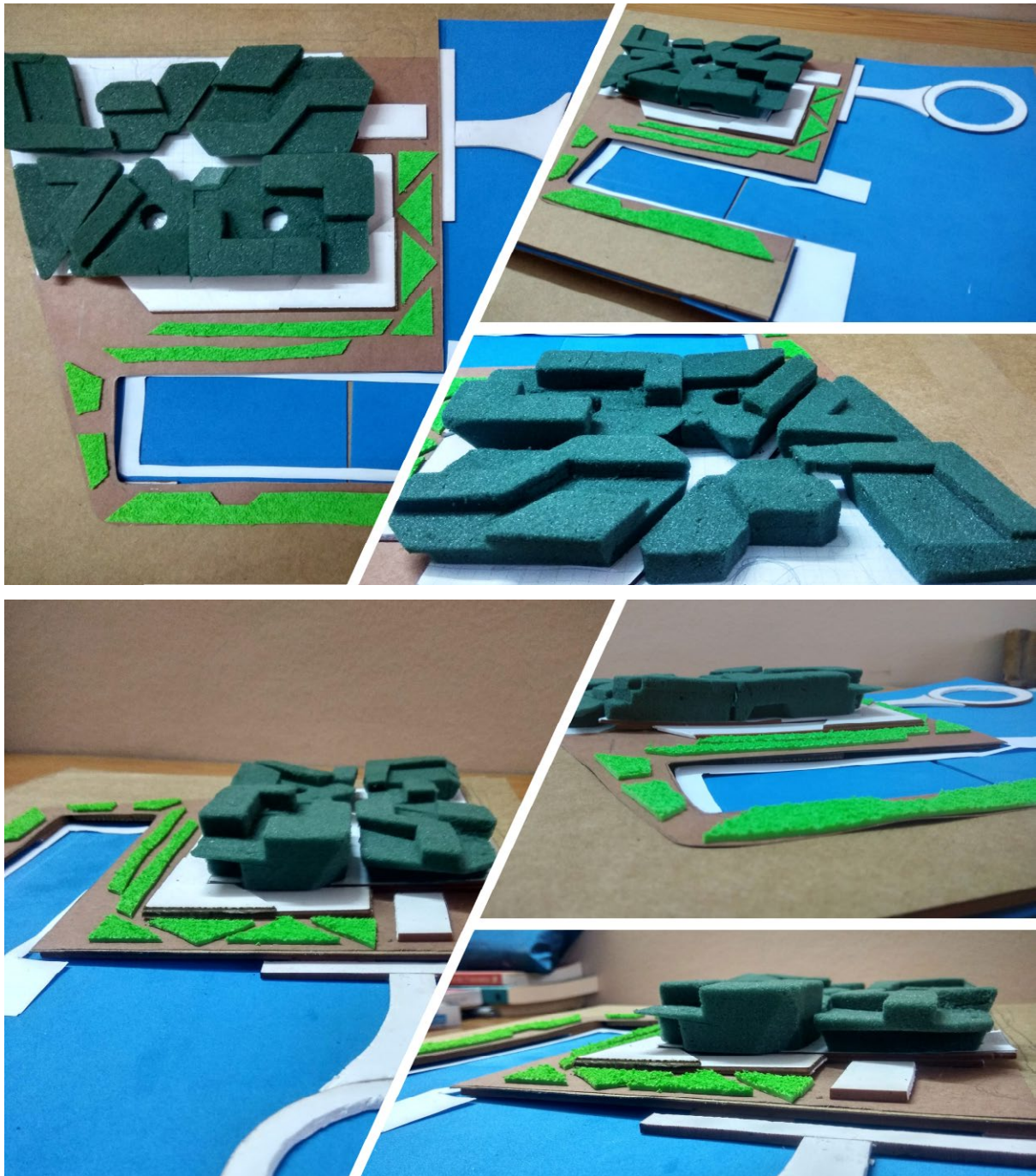
**Text that is emphasised by italics and semibold - are the inferences and highlighted statements.*

8.1 | Locating the concept in theory



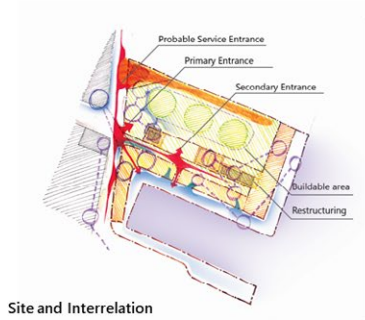
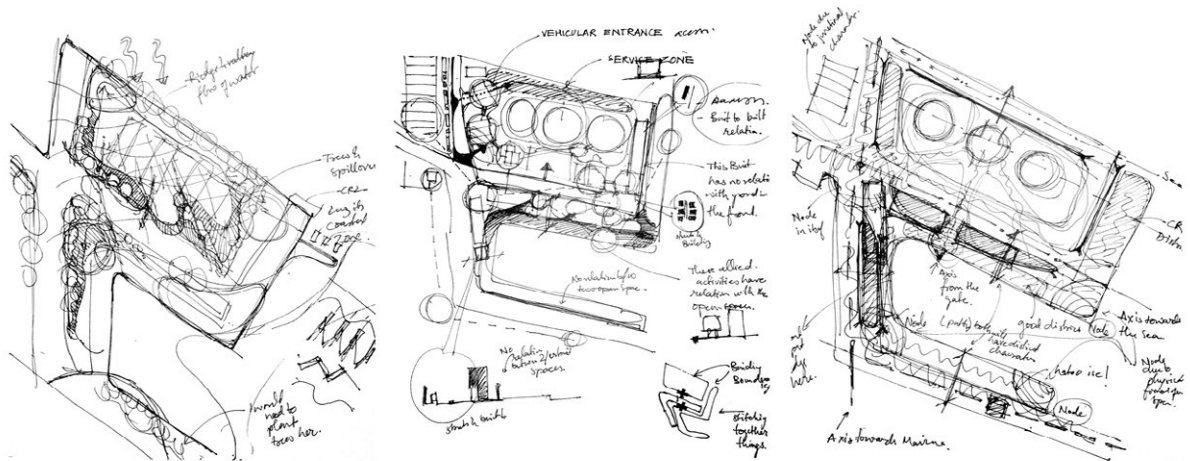


Firstly, the programme was devised properly with the requirements of each of the aspects. Then the programme was simplified by clustering similar functional spaces together. The conceptualisation of the blocks was done by hybridising their respective tensions of archetypes. An inbetween of those archetypes is sought after and have tried to achieve that through their programme and design.

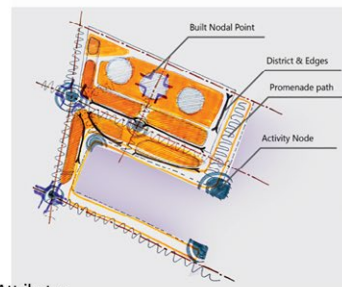


8.2 | Site planning

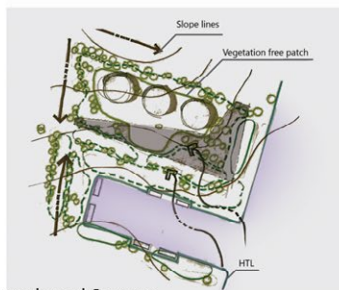
Overall site plan



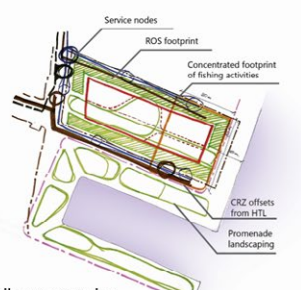
Site and Interrelation



Lynch's Attributes

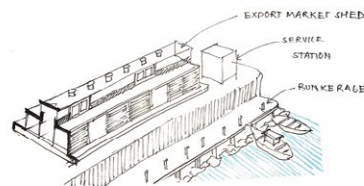
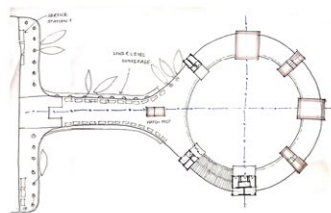
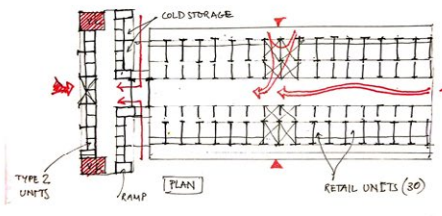
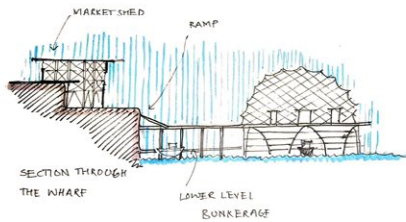
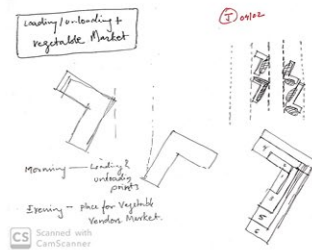
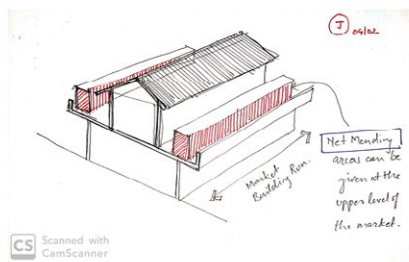
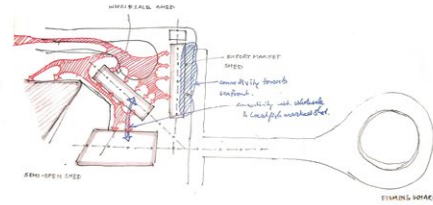
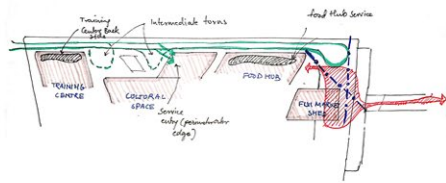


Vegetation and Contours



Built - unbuilt programming

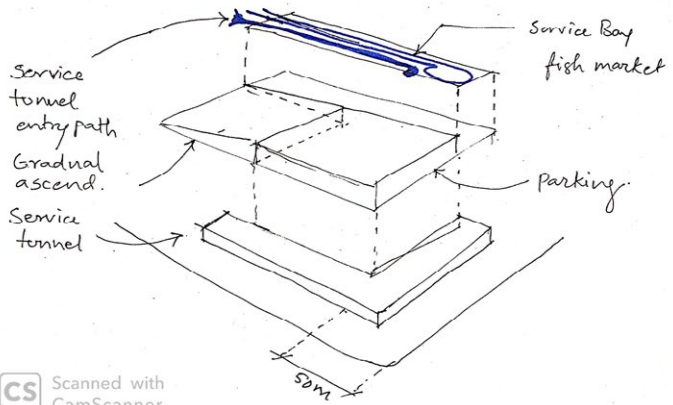
Fish Market



RELATIONSHIP (PROCESSING UNIT)

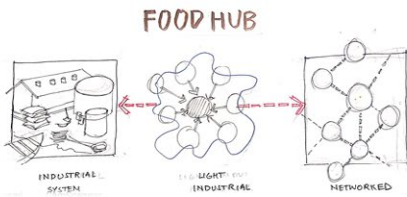


RELATIONSHIP DIAGRAM (RISH HAKAR)



CS Scanned with CamScanner

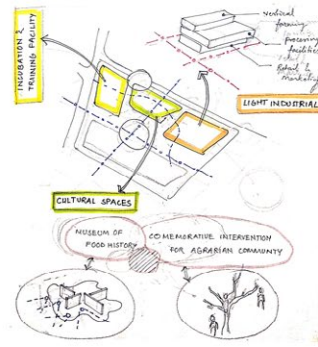
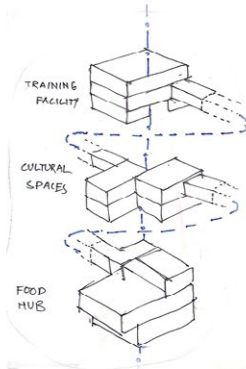
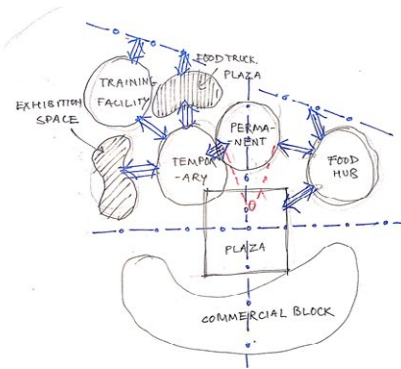
Food Hub

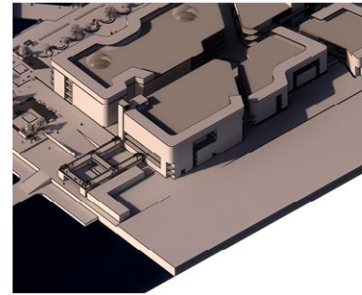
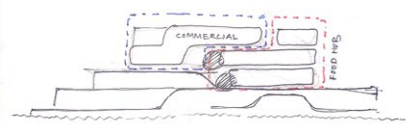
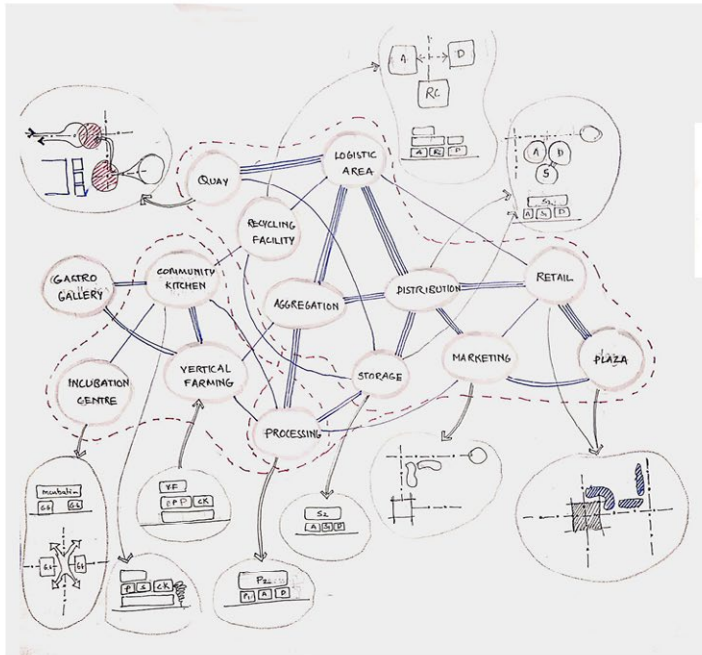


CO-LOCATING ALLIED ACTIVITIES

- ↳ LIGHT INDUSTRIAL - Small scale processing and handling units.
- ↳ INNOVATORS & CATALYST - incubation kitchens for startups & cultural spaces as catalyst.
- ↳ RETAIL & MARKETING - Retail units & marketing support for businesses.
- ↳ RECREATING FACILITY & URBAN FARMING - recycling facilities & urban farming demonstration areas.

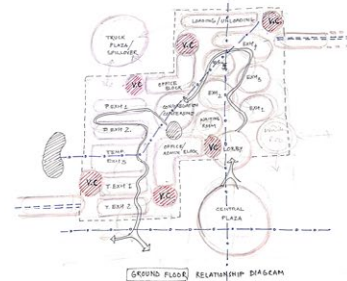
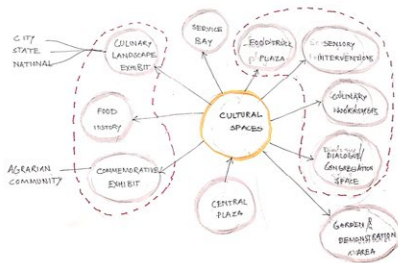
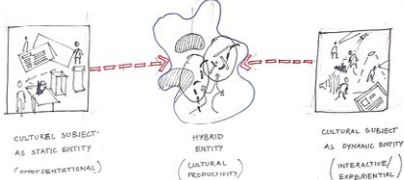
PROGRAMMING THEM AS HYBRID/THIRD SPACES



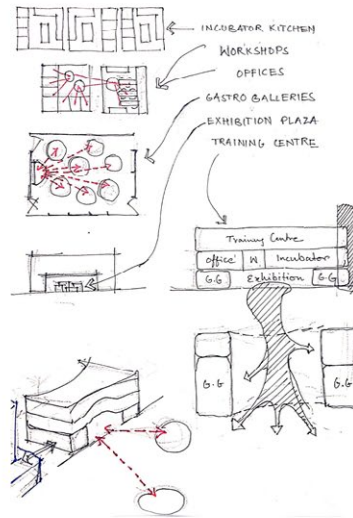
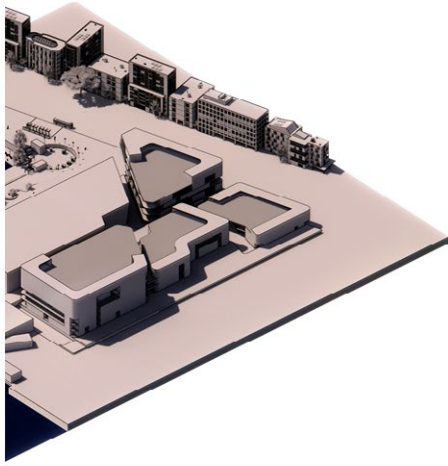


Cultural Spaces

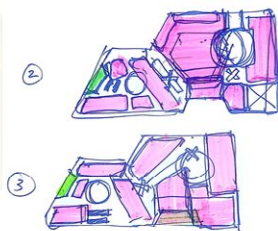
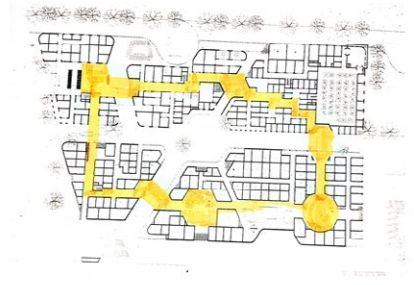
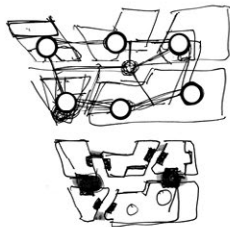
CULTURAL SPACES



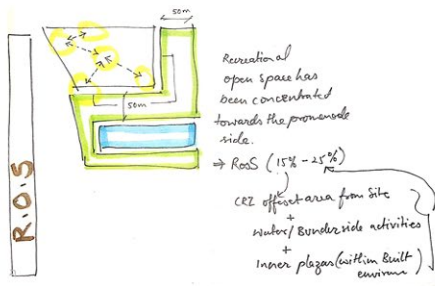
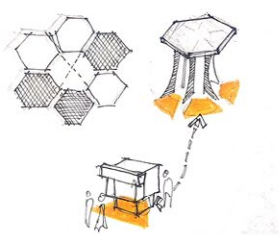
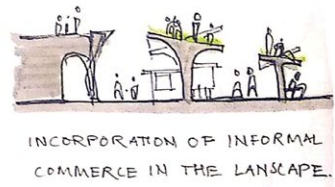
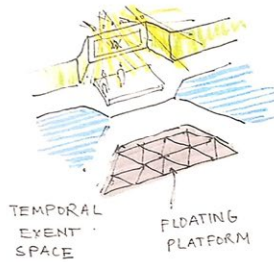
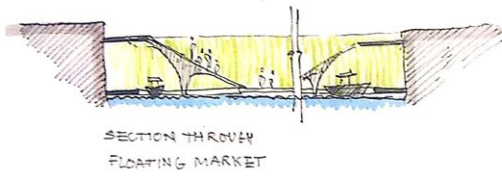
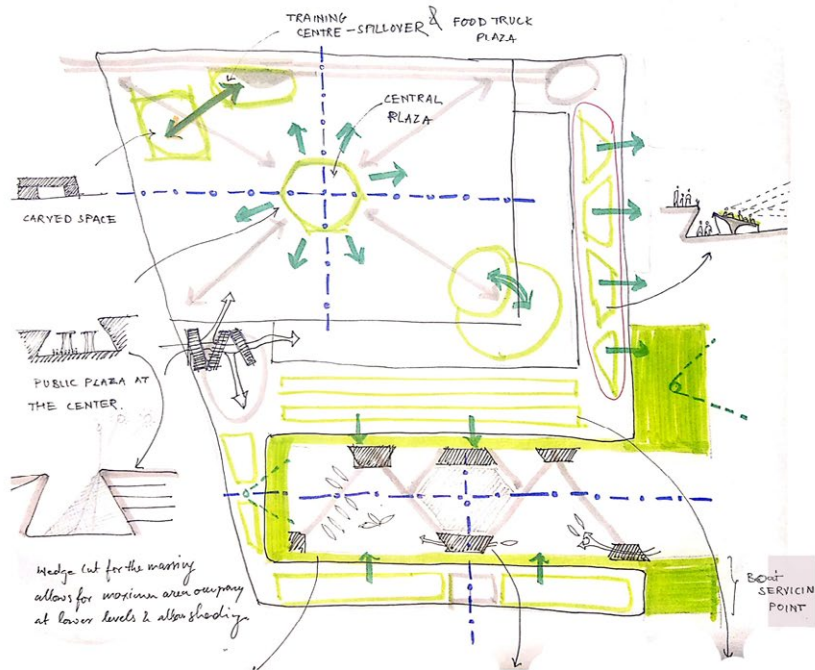
Training Facility



Retail Complex 1 & 2



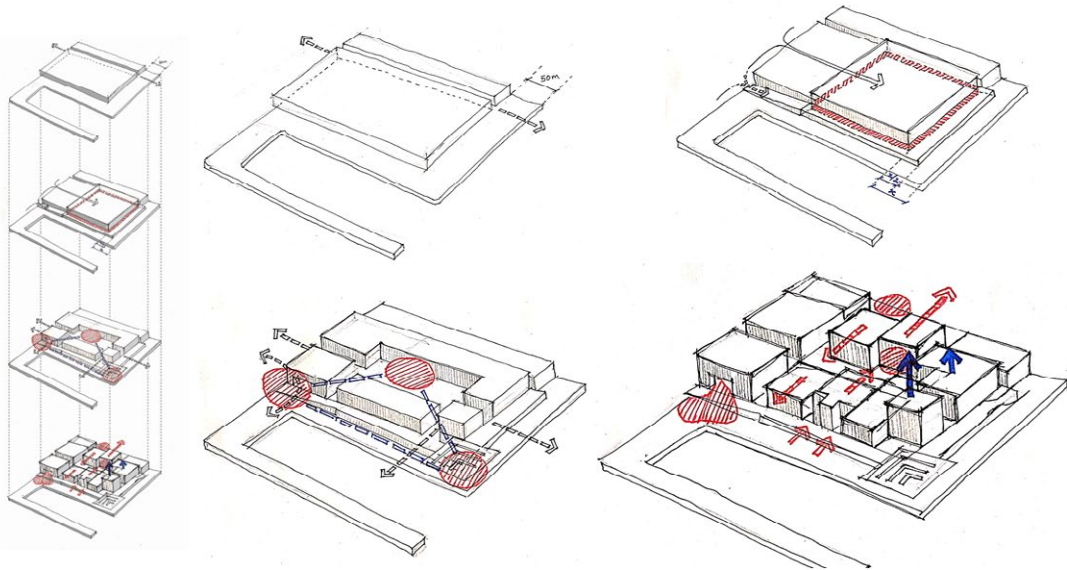
Public space and ROS



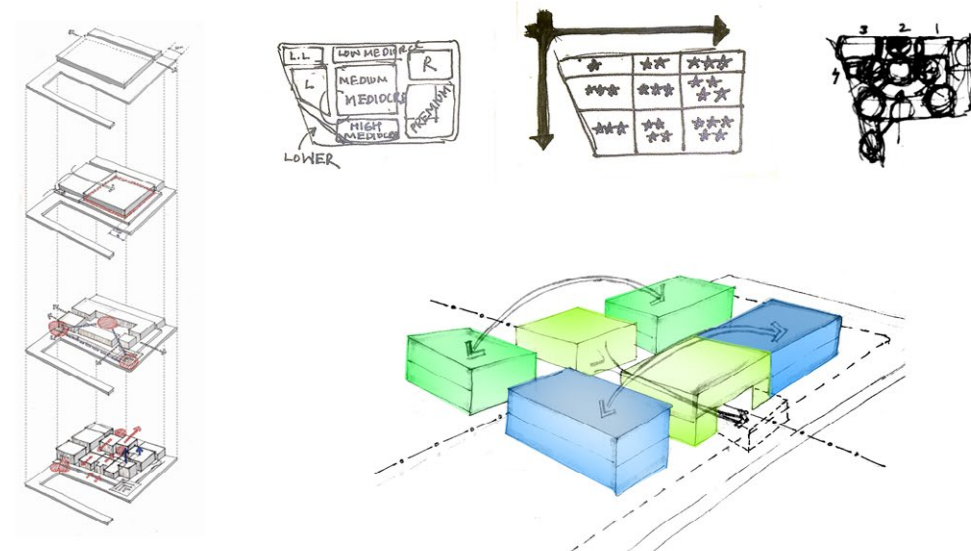
8.3 | Fixed programming

Form Development

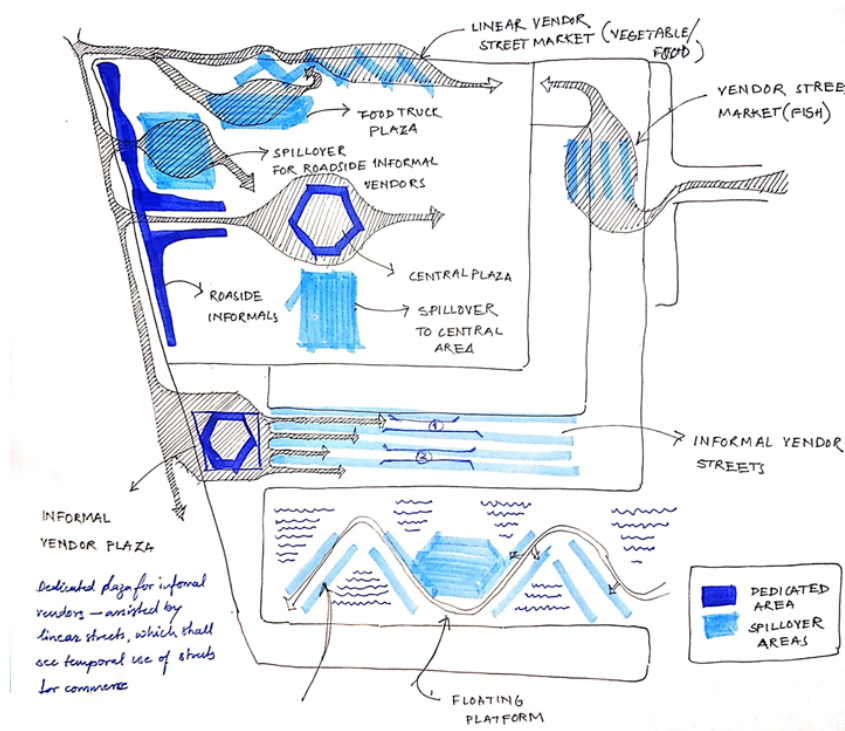
FIXED PROGRAMMING



FIXED PROGRAMMING



Space allocated for temporal activities



Schematic Site Plan (Temporal Programming)

Time wise activities

Places within the site have been designed in such a way that their spatial configuration can support two or more than two types of activities. Places like that are

- the fish auction area/ spillover areas,
- The central plaza and the streets,
- training block spillover areas,
- the food truck plaza, the service bay area and
- the floating market edge at the lower level promenade.

Each of these places have at least two types of functions and each has to be catered by the spatial construct and the structure at those particular sites.

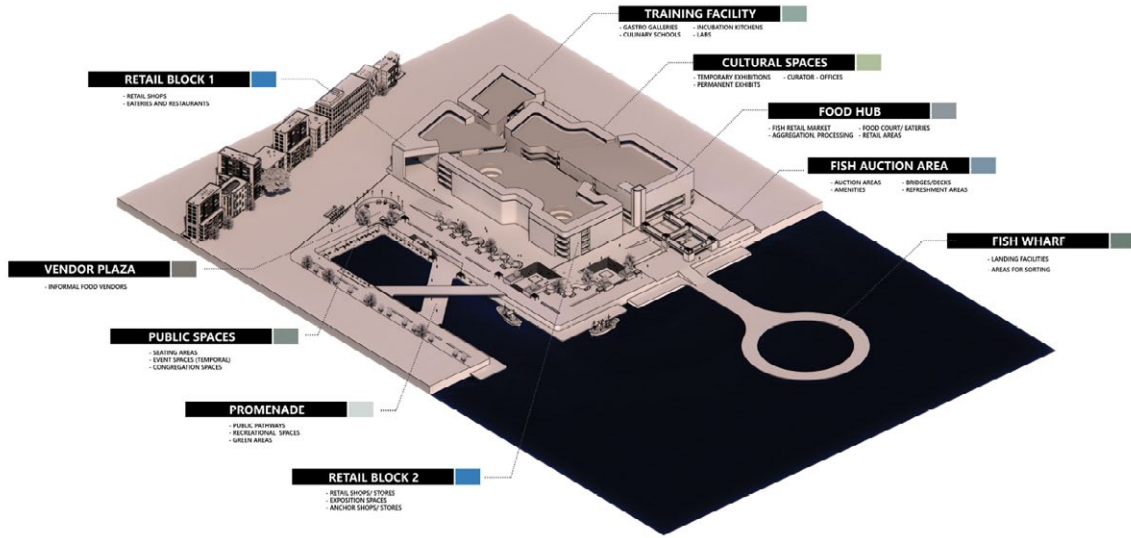
CHAPTER NINE | SYNTHESIS & DESIGN

This section of the report consists of the schematic drawings, design drawings and the 3d views. These graphics describe the translations of the concepts into design. While, detailed drawings of the same are found in the annexure.

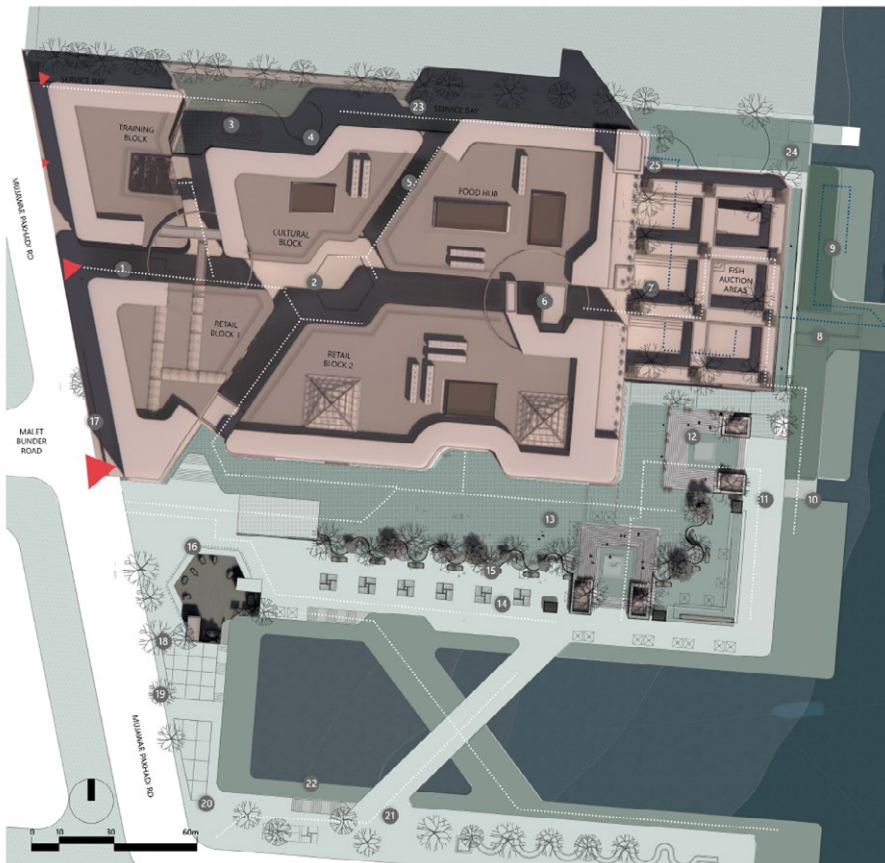
- Orthographic view
- Site plan
- 3D views of the site
- First, Second , third floor plans
- Site Sections
- Strategies to deal with odour
- Fish Auctioning and retail
- Fish Market + Food Hub
- Waste Management strategies
- Strategies for zoning of services
- Elevations

9.1 | Design

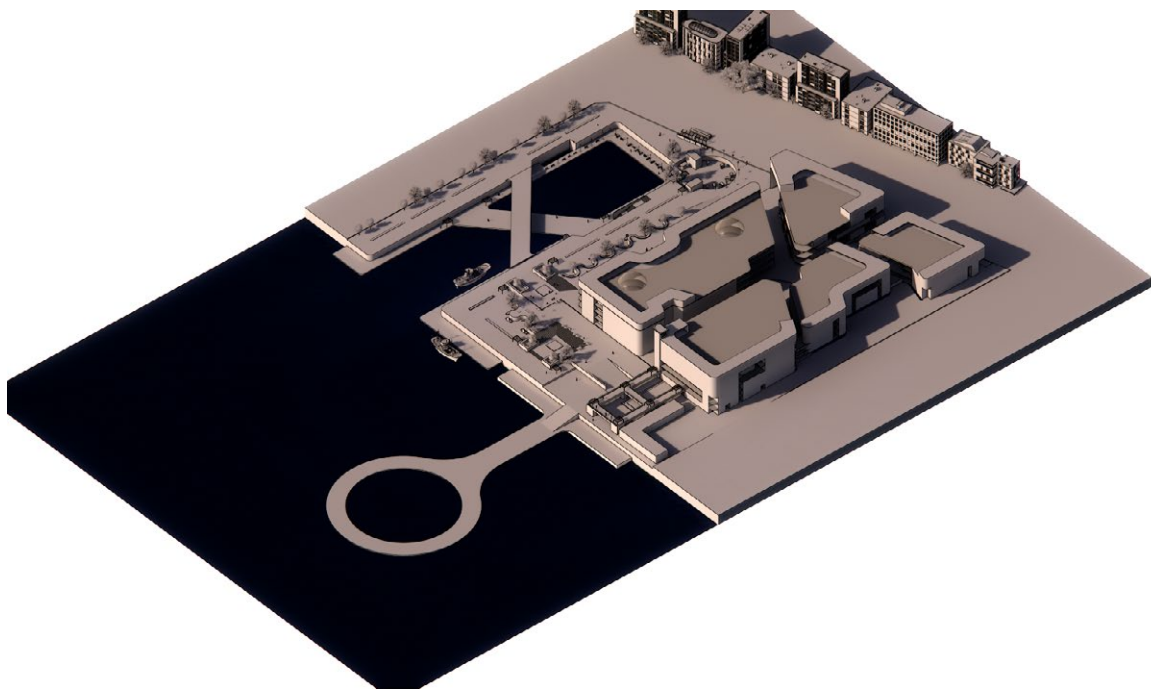
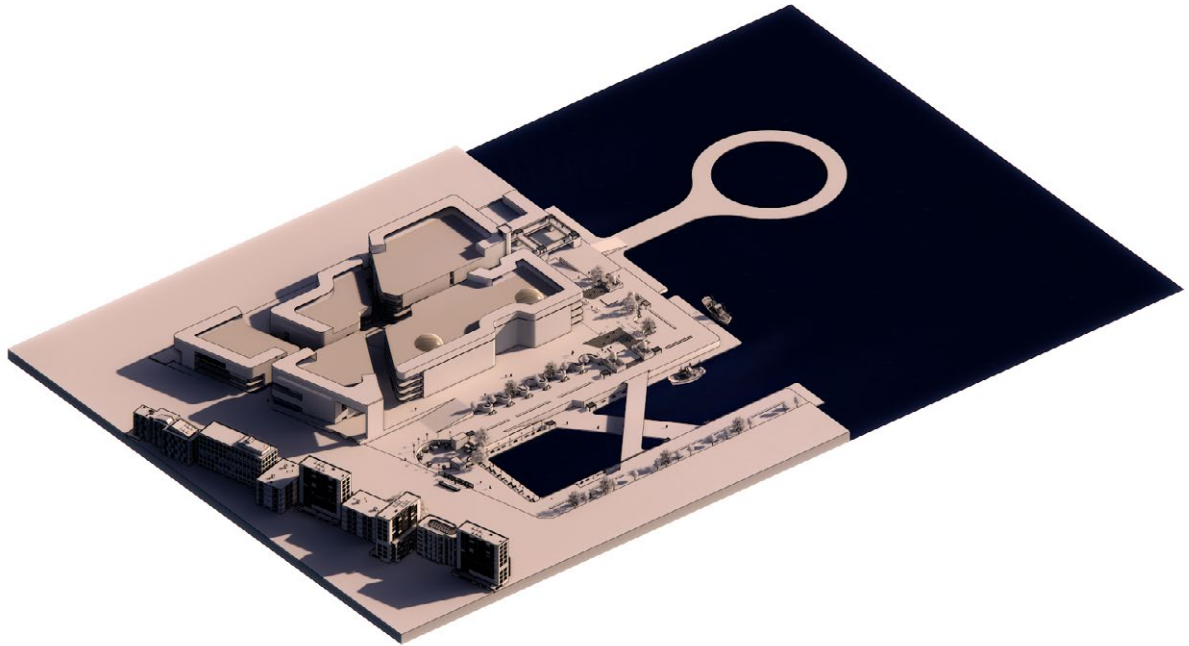
Orthographic view showing different blocks



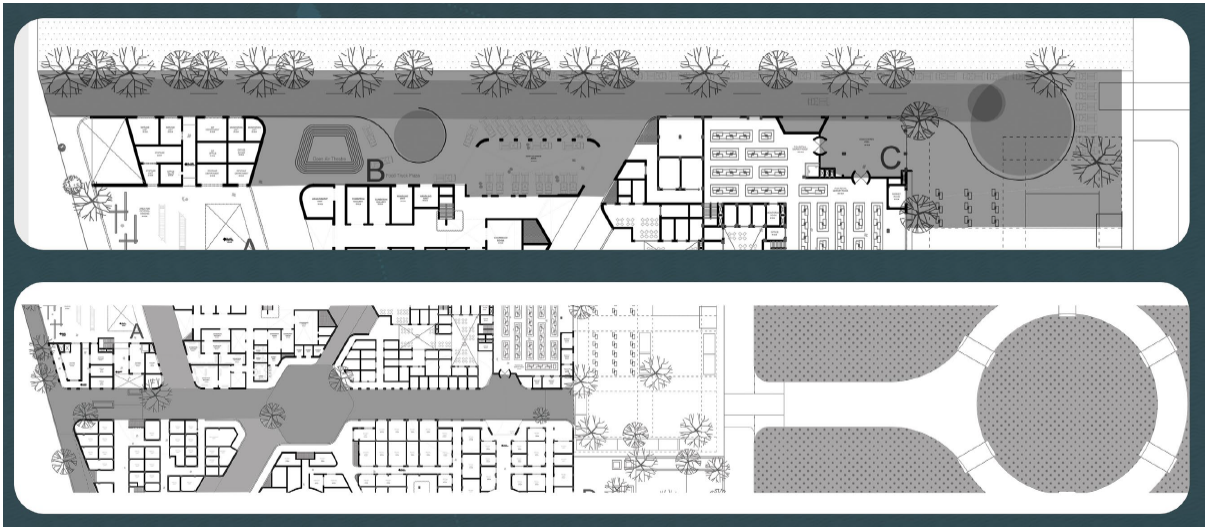
Top View



3D view of the site



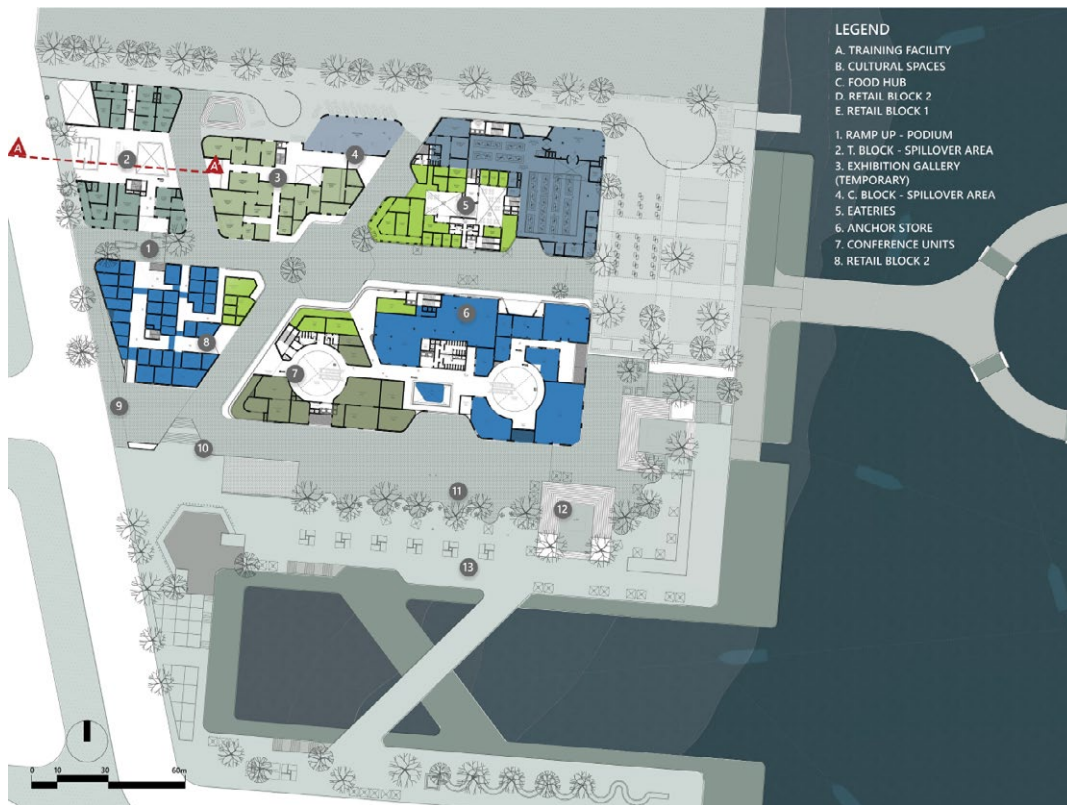
Plan showing spillover spaces and service bay



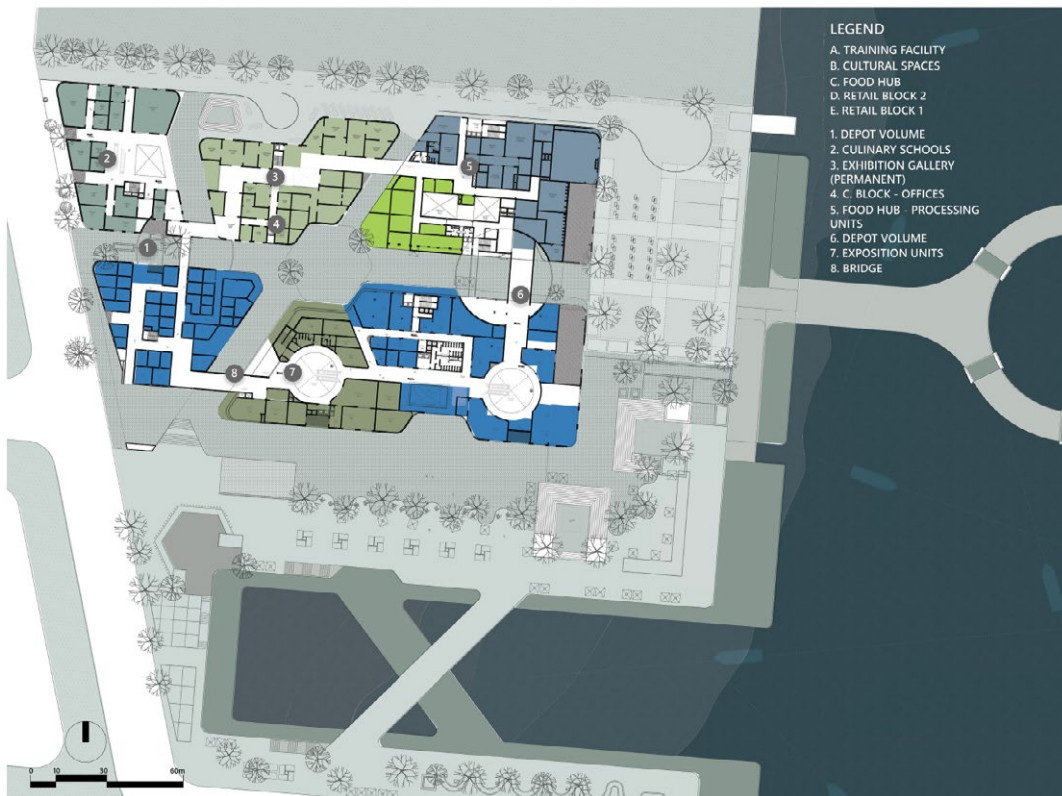
Ground floor plan (detailed plans attached in the annexure section)



First floor plan



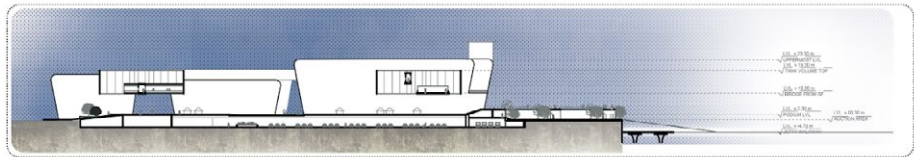
Third Floor Plan



Sections



KEY PLAN



SECTION THROUGH CENTRAL AXIS



KEY PLAN



SECTION THROUGH ATRIUM

Strategies to deal with Odour

SITE LEVEL ZONING

- Auctioning areas are zoned and allocated larger areas near the pier wharf itself
- North facing - so as to reduce heat gain.

HYBRID SOLUTION

PASSIVE + ACTIVE

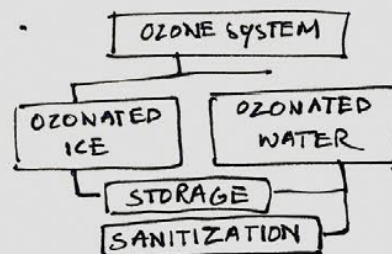
- The solar chimney is designed in a way that, it generally works as a stack vent with exhaust fans.
- and shall behave as a passive device in case of emergencies.

NEGATIVE PRESSURE ZONES

- compartmentalizing the areas and zones in order to incorporate negative pressure systems that do not allow spread into common areas.

OZONE SYSTEMS

- conventionally, chlorine is used as a sanitizer.



Fish Auctioning and retail

SITE LEVEL ZONING

- Auctioning areas are zoned and allocated larger areas near the pier wharf itself.
- North facing - so as to reduce heat gain.

HYBRID SOLUTION

PASSIVE + ACTIVE

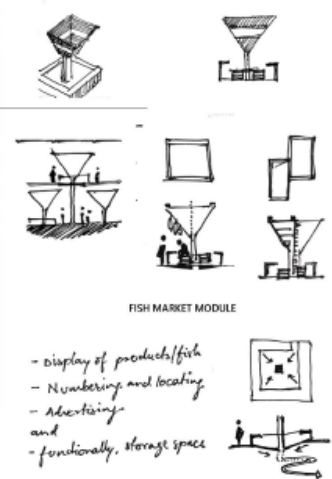
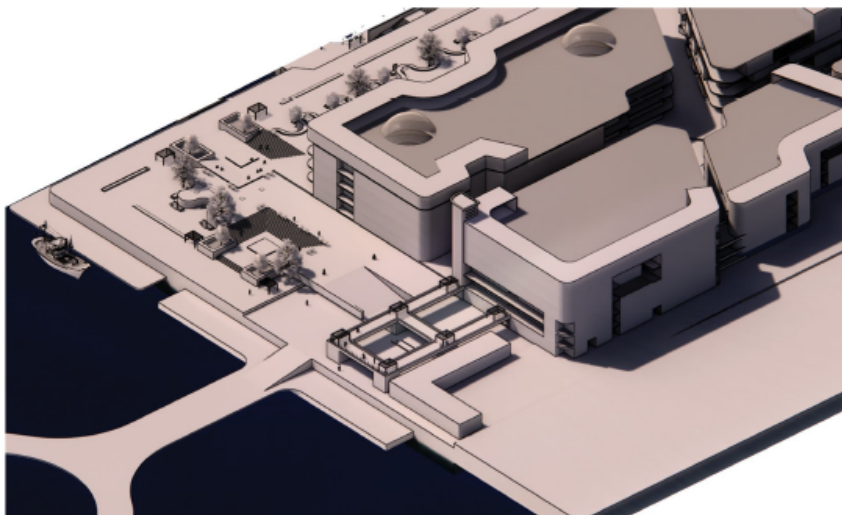
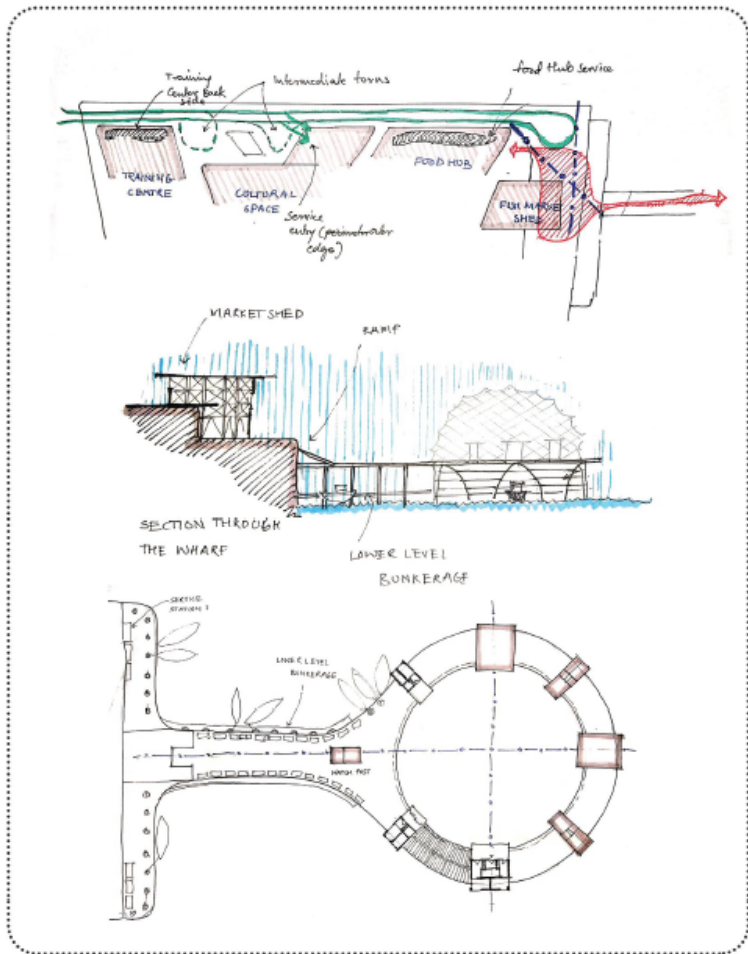
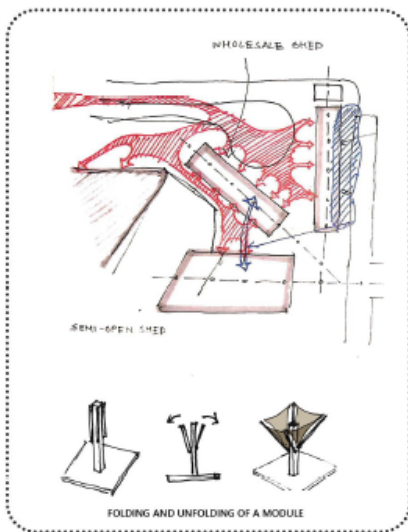
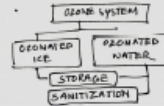
- The solar-shading is designed in a way that, it generally works open shed, but with retractable fans, and still behaves as a passive device in case of emergencies.

NEGATIVE PRESSURE ZONES

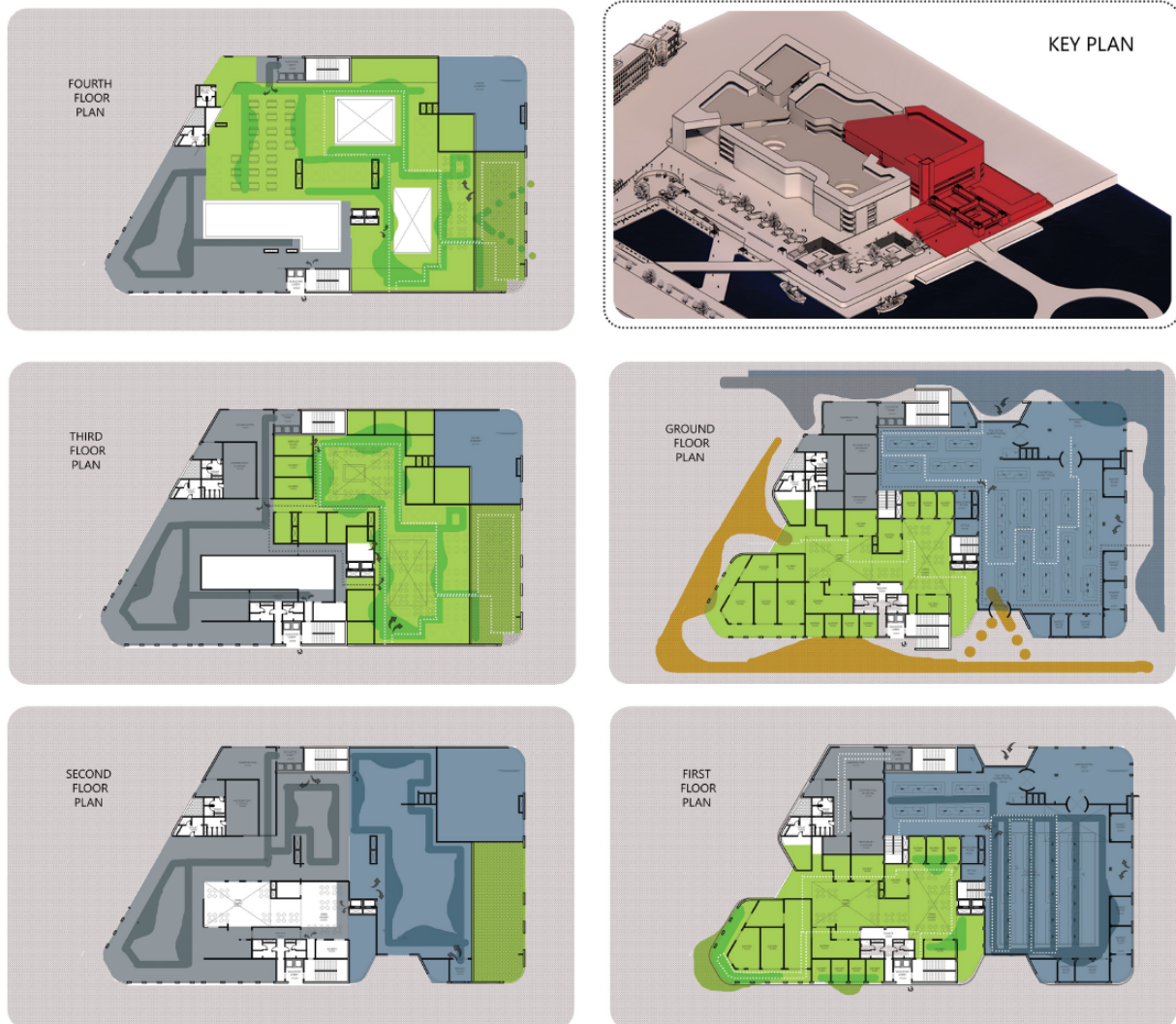
- compartmentalizing the areas and zones in order to incorporate mitigation pressure systems that do not allow spread into common areas.

CRANE SYSTEMS

- Conventionally, crane is used as a sanitizer.



Fish Market + Food hub Plans (Graphic emphasis on zoning and movements)



Waste management

Fish silage

As an alternative use of fish waste and offal, fish silage for animal feed is another possibility. One of the main advantages of fish silage over fish meal is low energy and capital cost. Energy is required only to grind the fish and mix it in formic acid (2 - 3 %) to reduce the pH level or a fermentable carbohydrate source and a culture of lactic acid producing bacteria. Another advantage over fishmeal is that its manufacture is not accompanied by an unpleasant odour.

The addition of formic acid encourages the breakdown of fish tissue by its own enzymes, while at the same time inhibiting the activity of spoilage bacteria. After one

to three days, a stable free running liquid is obtained whose protein content is similar to that of the raw material. This liquid may be directly incorporated in feeding regimes for pigs, or it may be dried with a carbohydrate carrier like rice bran for feeding poultry.

Manufacture of silage is done by comminuting the raw material, mixing in the acid and allowing the product to liquify. On the small scale (batches of say 50 kg) these operations can be carried out manually.

ER COMPOSTER

The EcoRich Elite II Composter falls in the category of "in-vessel" composting. Using an accelerated composting process a volume reduction of 90% and thereby 10% of compost generation is achieved in 24 hours.

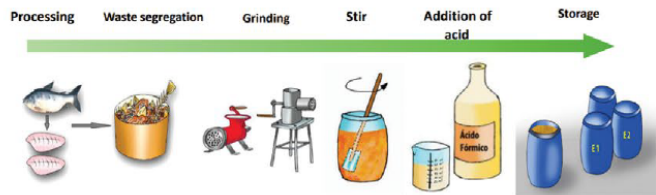
The machine composts waste using an energy-efficient and automated control process. The system employs high temperature micro-organisms to decompose food waste and organic matter. This is accomplished without the need of repeated additions of micro-organisms or other additives to the composting chamber.

Normal mixed food waste should take no longer than 24 hours to virtually disappear. The end products is nutrient rich organic compost which can be used gardening organic farming purpose.

ADVANTAGES

- Waste volume reduction of 75-90%, within 24 hours
- Decomposed waste is nutrient rich compost – Needs to be removed only twice a month
- Fully automated operation
- VFD (Variable Frequency Drive) reduces electrical consumption by 15%

Silage Production Process

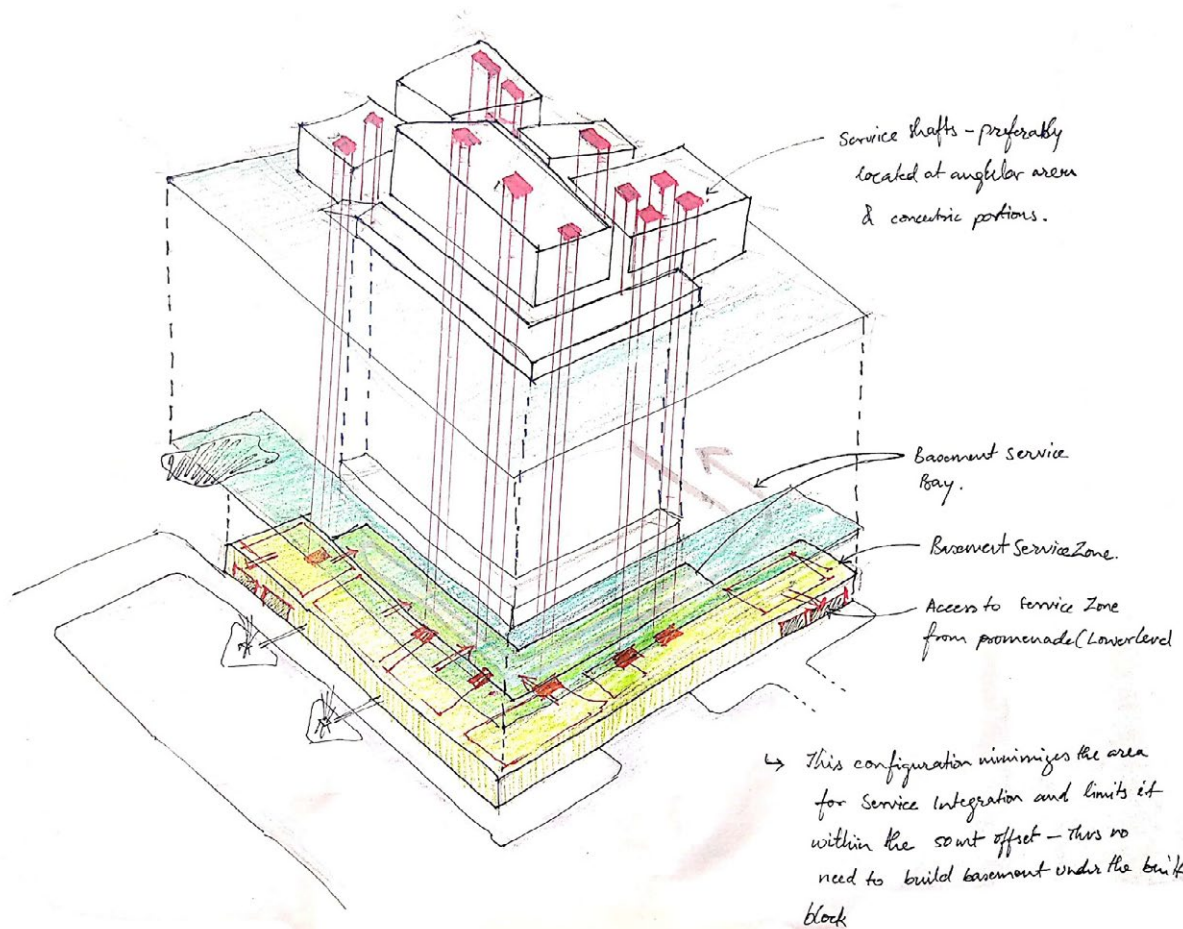


As an alternative use of fish waste and offal, fish silage for animal feed is another possibility. One of the main advantages of fish silage over fish meal is low energy and capital cost. Energy is required only to grind the fish and mix it in formic acid (2 - 3 %) to reduce the pH level or a fermentable carbohydrate source and a culture of lactic acid producing bacteria. Another advantage over fishmeal is that its manufacture is not accompanied by an unpleasant odour.

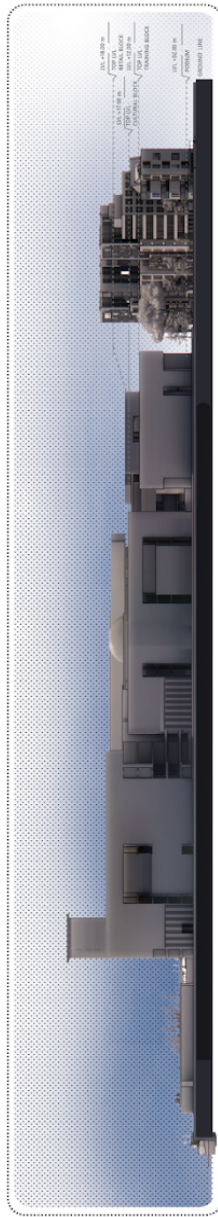
The addition of formic acid encourages the breakdown of fish tissue by its own enzymes, while at the same time inhibiting the activity of spoilage bacteria. After one to three days, a stable free running liquid is obtained whose protein content is similar to that of the raw material. This liquid may be directly incorporated in feeding regimes for pigs, or it may be dried with a carbohydrate carrier like rice bran for feeding poultry.

Manufacture of silage is done by comminuting the raw material, mixing in the acid and allowing the product to liquify. On the small scale (batches of say 50 kg) these operations can be carried out manually.

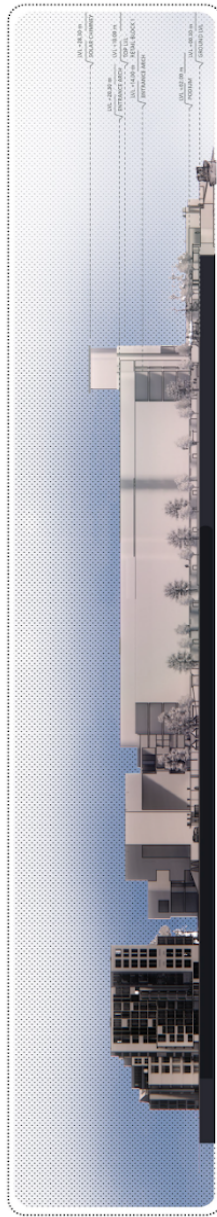
Strategies for zoning of services



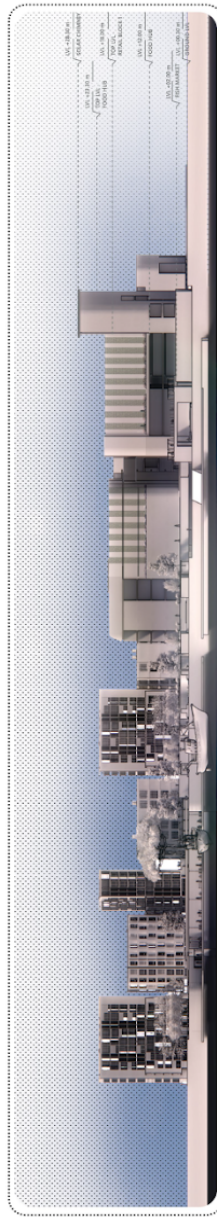
Elevations



NORTH SIDE ELEVATION



SOUTH SIDE ELEVATION



EAST SIDE ELEVATION

CHAPTER TEN | CONCLUSION

This section of the report talks about the highlights and aspects that I have tried to address with respect to the programme being envisioned. It was particularly challenging to incorporate and have tried to translate that into design as much as possible within the time restraint. Also, comments from the juror have been added here, which further open up space for further development details and translating them into design.

→ Highlights

- ◆ Mixed use character
- ◆ Disaggregation of blocks
- ◆ Light industrial facility
- ◆ Increased Permeability
- ◆ Temporal Programming
- ◆ Accommodating informal Commerce
- ◆ Urban Design Control
- ◆ Shared use of space
- ◆ Integration of Landscape

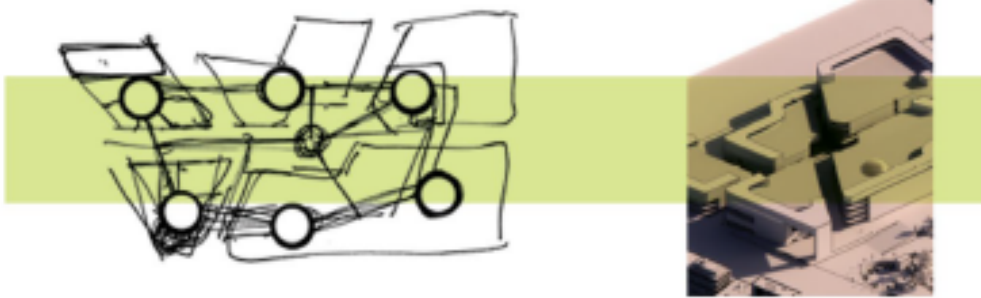
→ Jurors Comments

- ◆ Architectural Details
- ◆ Temporal Programming not just for public spaces but can be further extended to the built spaces.

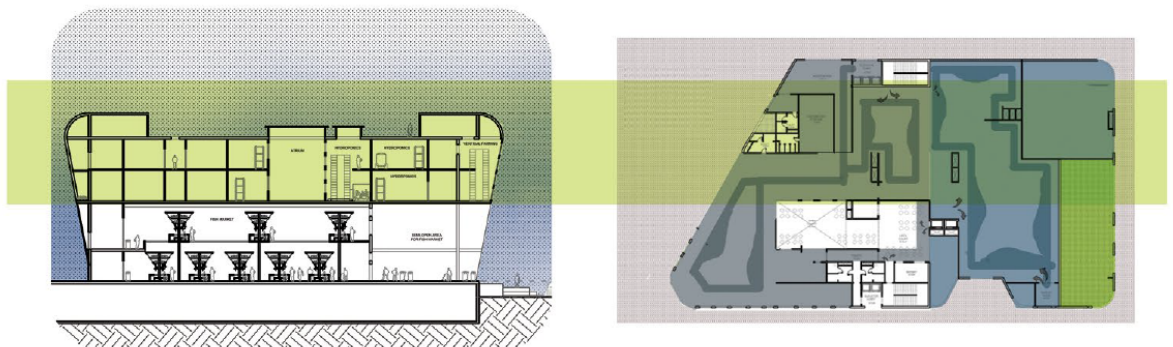
→ Further scope

10.1| Highlights

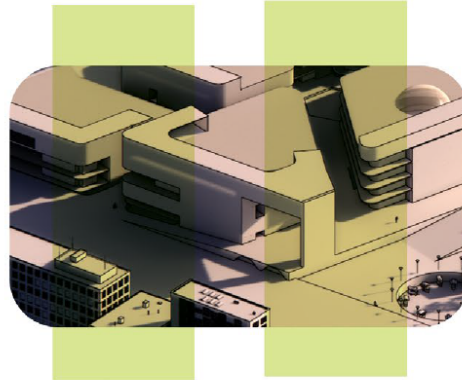
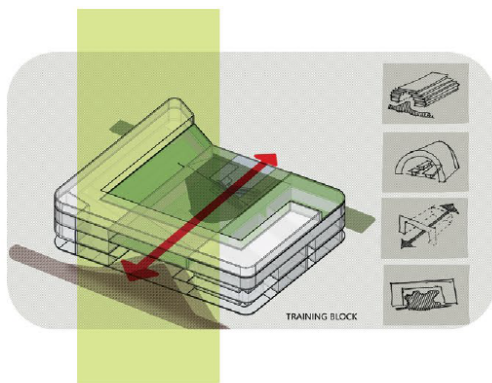
Mixed use character & Disaggregation of blocks



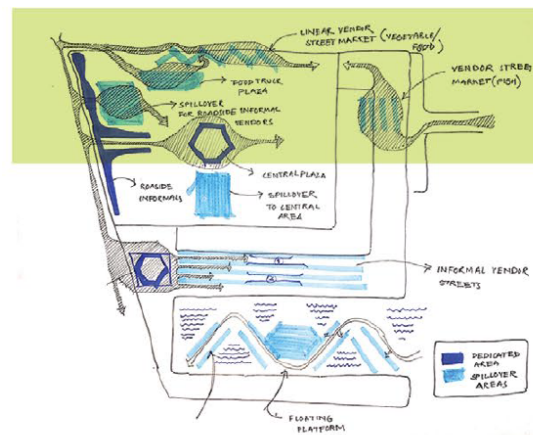
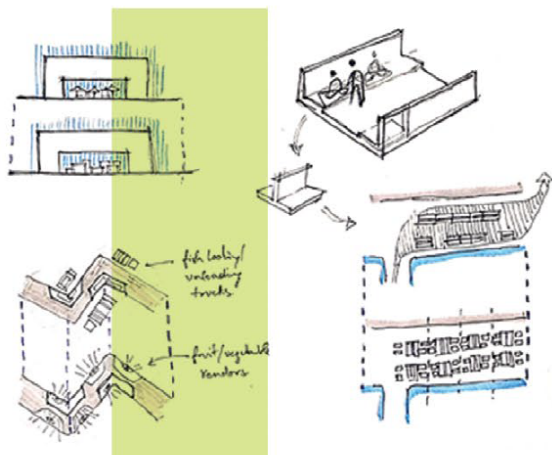
Light industrial facility



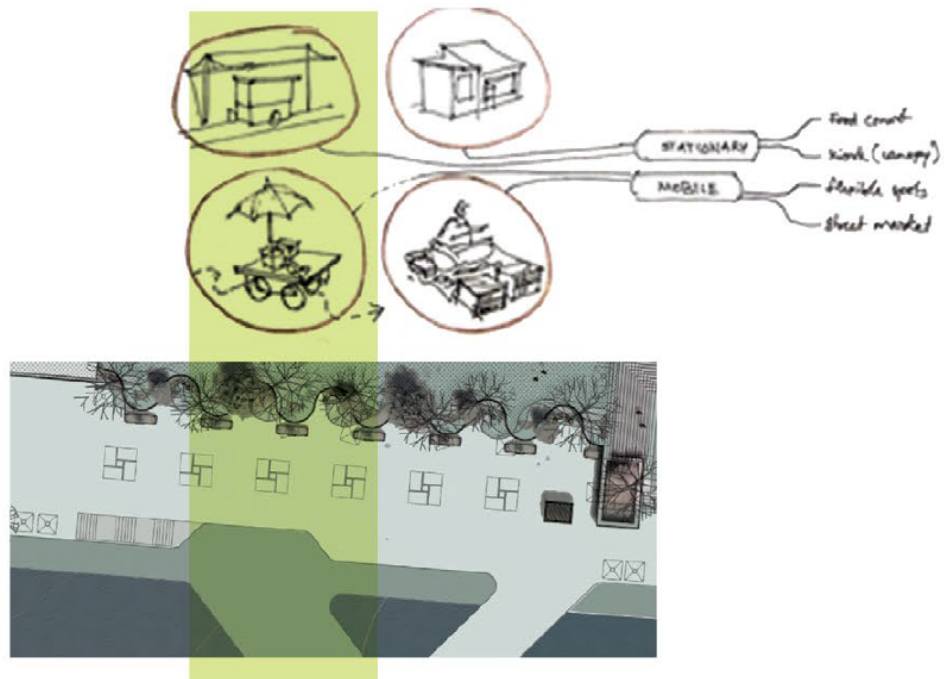
Increased Permeability



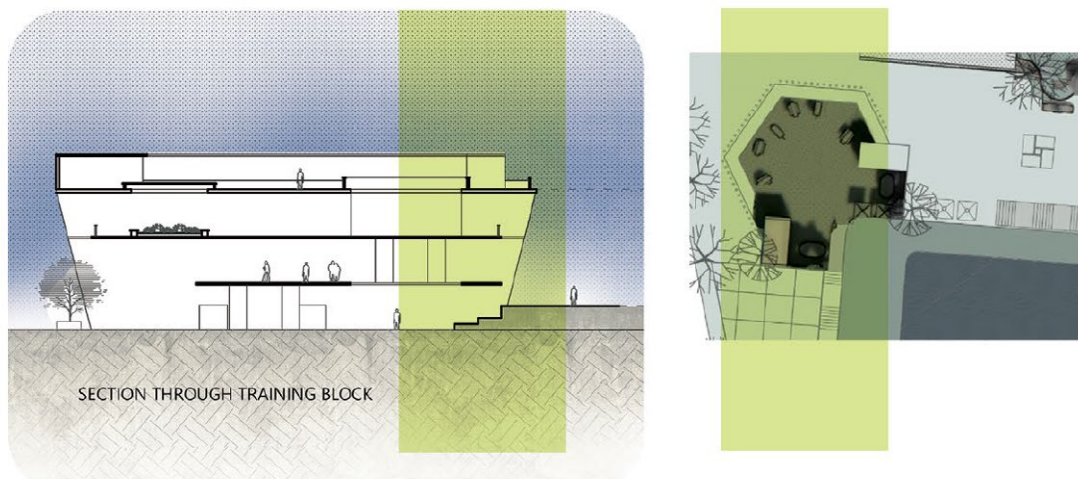
Temporal Programming



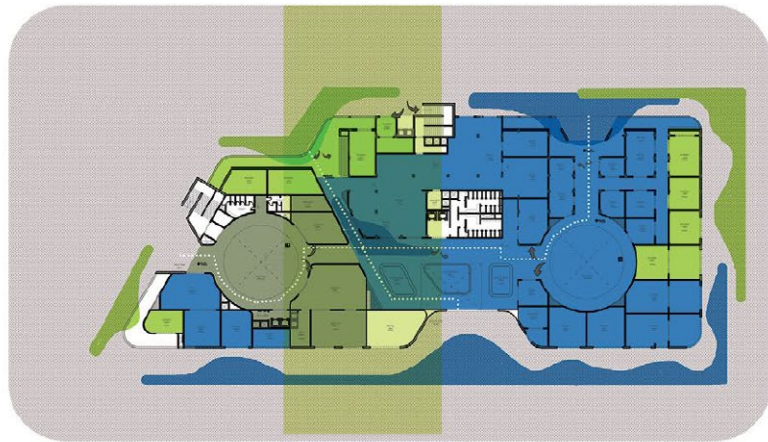
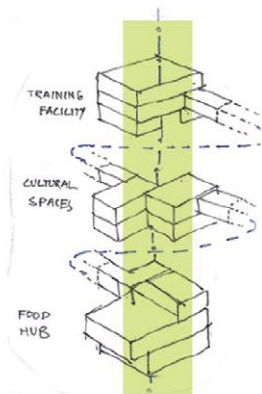
Accommodating informal Commerce



Urban Design Control



Shared use of space



Integration of Landscape



10.2| Juror's Comments

The jurors liked the overall idea and were very happy with it. They appreciated the rigorous thinking that went into developing the architectural programme for a site like that - with many competing developmental forces striving for a balance. Achieving that balance through the architectural programme was particularly challenging and is where I have invested most of the effort.

The very first comment from jurors was about how this thesis became an urban design thesis and have actually resolved problems on that level. And jurors appreciated the entire process of translating the developed concept into the design and also mentioned certain shortcoming in terms of providing the architectural details for particular blocks within the scheme.

They also appreciated certain domains/ design aspects like - temporal programming, sharing economy implications that I have touched upon and also gave me ideas to further develop them and maybe include those in portfolio etc. There was a point when they said that as an architectural thesis it lacks certain drawings that are supposed to be there. But they acknowledged the effort put into this urban design thesis and how it is problematic in handling everything individually. Also, the lockdown and covid scenario had impacted the way of carrying out the thesis - different from the way it was conceptualised in the initial phases.

But, despite those, it was overall a good jury and received comments of well done and good work. And Personally it has been a rewarding experience to be able to carry out idea that was in the air to translating that into a design and successfully communicating that to the jurors.

Architectural Details

As mentioned above, the jurors pointed out that some of the necessary detail in terms of providing structural and architectural detail for other blocks was also necessary and was absent - particularly 3d views and dedicated sheets for other blocks that the fish market and food hub. Although those details are found in the architectural plans and sections, 3d view would have conveyed the message efficiently.

Temporal Programming

- *not just for public spaces but can be further extended to the built spaces.*

While I have used temporal programming mostly for public spaces like - the streets, the plazas, promenade and the fish auction area; there was a very nice suggestion to

extend that thinking of temporal programming into built spaces like cultural space which had temporary exhibitions and stuff like that. Doing that for the spaces within the building implies strategizing the material aspects and the structural configuration of the place. This was particularly an interesting insight from their side and I hope to further develop on those lines.

10.3| Further research

Throughout this process, I have tried to touch upon certain design domains/ aspects of shared infrastructure within the sphere of sharing economy, temporal programming within the sphere of ephemeral urbanism (As described by Ar. Rahul Malhotra), light industrial mixed use commerce within the sphere of Port allied activity zones (Portland development), shared use of space to increase efficiency and utility of the spaces. For these ideas I have tried to work on them through my plug in seminar research work along with the thesis.

While most of these ideas are less explored, these domains can further be researched upon and developed further to their fruition. And an architectural vocabulary coming out of that research shall be fruitful. I hope to extend my efforts in further developing on these lines.

BIBLIOGRAPHY

Acquirer, A., Carbone, V., & Massé, D. (2019). How to create Value(s) in the Sharing Economy: Business Models, Scalability, and Sustainability. *Technology Innovation Management Review*, 9(2), 5–24. doi: 10.22215/timreview/1215

Planning for sharing - providing infrastructure for citizens to be Makers and Sharers; Anna Hult and Karin Bradley, *Planning Theory and Practice*, 2017, Vol.18, No.4

Architecture and the "New" Sharing Economy (Article) < Back to Blog. (n.d.). Retrieved from <https://www.ankrommoisan.com/blog/2015/11/19/architecture-and-new-sharing-economy>

Bhabha's Hybridity and the Third Space in Postcolonial Discourse

Levy, Rachael (2008). "'Third spaces' are interesting places: Applying 'third space theory'.

Light Industrial Mixed Use: A New Zone for the Waterfront. (n.d.). Retrieved May 22, 2020, from <https://www.thrivehoodriver.org/wp-content/uploads/2014/11/industrial-mixed-use-proposal.pdf>

What does "mixed-use development" mean? (n.d.). Retrieved from (<https://www.minneapolisfed.org/article/1998/what-does-mixed-use-development-mean>)

Reflecting on Today's Market Trends. (n.d.). Retrieved from <https://www.pps.org/article/market-trends>

Share, Like, Love: Why designing for the sharing economy is different: Roca Gallery. (n.d.). Retrieved from <http://www.rocagallery.com/share-like-love-why-designing-for-the-sharing-economy-is-different>

Power, J., & Birch, L. (2017, June 17). Archetypes – their nature and importance. Retrieved November 6, 2019, from <https://archetypalspirituality.org/2017/01/17/archetypes-their-nature-and-importance>

Gan, V. (2015, March 17). Kentucky's West Louisville FoodPort Represents a New Generation of Food Hubs. Retrieved from <https://www.bloomberg.com/news/articles/2015-03-17/kentucky-s-west-louisville-foodport-represents-a-new-generation-of-food-hubs>

OMA masterplans a food port in west louisville, kentucky by OMA ArchiExpo. (n.d.). Retrieved February, from <https://projects.archiexpo.com/project-21140.html>

Sydney Fish Market | <https://3xn.com/project/sydney-fish-market>

<https://www.archdaily.com/905316/3xn-unveils-sloping-design-for-sydney-fish-market>

Case study - Kankaria Lakefront development - Urban Design redefining Cultural. Singh S. (2013) CEPT.

HCPDPM archives - Kankaria lakefront development

Thesis Case study, Ramanathan N., City centre kolkata.

The new landscape, Correa C., Book Case Study, Parashar S., City centre kolkata.

ANNEXURE

REDEVELOPMENT OF BHAUCHA DHAKKA
FISH MARKET, AT MUMBAI'S EASTERN
WATERFRONT AS AN URBAN FOOD HUB

2015BARC027 | AJINKYA BHAGWAT JAMADAR
DESIGN THESIS

Mumbai's Eastern Waterfront Redevelopment Master plan



Breakdown of terms

Redevelopment of Bhaucha Dhakka Fish Market at Mumbai's Eastern waterfront as an Urban Food Hub

- Eastern Waterfront Redevelopment
- Bhaucha Dhakka Fish Market
- Urban Food Hub

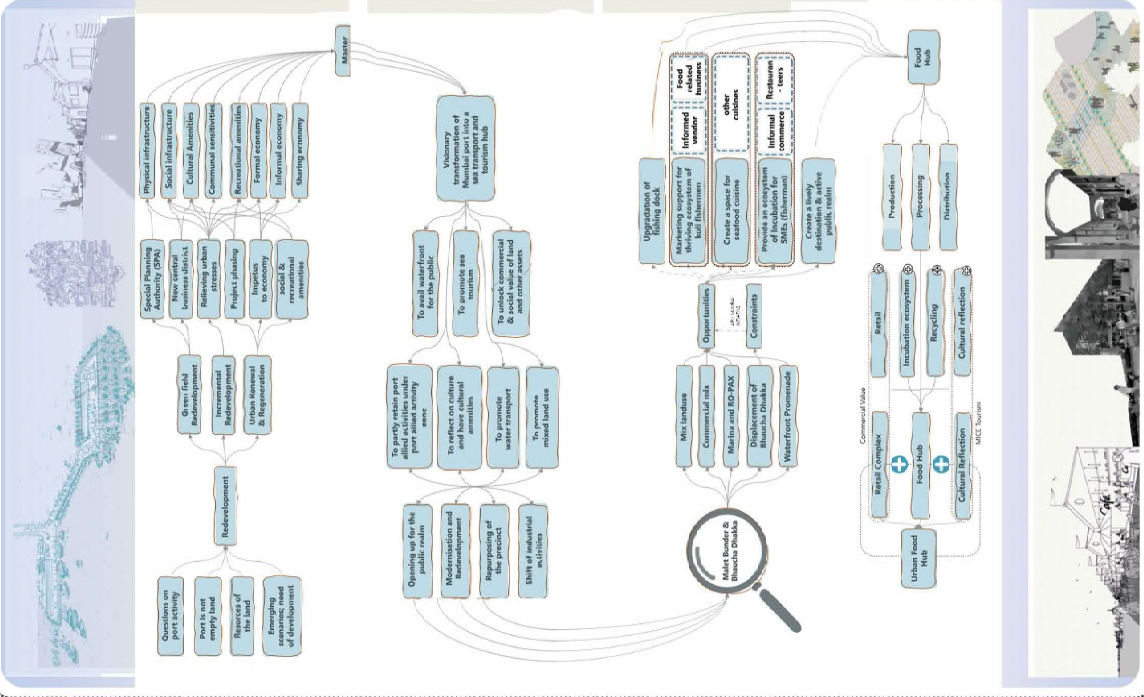
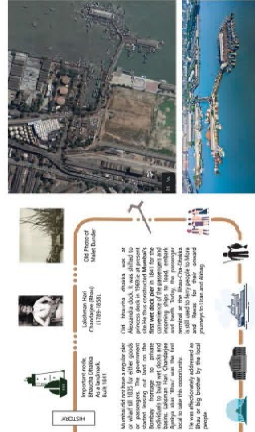


What is Urban Food Hub?

An urban food hub is defined by the USDA as a centrally located facility with a business management structure facilitating the aggregation, storage, processing, distribution, and marketing of food products.

One of the primary goals of food hubs is to support small and medium-sized businesses, such as farmers, processors, and producers, by providing them with a centralized location to aggregate, store, and distribute their products. This helps to reduce their costs and increase their market reach.

The goal is to give a new identity to the area as an effort to regenerate the waterfront area and to provide a sustainable and vibrant community. A major aim of food related schemes is to be engaged, led by evaluation, Mumbai, Cultural, Schools, Restaurants, Water Food Markets, Informal Farmer Markets, Coastal Quality etc.



Synopsis

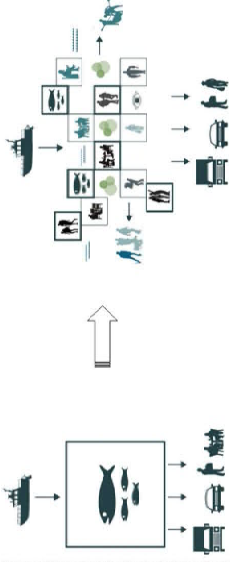
The project would be a part of the larger urban redevelopment of eastern Mumbai. The idea is to create a new urban form and a new identity for the waterfront area. The project would be a part of the larger urban redevelopment of eastern Mumbai. The idea is to create a new urban form and a new identity for the waterfront area.

The project would be a part of the larger urban redevelopment of eastern Mumbai. The idea is to create a new urban form and a new identity for the waterfront area. The project would be a part of the larger urban redevelopment of eastern Mumbai. The idea is to create a new urban form and a new identity for the waterfront area.

Central functions



The Idea



So, the project identifies the opportunity to develop an existing market to a socio-cultural hub with the help of fixed programming and temporal programming.

Programme

Aim & Objectives

To redevelop the Bhaucha Dhakka Market and link it into a socio-cultural hub with reflections on Social, Cultural amenities and an active public realm.

- To redevelop the Bhaucha Dhakka Fish Market.
- To reflect on the cultural theme of food culture, amenities of cosmopolitan taste and of urban significance.

- Can architectural design enable a mix of diverse spatial programmes?
- In pursuit of Social Inclusivity? Boost tourism and economy?

THESIS STATEMENT

In the redevelopment of the port, architecture can be instrumental in terms of the public character, setting and place of a mixed-use.

With architecture as a manifestation, the specific programme can become the identity of a place, creating an asset to an urban environment.

Diversifying Programme

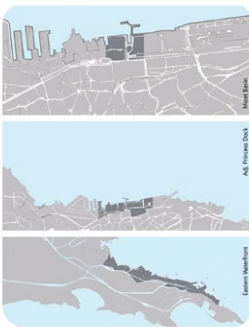
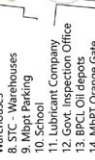
APU's master plan recommends that the Bhaucha Dhakka- ferry wharf is to be upgraded as follows:



Fishing Wharf be upgraded - It should be a multi-use space to upgrade the unloading facilities and provide fish processing facilities, logistics, cold storage depot.



There is thriving ecosystem of Koli fishermen, auctioneers, wholesalers, retail fisher women, sole-entrepreneurs who work here. Reportedly fish in excess of Rs. 3 Crores is in Bhaucha Dhakka ecosystem.



Landuse = Commercial Mix FAR = 1.33 (Port Allied Activities Zone)

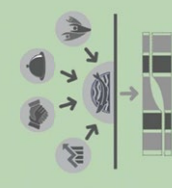
Built-to-line - Adaptable ground coverage - 35% (Recreational Open Space)

* The contour interval is 0.5 m

1. Bhaucha Dhakka Fish Market
2. Wharf
3. Malet Bundar
4. STC Oil depots
5. Offices
6. Mixed Use Housing
7. Malet Basin -
8. STC - Warehouses
9. Mbpt Parking
10. School
11. Lubricant Company
12. Govt. Inspection Office
13. Mbpt depots
14. Mbpt Office
15. Mbpt Paid Parking

NEED FOR DIVERSIFYING THE PROGRAMME

- Modernisation of fishing activities is limited.
- Food culture, one of the five important themes in redevelopment proposal.
- Supporting the thriving ecosystem of the fishermen through shared infrastructure.
- Addressing the needed ecosystem of incubation, entrepreneurship and also training MSMEs.
- Accommodating informal sector with their right to public space.
- Placemaking for creating a lively destination.



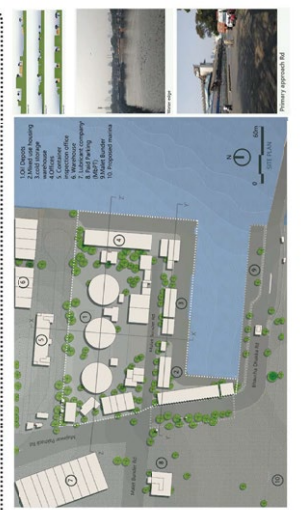
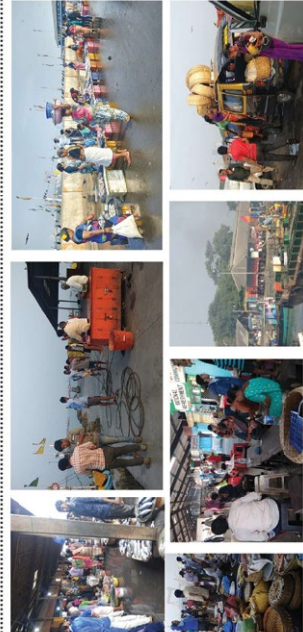
Architectural response to such a mix can be catered by a food hub.

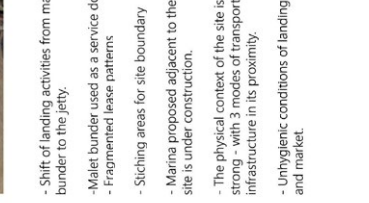
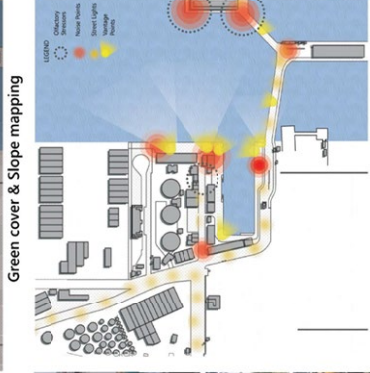
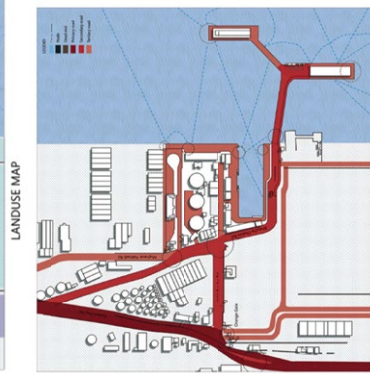
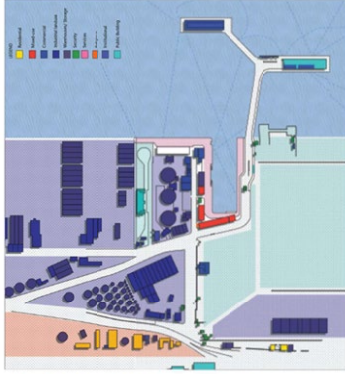


CONTEXTUAL SITE PLAN



Fish Market Activities





- Shift of landing activities from malet bundler to the jetty.
- Malet bundler used as a service dock
- Fragmented lease patterns
- Slipping areas for site boundary
- Marine proposed adjacent to the site is under construction.
- The physical context of the site is strong - with 3 modes of transport infrastructure in its proximity.
- Unhygienic conditions of landing and market.

Lynch's analysis

Building Condition & Ownership

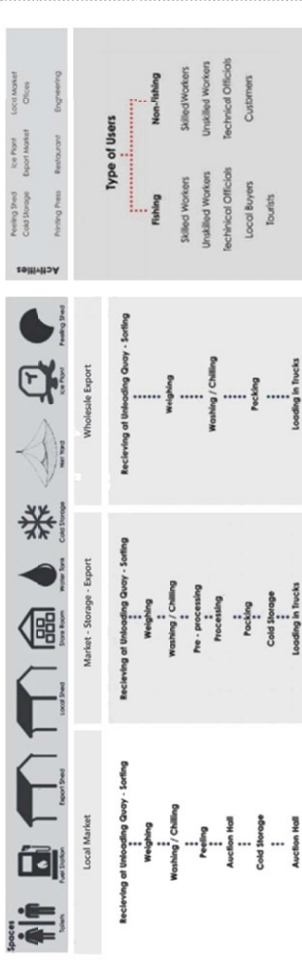
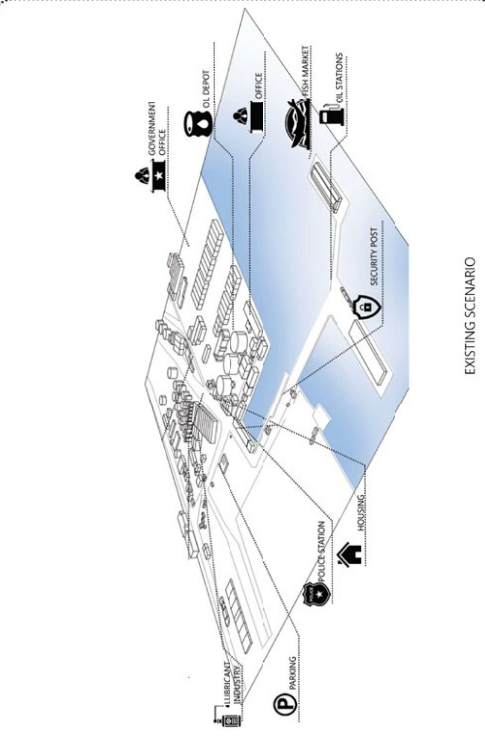
Temporal Activity - Afternoon



Temporal Activity - Night



EXISTING SCENARIO



STRENGTH **WEARINESS** **OPPORTUNITIES** **THREATS**

Sunpath diagram & Windrose

As observed from the building, the sun's shadow cast for a 4m diameter column is shown. The column's distance from the building's vertical axis is about 10m. The height of the building is 10m.

Rainfall

Average temperatures and precipitation

Month	Temp (°C)	Precipitation (mm)
Jan	25	10
Feb	24	10
Mar	23	10
Apr	22	10
May	21	10
Jun	20	10
Jul	19	10
Aug	18	10
Sep	17	10
Oct	16	10
Nov	15	10
Dec	14	10

The temperature undergoes little seasonal fluctuation. May is the warmest month, where the temperature is 25°C and January is the coldest, where the temperature is 14°C. The area comes under warm and humid climate zone. High humidity encourages abundant vegetation. Design teams in the area should consider the impact of humidity on the growth of planting.

The rainy season starts in May and ends in November. The monthly average is lowest in February (62%) and highest in July (82%).

CLIMATE FACTORS

DEVELOPMENT CONTROL

BUILT FORMS

Service models
RDS footprint
Concentrated footprint of fishing activities
CSC, offices, and other services
Promenade (Landscape)

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

jetty

OPPORTUNITIES

THREATS

DEVELOPMENT CONTROL

NATURAL FACTORS

Built Zoning

INFERENCES FROM CASE STUDY

Mixed use development

The mixed use developments are characterised by following factors: **Three or more significant revenue producing uses** are integrated into the development. **Significant market**. All components shall be **interconnected**, both horizontally and vertically, careful positioning of project components around a public space



Light Industrial

The MIPRT (part activity) have made reservations for areas under the Port Allied at **operation & reservation of area for industrial uses**. Light industrial is used here to denote the potential of the site to hold activities owing to the light port activity - in this case fishing wharf and transport hub.



Spatio-temporal aspect

As seen from the case of manek chowk and food port. It is inferred that the utilisation of a space in a dynamic way, having activities as an organised performance increases the usability coefficient of the space.



Shared use of spaces

The shared use of spaces as observed from the Manek chowk and Kankaria lake (not in terms of the activities like festivals and all being hosted in a given space. The idea is to give a **space of capable of accommodating temporal activities** and encouraging culture of co-working.

Disaggregation of blocks

In City centre, the disaggregation of blocks have facilitated incorporating different blocks for different purposes and have been contributing to the idea of modern bazaar when the scale and the proportions are replicated.



Seamless integration of landscape

Such design feature is observed from the Sydney fish market - the use of paths, promenades & amphitheatres.



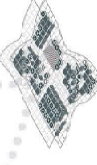
Modular entities

The use of modules can be seen in the case of Sydney fish market and partly in the city centre. Modules can be independently created, modified, replaced or exchanged between different systems.



Sculptural canopy

A canopy acts like a blanket to the modules underneath and protects them from rain. It also helps in harvesting light and rainwater. Its sculptural quality adds to its identity.



Continuous flows logistics

As seen from the design of food hub in Ludhiana, the logistics and public inflow to the site can be properly segregated with

Judicious use of built and unbuilt.



Increased permeability

Increased permeability allows for easier access of the space and imbues a character of public space as opposed to the boundary walled property.



Decentralisation of services

As seen in city centre, the services used for the mall within mall, need not necessarily be used for other blocks - hence, the idea of decentralisation of services as to cater to each block differently.

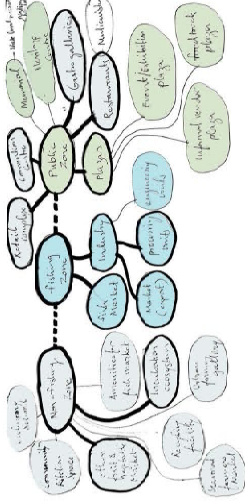


Unifying architectural language

As seen in city centre, the services used for the mall within mall, need not necessarily be used for other blocks - hence, the idea of unifying architectural language as to cater to each block differently.



Area wise Master Plan



Area wise tentative distribution within the zones

Fishing Zone 38%
Processing units
Ice plant
Market area
Wholesale/Export area
Engineering areas
Public Zone 27%
Public Plaza
Food Court
Mall
Promenade
Non-Fishing Zone 37%
Commercial Areas
Market area
Exhibition Spaces
Service
Incubation areas

City	Non-Fishing Zone	Local Market	Processing unit	Waterside facilities	SEA
	Public plaza type 1	Market/ Retail Complex	Exhibition centre	Public plaza type 2	Promenade

Area Programme

For the redevelopment scenario, the new area will be used for the existing facilities and enhanced facilities and commercial units.

Retail Complex
Retail complex shall operate like the existing retail complex with diverse mix of commercial units catering to user groups of all types with more inclination toward tourism and recreational functions.

Exposition Spaces
These spaces shall host and accommodate the existing exhibition spaces and enhanced facilities for fishermen and a export facility.

Fish Market
These spaces shall accommodate the existing facilities for fishermen and a export facility.

Area Programme

With the addition of the programme of 'food hub' in this area, the aspects of related commerce and allied functionalities are added.

Gazro Gallery
Along side the food culture Along side the gallery will serve as exhibition space for culinary schools and incubation kitchens.

Incubation Kitchen
Kitchens for promoting entrepreneurial ecosystem of food related businesses, supporting SMEs.

Vertical farming
The programme shall support the public in sustaining various possibilities of food system urban and offers courses in culinary business.

Project details

Site Area: 52,800 m²
FAR: 2 (Commercial 66.24%+Pvt Allied)
Usable area (containing 147/161) m²
Permissible Built up: 1,83,696 m²
R.O.S (open space): 13% -25%
According to the CRZ norms, no new fishing industries can be set up but modernisation is permitted upto an extent of 10% of the existing area permitted for fish related activities.
The present market occupies 9500m² of area and it can be relocated towards the Mole boundary. The service area of the market shall be 25000m² to cater to all the fish market, giving it additional functionality.

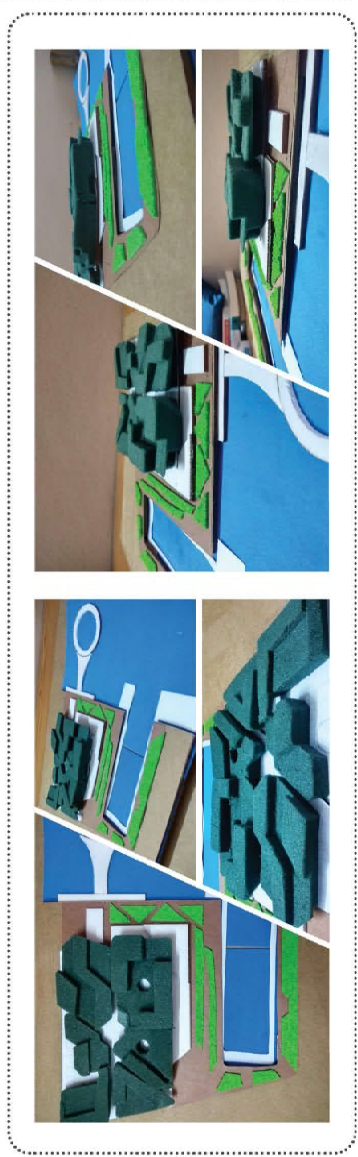
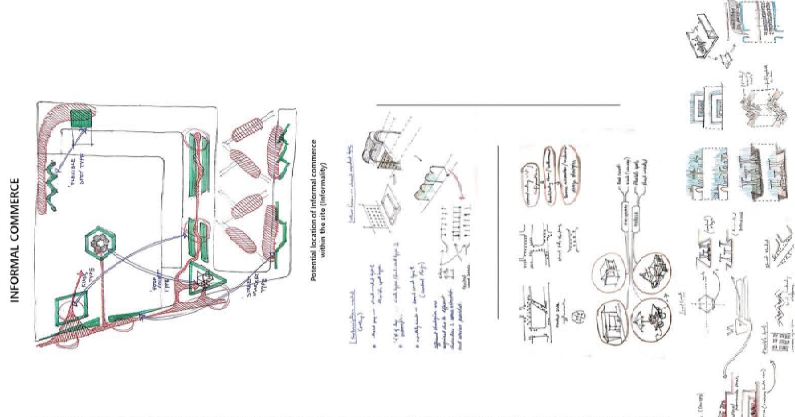
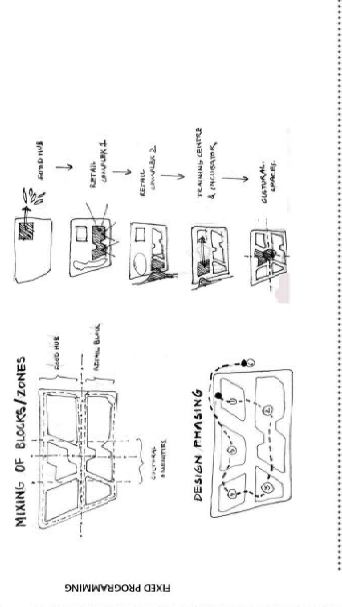
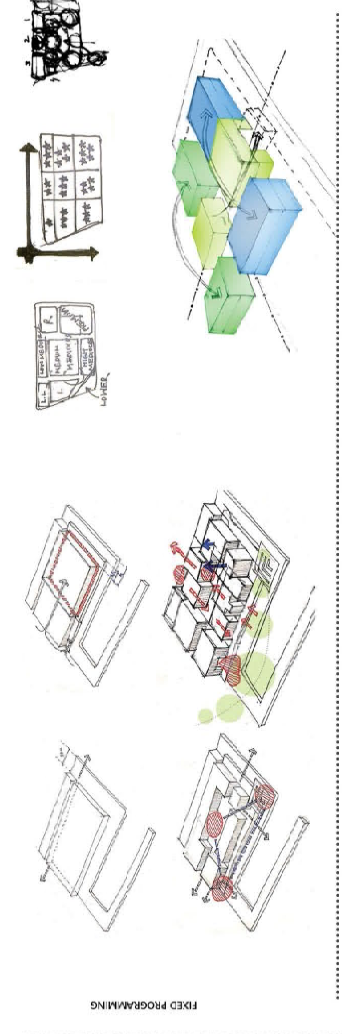
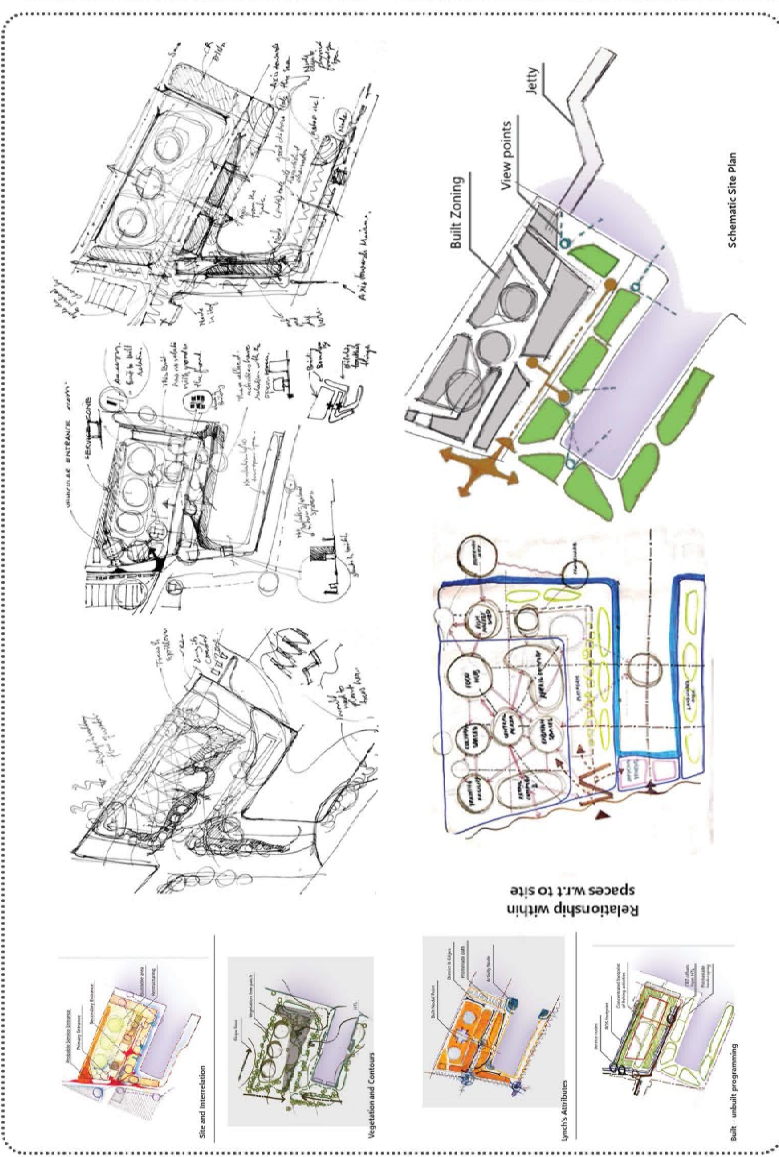
Area wise zoning scenario of market

The market phase the market shall be the present area of the market and the remaining 17000 m² will be used for the market and retail service facilities.
Area of the Market floor = 2,70,000 m²
Area of the market amenities = 250,000 m²

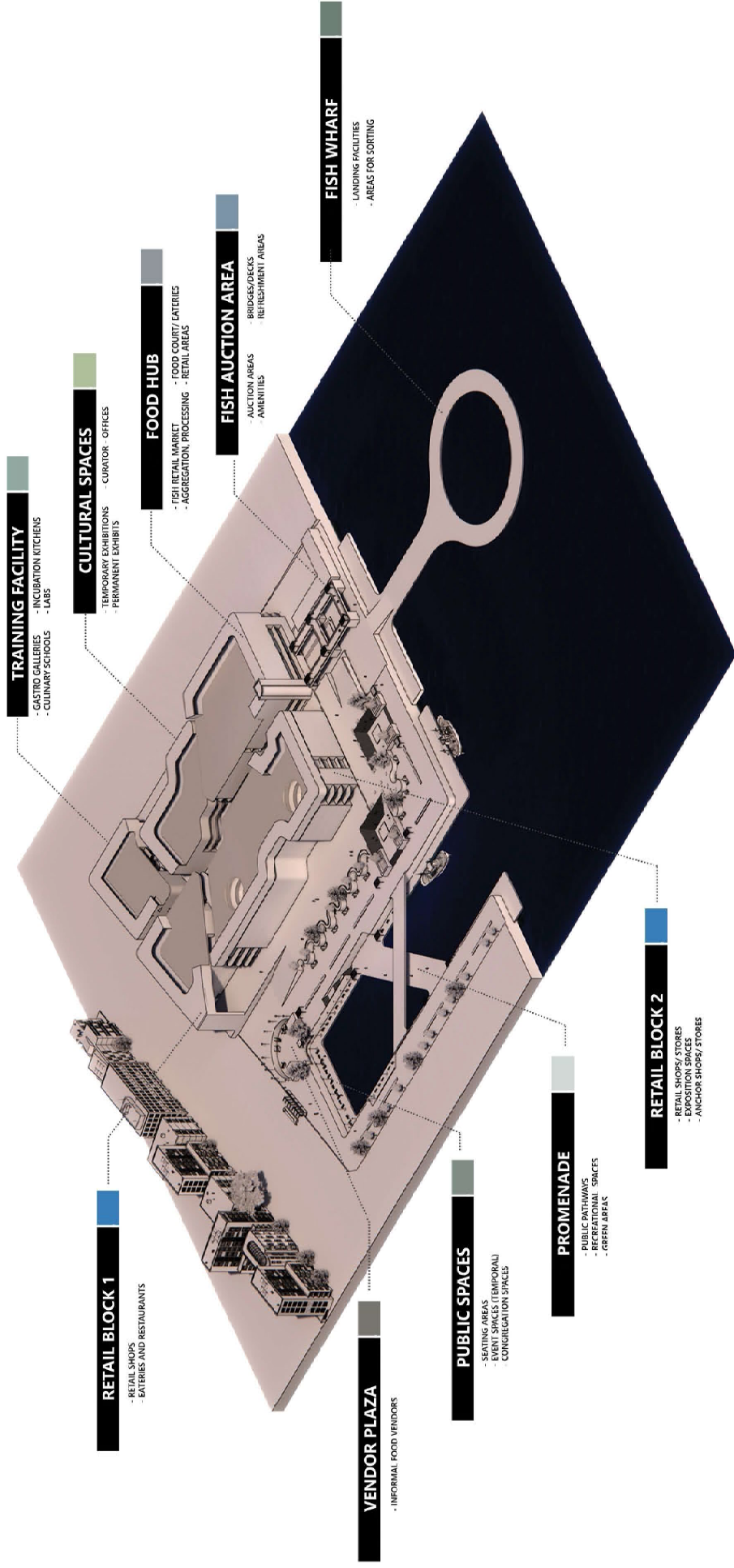


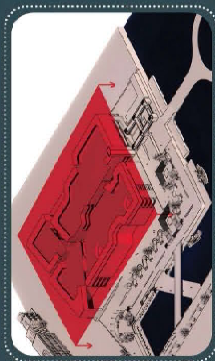
Area requirements for fish market
The fish market requirements for fish handling operations depend on the throughput, the nature of the operation and methods of handling and storage.
Within the building advantage space is used for the fish market. The space is assumed for this case that centralized available in 'out'.

Shared Use of spaces
As observed from the fish market, the shared use of spaces is observed from the way the space is used. This leads us into looking at an activity in a temporal manner.
Certain values and activities as per the zone programme can be accommodated in the shared use of spaces. The shared use of spaces and organization of an activity in a temporal way increase the usability coefficient of the space. The shared use of spaces can form an optimal pattern of configuration.



DESIGN PROPOSAL





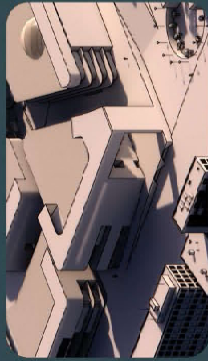
KEY PLAN

- 16. INFORMAL VENDOR PLAZA
- 17. ENTRANCE ARCH
- 18. STEPPED SEATING AREAS
- 19. BUS STOP
- 20. MARINA ENTRY-EXIT NODE
- 21. INTERCONNECTING BRIDGES
- 22. LOWER LVL. PROMENADE
- 23. SERVICE BAY
- 24. SEATING AREAS
- 25. FISH MARKET ENTRANCE

- LEGEND**
- A. TRAINING FACILITY
 - B. CULTURAL SPACES
 - C. FOOD HUB
 - D. RETAIL BLOCK 2
 - E. RETAIL BLOCK 1

- 1. RAMP UP - PODIUM
- 2. CENTRAL PLAZA
- 3. OPEN AIR THEATRE / SPILLOVER
- 4. MIDWAY TURNING POINT
- 5. INNER STREET
- 6. INTERCONNECTING BRIDGES
- 7. FISH AUCTION AREA
- 8. PATH TO LANDING JETTY
- 9. LOWER LVL. SPILLOVER AREAS / SORTING AREAS / NET MENDING SPILLOVER AREA

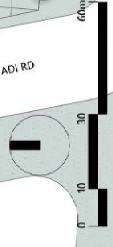
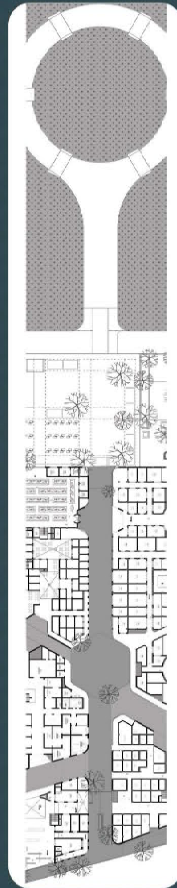
- 11. PROMENADE
- 12. OPEN AIR THEATRE
- 13. PODIUM
- 14. PROMENADE / VENDOR SPILLOVER AREAS
- 15. SEATING AREAS

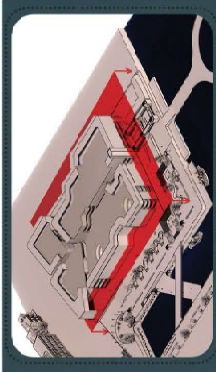


VIEW OF ENTRANCE ARCH



VIEW OF PROMENADE

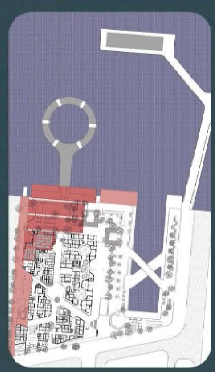




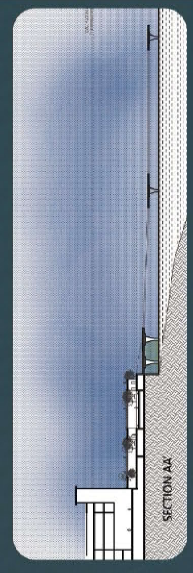
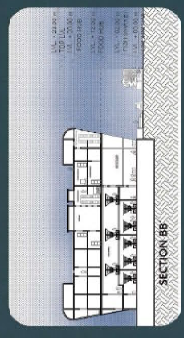
KEY PLAN



CIRCULATION - CONNECTING DIFFERENT BLOCKS



RELATIVE AREA WRT ALLOCATIONS FOR FISH ACTIVITIES



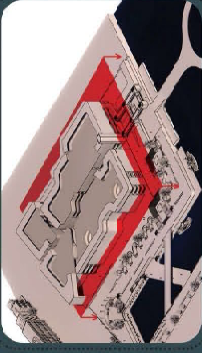
LEGEND

- A. TRAINING FACILITY
- B. CULTURAL SPACES
- C. FOOD HUB
- D. RETAIL BLOCK 2
- E. RETAIL BLOCK 1
- 1. RAMP UP - PODIUM
- 2. T. BLOCK - SPILLOVER AREA
- 3. EXHIBITION GALLERY (TEMPORARY)
- 4. C. BLOCK - SPILLOVER AREA
- 5. EATERIES
- 6. RETAIL BLOCK 2 - N. ENTRANCE
- 7. EXPOSITION - SERVICE UNITS
- 8. RETAIL BLOCK 2
- 9. ENTRANCE ARCH
- 10. STEPS + SEATING
- 11. PODIUM
- 12. O.A.T.1
- 13. PROMENADE

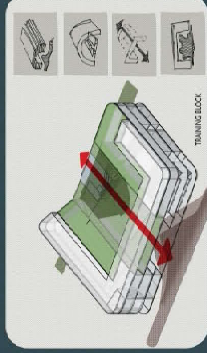
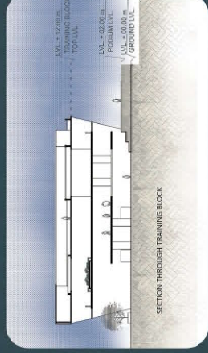


LEGEND

- A. TRAINING FACILITY
- B. CULTURAL SPACES
- C. FOOD HUB
- D. RETAIL BLOCK 2
- E. RETAIL BLOCK 1
- 1. RAMP UP - PODIUM
- 2. T. BLOCK - SPILLOVER AREA
- 3. EXHIBITION GALLERY (TEMPORARY)
- 4. C. BLOCK - SPILLOVER AREA
- 5. EATERIES
- 6. ANCHOR STORE
- 7. CONFERENCE UNITS
- 8. RETAIL BLOCK 2



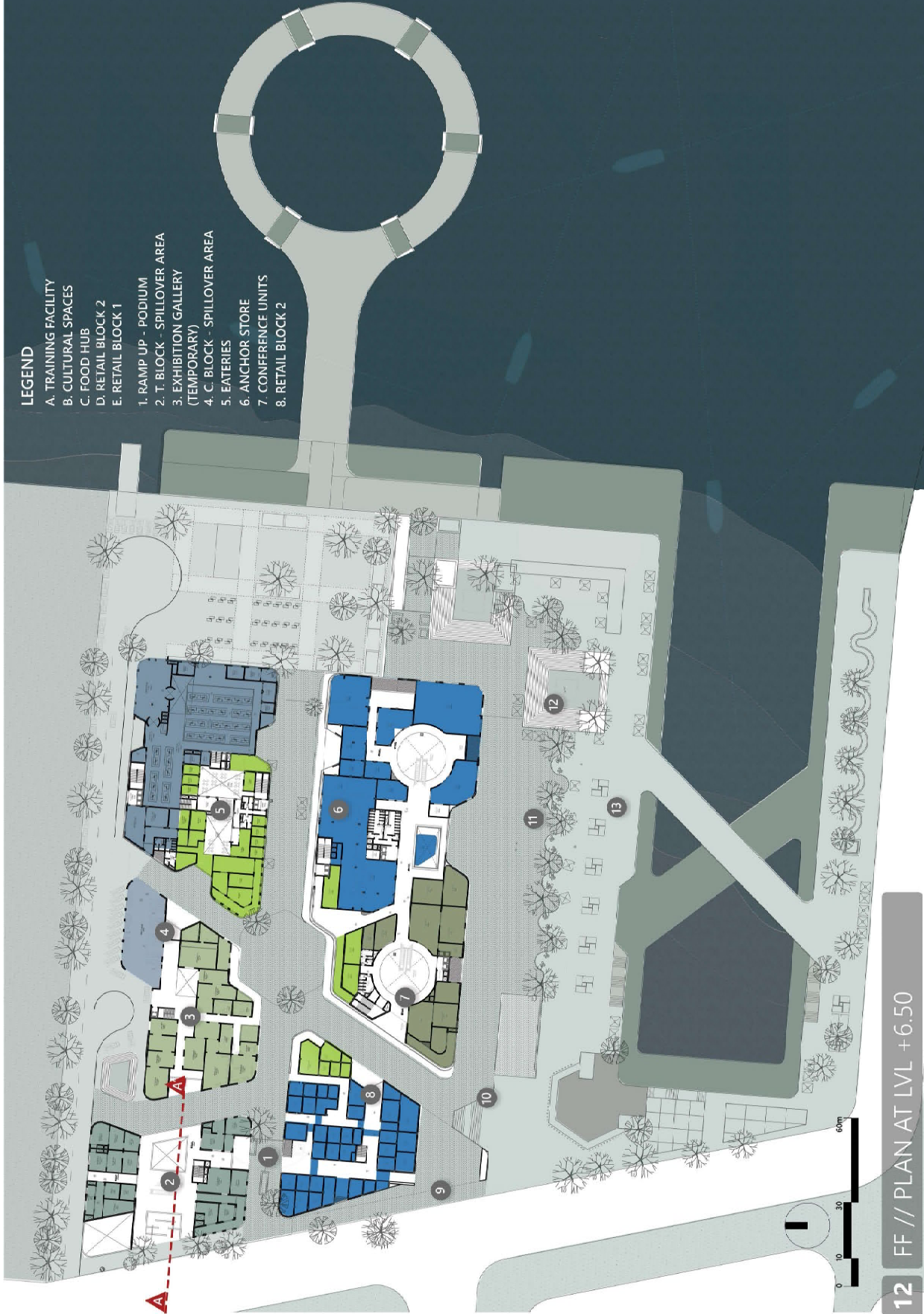
KEY PLAN

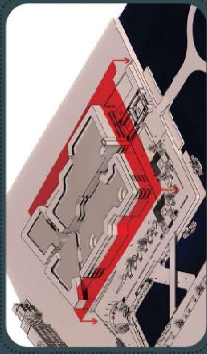


TRAINING BLOCK



DERIVATIVES

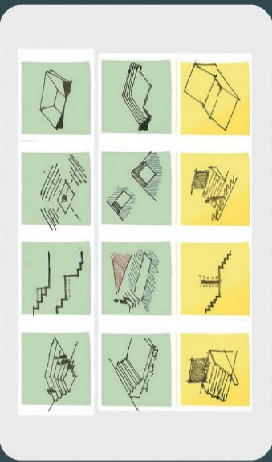




KEY PLAN

LEGEND

- A. TRAINING FACILITY
- B. CULTURAL SPACES
- C. FOOD HUB
- D. RETAIL BLOCK 2
- E. RETAIL BLOCK 1
- 1. DEPOT VOLUME
- 2. CULINARY SCHOOLS
- 3. EXHIBITION GALLERY (PERMANENT)
- 4. C. BLOCK - OFFICES
- 5. FOOD HUB - PROCESSING UNITS
- 6. DEPOT VOLUME
- 7. EXPOSITION UNITS
- 8. BRIDGE



SOCIALISING / EVENT SPACES

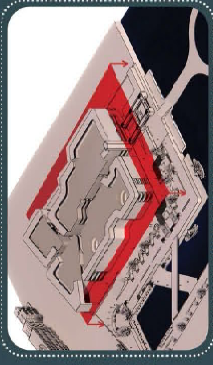


RETAIL SPACES

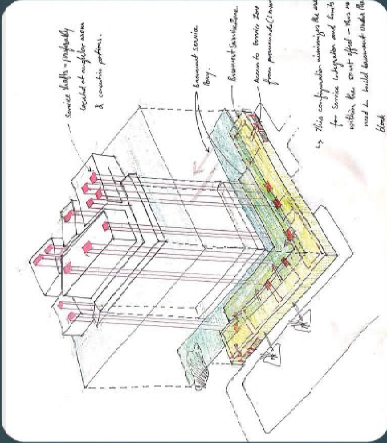
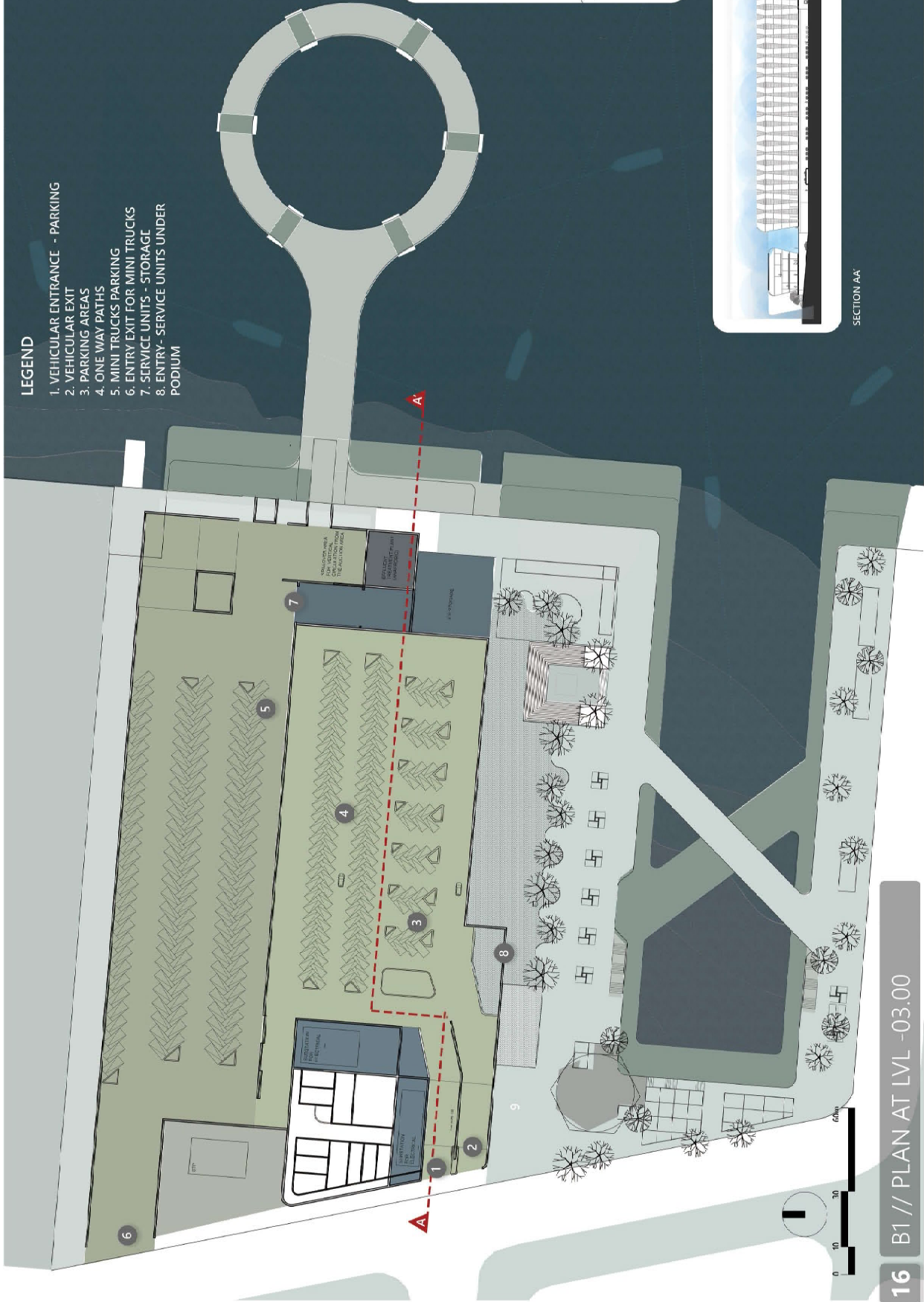


LEGEND

- 1. VEHICULAR ENTRANCE - PARKING
- 2. VEHICULAR EXIT
- 3. PARKING AREAS
- 4. ONE WAY PATHS
- 5. MINI TRUCKS PARKING
- 6. ENTRY EXIT FOR MINI TRUCKS
- 7. SERVICE UNITS - STORAGE
- 8. ENTRY - SERVICE UNITS UNDER PODIUM



KEY PLAN

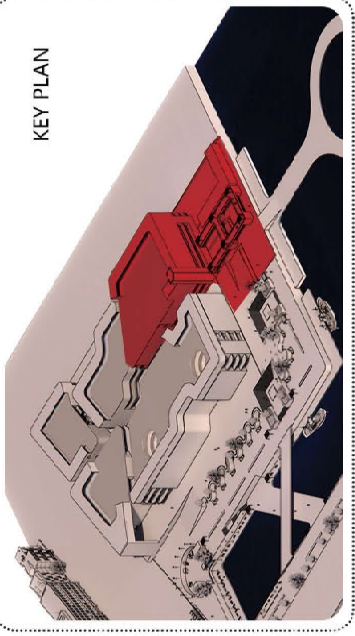


SCHEMATIC ZONING OF SERVICES



SECTION AA

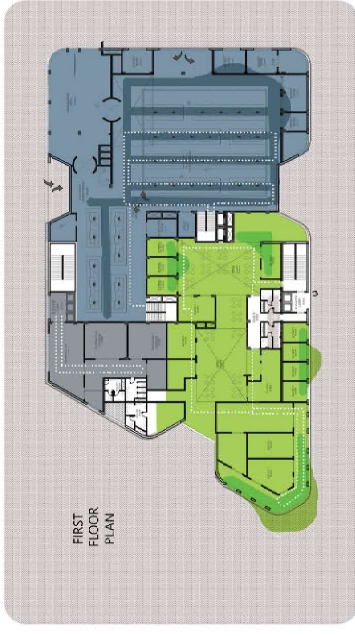
KEY PLAN



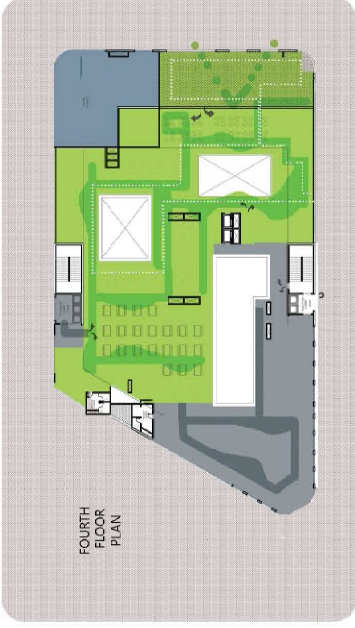
GROUND FLOOR PLAN



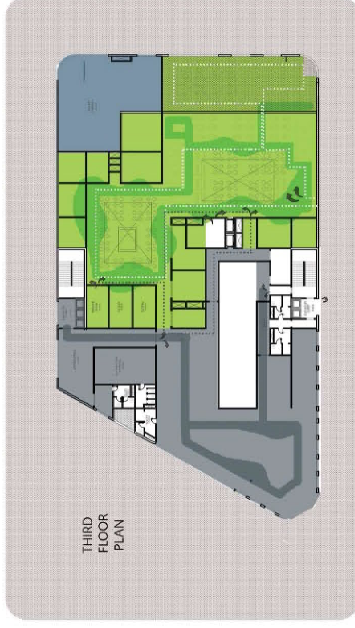
FIRST FLOOR PLAN



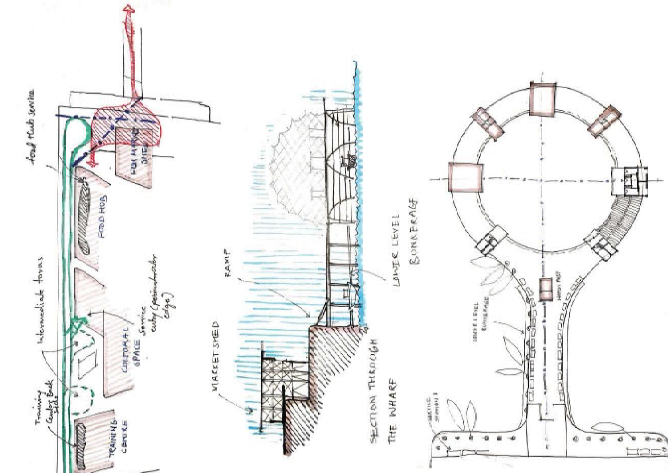
FOURTH FLOOR PLAN



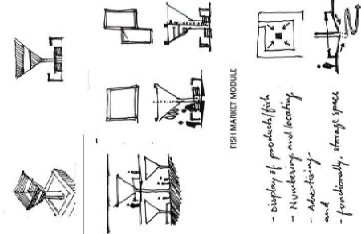
THIRD FLOOR PLAN



SECOND FLOOR PLAN



SECTION THROUGH THE MARKET

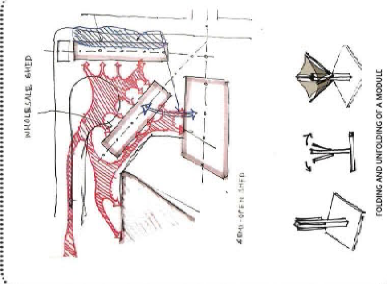


FISH MARKET MODULE

- Display of products fish
- Seating and seating
- Advertising
- functionality, storage space

LEVEL ORIENTATION
 - The orientation is designed to be flexible and adaptable to different levels and orientations.

FORM SYSTEMS
 - Form systems are designed to be flexible and adaptable to different levels and orientations.



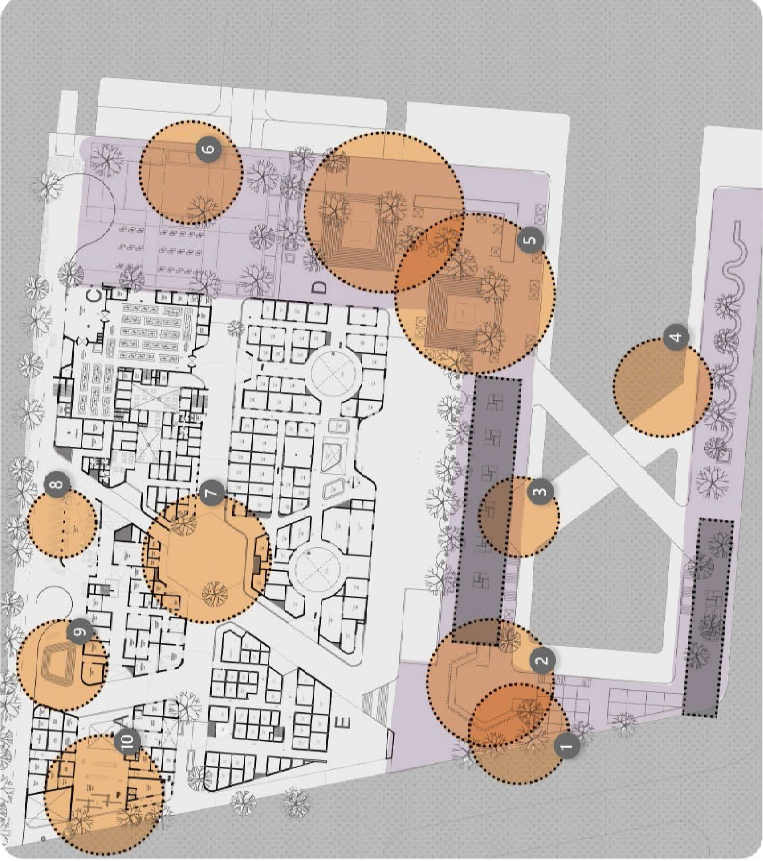
MIDDLE-SCALE GRID



COLLING AND UNCOLLING OF A MODULE

ONE LEVEL UNIT
 - Building units are designed to be flexible and adaptable to different levels and orientations.

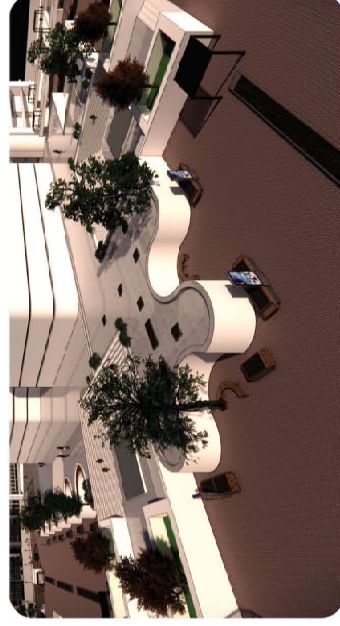
NEGATIVE FREQUENCY
 - Negative frequency is designed to be flexible and adaptable to different levels and orientations.



PUBLIC SPACE HOTSPOTS WITHIN THE SITE

LEGEND

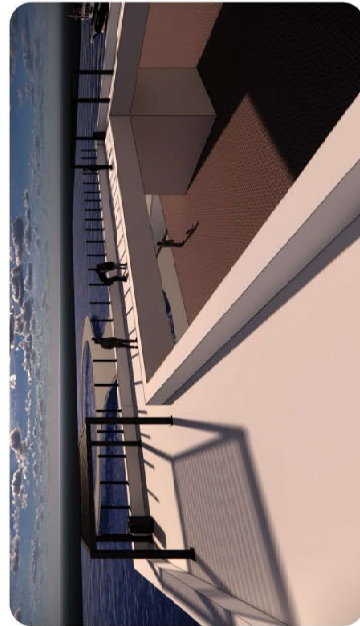
- 1. BUS STOP AND VENDORS SPILLOVER
- 2. INFORMAL VENDOR PLAZA
- 3. EVENT SPACE - PROMENADE LVL
- 4. PROMENADE - DIVISION - FLOATING MARKET
- 5. CONGREGATION AREAS/ EVENT SPACE
- 6. BRIDGES/ DECKS
- 7. CENTRAL PLAZA
- 8. SPILLOVER FOR MARKET AND CULTURAL EVENTS
- 9. OPEN AIR THEATRE
- 10. SPILLOVER FOR VENDORS AND TRAINING ACTIVITIES



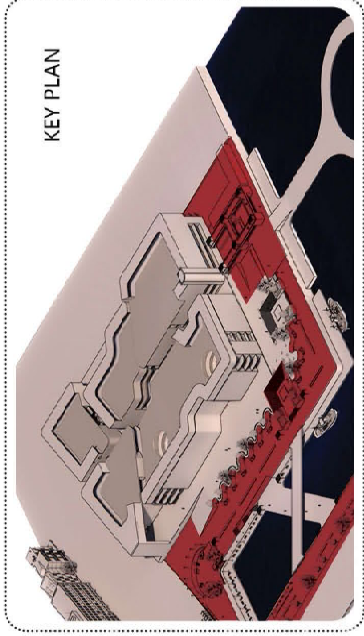
USE OF NON LINEAR GEOMETRY



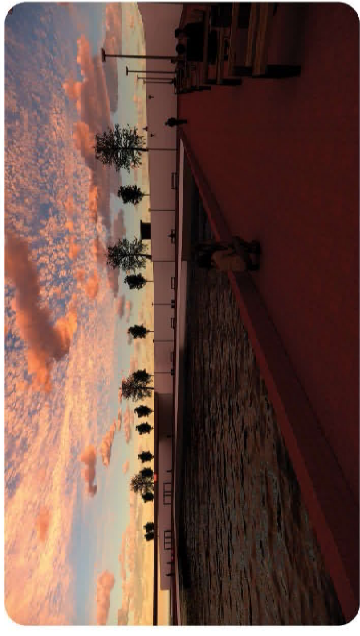
VIEW OF THE PODIUM AND PROMENADE



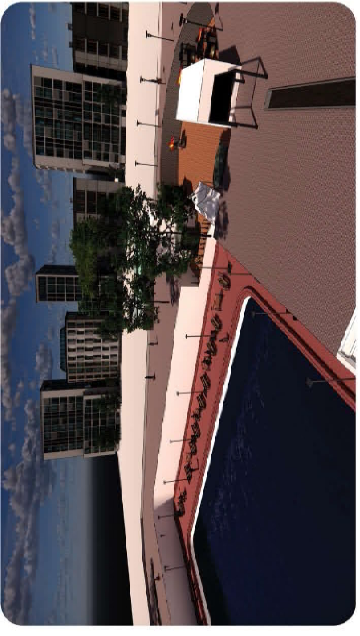
VIEW FROM BRIDGE/ DECKS (ABOVE AUCTION AREA)



KEY PLAN



VIEW OF THE PROMENADE FROM LOWER LVL



VIEW OF THE PROMENADE AND VENDOR PLAZA

SITE LEVEL ZONING

- Active areas are zoned as residential (high density)
- Night time - so as to reduce noise gain.

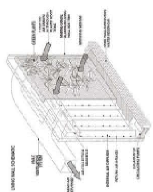
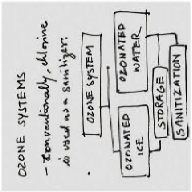
HYBRID SOLUTION

PASSIVE + ACTIVE

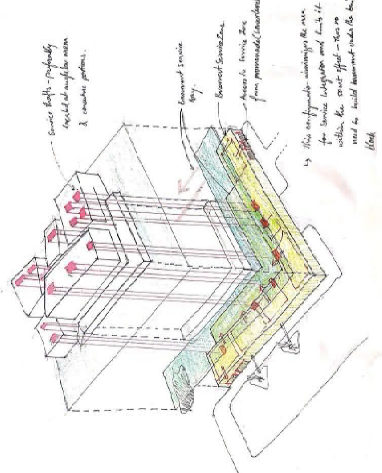
- The solar chimney is designed in a way that it generally works on heat but with natural fans.
- and will have an evaporative effect in case of overheat.

RELATIVE PRESSURE ZONES

- can be used to align the areas and zones in order to incorporate the negative pressure systems that do not allow spread into common areas.



One of the ways of dealing with the colour used to create a warm and bright atmosphere between the auction area and the rest of the area.



FR COMPOSTER

The Ecofish Elite II Composter fills in the gaps between the two other systems, accelerating composting process a volume reduction of 90% and thereby 10% of compost generation is achieved in 24 hours.

The machine composts waste using an efficient and automated control program. It is designed to handle a wide range of micro-organisms to decompose food waste and organic matter. This is accomplished without the need of repeated additions of water. The machine is designed to be used in the composting chamber.

Normal mixed food waste should take no longer than 24 hours to virtually disappear. The end products is nutrient rich organic compost which can be used for growing organic farming purposes.

ADVANTAGES

- Waste volume reduction of 75-90%.
- Compost is nutrient rich and can be removed only twice a month.
- Fully automated operation.
- Reduces the need for manual weeding.
- Electrical consumption by 10%.



As an alternative use of fish waste and oil, fish sludge for animal feed is another possibility. One of the main advantages of fish sludge is that it is a natural source of protein and can be used to feed fish or a fermentable carbohydrate source and a culture of lactic acid bacteria. The main advantage of this is that its manufacture is not accompanied by an unpleasant odour.

The addition of formic acid encourages the breakdown of fish tissue and the production of a liquid product. The liquid product is then used as a liquid is obtained whose protein content is similar to that of the raw material. The liquid is then used as a liquid for feeding poultry.

Manufacture of sludge is done by combining the raw material, formic acid and allowing the product to liquify. On the small scale, batches of say 50 kg these operations can be carried out manually.

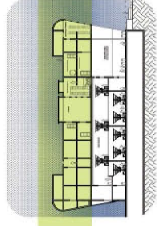
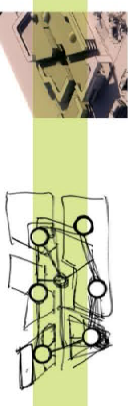
ZONING OF SERVICES UNDER THE PODIUM

WASTE TREATMENT

STRATEGIES TO REDUCE UNPLEASANT ODOR

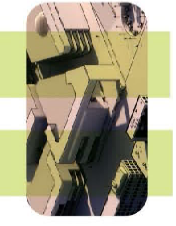
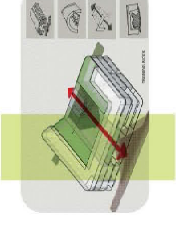
MIXED USE BUILDING

DISAGGREGATION OF BLOCKS

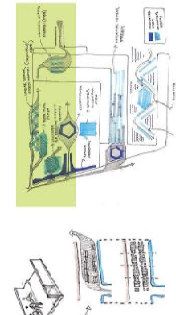
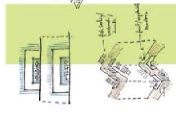


LIGHT INDUSTRIAL FACILITY

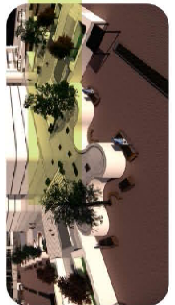
INCREASED PERMEABILITY



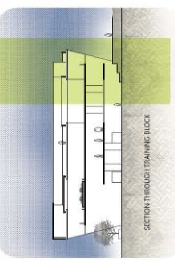
TEMPORAL PROGRAMMING



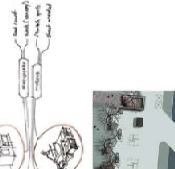
SHARED USE OF SPACE



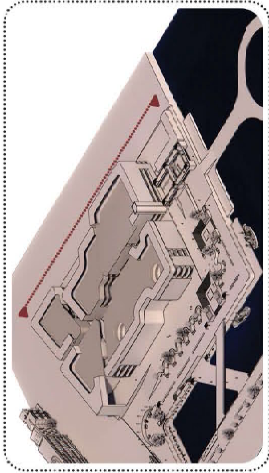
INTEGRATION OF LANDSCAPE



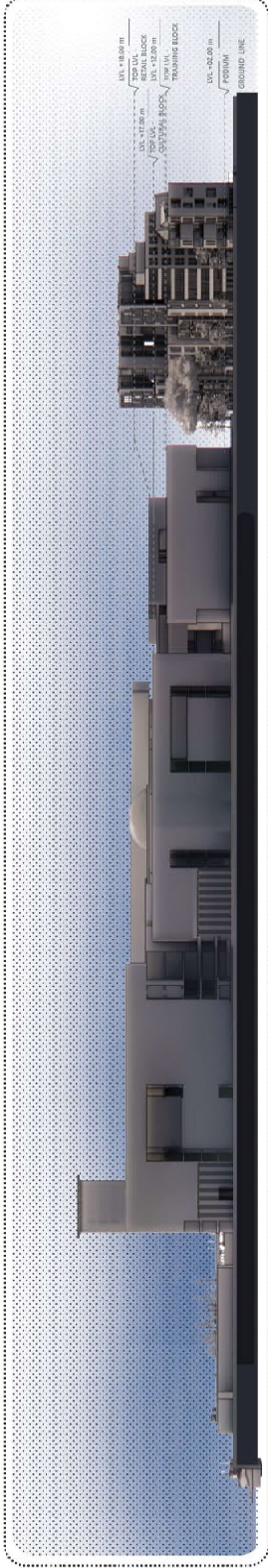
CONTROL



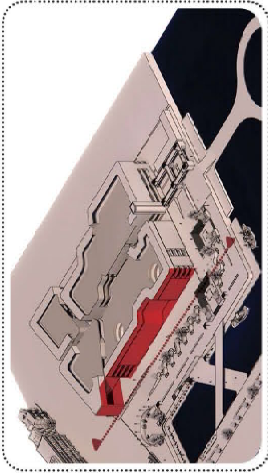
ACCOMODATING INFORMAL COMMERCE



KEY PLAN



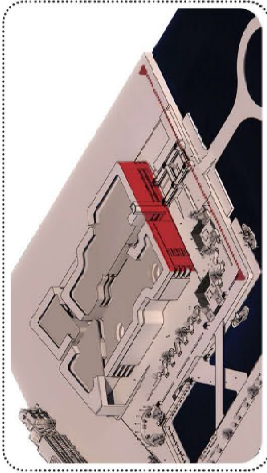
NORTH SIDE ELEVATION



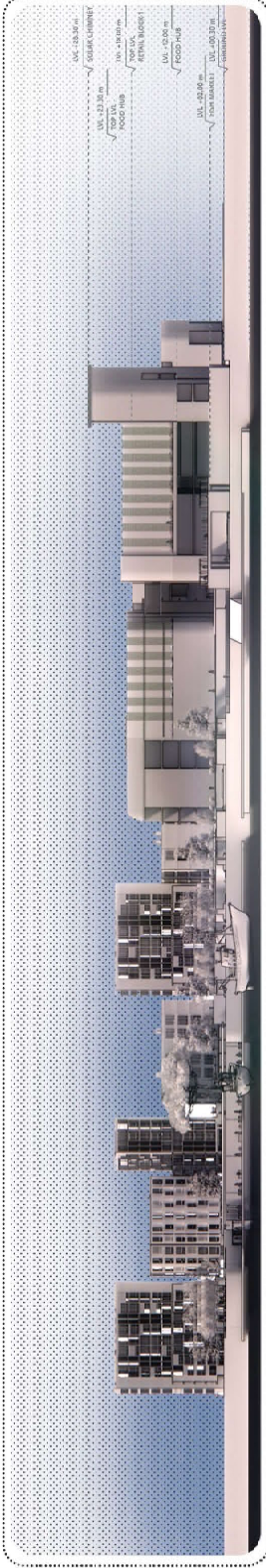
KEY PLAN



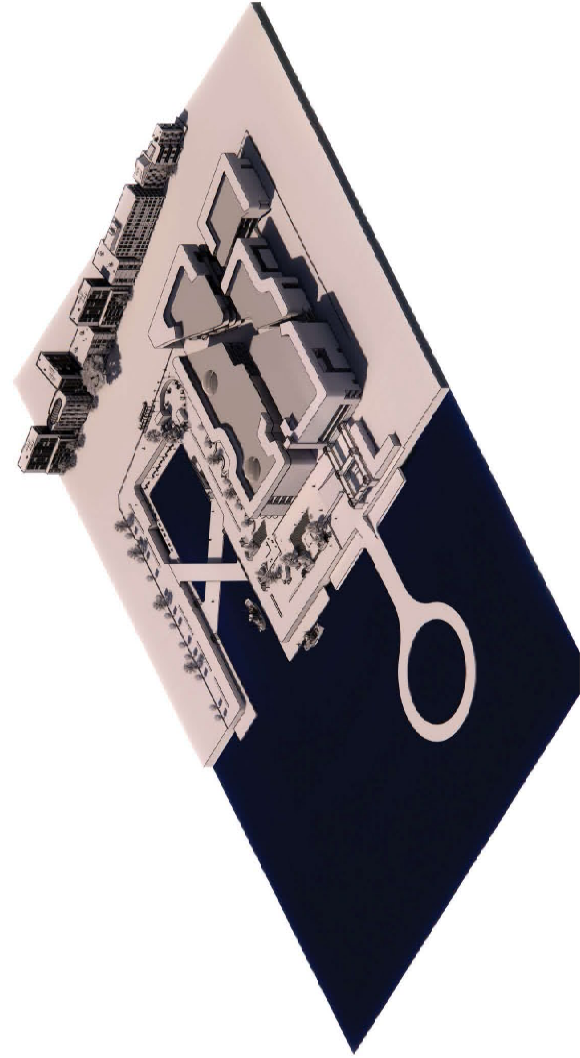
SOUTH SIDE ELEVATION



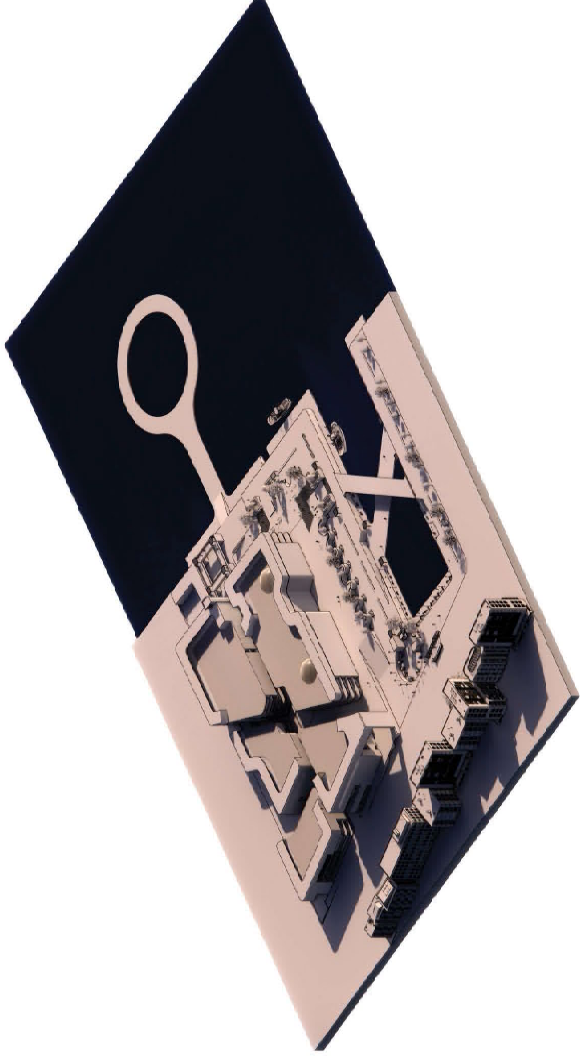
KEY PLAN



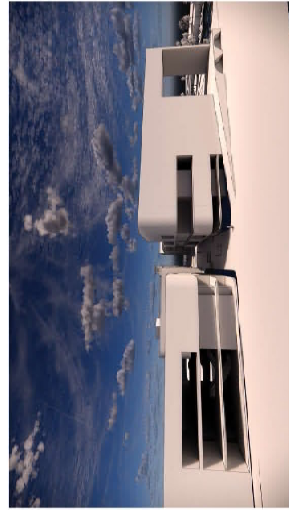
EAST SIDE ELEVATION



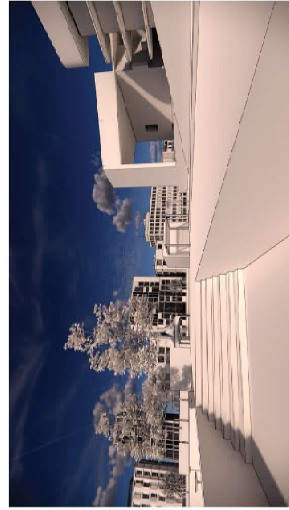
AERIAL VIEW 1



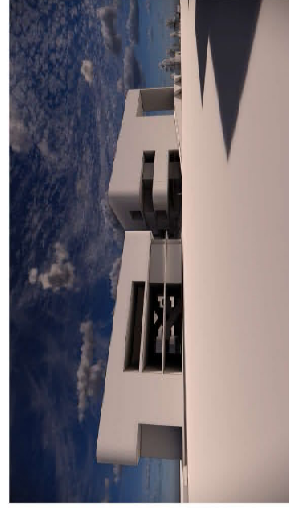
AERIAL VIEW 2



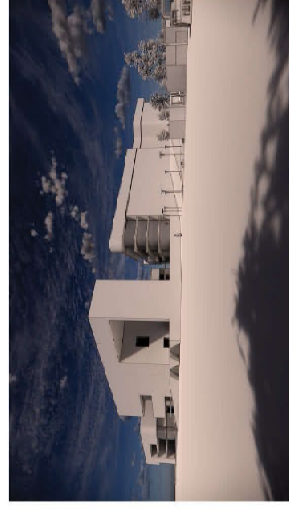
VIEW OF INNER STREET, RETAIL BLOCK 1 AND TRAINING BLOCK



VIEW OF THE GATE ARCH



VIEW SHOWING CIRCULATION IN THE TRAINING BLOCK AND RAMP TO THE ARCH



VIEW OF INNER STREETS AND VENDOR PLAZA

THANK YOU