



PRODUCTIVE PATH

Empowering Marginalized Communities through Sustainable Architecture:

A Case Study in Baluchistan, Iran

GRADUATION PROJECT

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"Architects have the power to create spaces that inspire, heal, and uplift. When they design for the poor, they create environments that foster hope and provide a sense of belonging, essential for the well-being of underserved communities."

Alejandro Aravena
Winner Pritzker 2016

PROBLEM STATEMENT

Despite the Sarbaz region in Baluchistan, Iran, possessing significant potential, including its proximity and access to water resources, the Sarbaz River, valley, and abundant date trees, it paradoxically remains one of the province's most economically deprived rural areas. This unfortunate circumstance can be primarily attributed to the lack of essential facilities for storing and preserving date fruit, compelling local farmers to sell their produce at low prices to brokers. Consequently, the revenue generated from date sales remains insufficient, leading to a distressing prevalence of unemployment. This dire economic situation has further exacerbated issues such as increased migration rates and involvement in precarious activities, such as fuel trafficking to Afghanistan and Pakistan.

MOTIVATION
ARCHITECTURE FOR UNDERPRIVILEGED

WHY THIS TOPIC IS IMPORTANT(TO ME)?

Architecture can serve all people, regardless of their socioeconomic background. Designing for the poor means creating spaces that uplift, empower, and provide opportunities for those who most need them¹. In recent years, numerous architectural projects have been designed and implemented with a focus on underserved communities, and many esteemed architects have presented highly acclaimed projects in this context². However, there still exists a significant need for such initiatives and services among the inhabitants of less developed regions. The project served as a platform to explore this pressing concern for an undeveloped area in southeast Iran to investigate and test this premise.

The project explores an endeavour about architect social responsibility to elevate the living standards of a financially marginalised community in a rural area in Iran. Despite rich resources harnessed, the Sarbaz area in Baluchistan province faces several climatic and economic challenges for decades, notably the lack of job opportunities contributing to pervasive poverty. To address these challenges, the project aimed to establish an integrated, sustainable, self-sufficient production chain based on local palm resources and promote community involvement. An incubator space empowered residents to actively participate in shaping their environment, generating employment and fostering a sense of ownership and influence.

Despite facing resource constraints, the project embraced these challenges as opportunities for innovative design and implementation while considering cultural sensitivities for seamless integration. The project exemplified architecture's transformative potential and emphasised the continued need for collective efforts to uplift low-income communities and create a more equitable and resilient world.

HYPOTHESIS

Harnessing and integration with local potential by incorporating vernacular architecture knowledge alongside existing resources like Date trees can establish a streamlined product chain and generate employment opportunities with stable income sources in the deprived areas. These expandable productive facilities with aim of minimal to zero cost, without relying on external financial aid, can have a profoundly positive and sustainable impact on the residents’ livelihoods and foster a sense of cohesion within the community.

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ESSAY

ABSTRACT

This graduation project delves into the socioeconomic challenges faced by the Baloch people residing in Baluchistan, an extensive region between Iran and Pakistan. Despite its rich history, diverse geography, and strategic location along the Oman Sea trade route, the area grapples with climate change, drought, unemployment, and poverty. The region's proximity to two unstable neighbouring regions, Afghanistan and Pakistan, with a common border of 2000 km, has further compelled residents to resort to risky activities such as smuggling to sustain their livelihoods.

This research explores the contributing factors to the current situation and proposes an integrated architectural solution to improve living conditions in vulnerable rural communities. Drawing upon various sources, including Google Maps, YouTube documentaries, interviews, literature, and data analysis, the study identifies challenges and offers a pragmatic approach. The architectural project centres around three core principles: utilising locally sourced materials, reducing dependence on external financial support, and preserving the region's unique culture and identity.

The proposed design aims to enhance the economic conditions in the rural areas of the Sarbaz region in Baluchistan by providing employment opportunities through a productive approach based on the Date farms chain supply, enabling villagers to store and produce sub-products throughout the year. Additionally, the essay demonstrates how this integrated strategy fosters a sense of belonging and unity among the local population. Ultimately, the goal is to establish a sustainable architectural model that can be expanded and replicated in similar settings, bringing about positive change to other communities facing comparable challenges.

INTRODUCTION

A few years ago, I had the opportunity to collaborate with a group of dedicated and philanthropic young individuals committed to improving the living conditions of the disadvantaged population in Sistan & Baluchistan. Our joint efforts involved raising funds to implement modest projects, including building bathrooms and water tank facilities. This experience provided an insight into the formidable challenges faced by these communities, igniting a personal commitment to explore architectural solutions that could address their needs. Subsequently, the present thesis project presented an opportunity to conduct a comprehensive investigation into the underlying causes of

these issues and explore potential remedies. While the research commenced with a broad inquiry, its progression revealed the growing magnitude and complexity of the problems.

The primary challenge I encountered was narrowing down the project's geographical scope³, given the vast province size exceeding five times that of the Netherlands. Each location in the region presented unique difficulties the local populace faces daily. As such, The research aimed to identify the root causes of the region's weak economy. Many planners and policymakers attributed the problems to climatic changes and water scarcity, particularly in the northern and eastern areas of Baluchistan, near two prominent lakes, Hamon and Jazmurian. Prolonged droughts in recent decades have resulted in the migration or abandonment of numerous residential areas around these lakes⁴. This led me to a new perspective and question: Could areas in Baluchistan with less extreme climates and more water resources have fewer challenges and better living conditions?

Further investigations led us to Sarbaz, characterised by a substantial river, densely populated villages, fertile agricultural land along the river's north-south axis, and a significant date-producing area in Baluchistan. Despite these favourable factors, the residents of Sarbaz still experience low income and employment levels. Therefore, this research focuses on studying and analysing the people’s lifestyles in this region.

As an architect involved in this project, I aim to provide an inclusive architectural solution that improves the quality of life for the villagers. This approach uses locally sourced materials and knowledge to create flexible and adaptable architectural spaces. The intention is to design areas that are not rigid or permanent but living structures that enable the local community to modify and expand them in the future without external assistance, according to their evolving needs.

ESSAY
CHALLENGES

PROBLEM STATEMENT

Throughout architectural history in the plateau of Iran, architects have demonstrated how innovative methods can enhance societies' quality of life and cultural aspects, even in challenging environments. With its ancient history, the Baluchistan region has witnessed the ingenious application of architectural approaches, such as windmills, by its inhabitants to harness natural forces. However, many of these architectural techniques have yet to be forgotten or addressed. The confluence of climate change and economic hardships in Iran has resulted in a lack of modern facilities and a growing demand for local knowledge and survival skills among the residents.

As agriculture serves as the villagers’ primary income for the villagers⁵, the absence of adequate facilities to preserve essential crops like dates, which hold cultural significance in the region, has allowed intermediaries to exploit the situation. Consequently, a detrimental cycle of reduced prices, further impoverishment of farmers, diminished product quality, and pervasive issues such as unemployment, migration, and precarious employment choices, including trafficking, has emerged. As a result, the residents' overall living conditions and quality of life have gradually declined⁶.

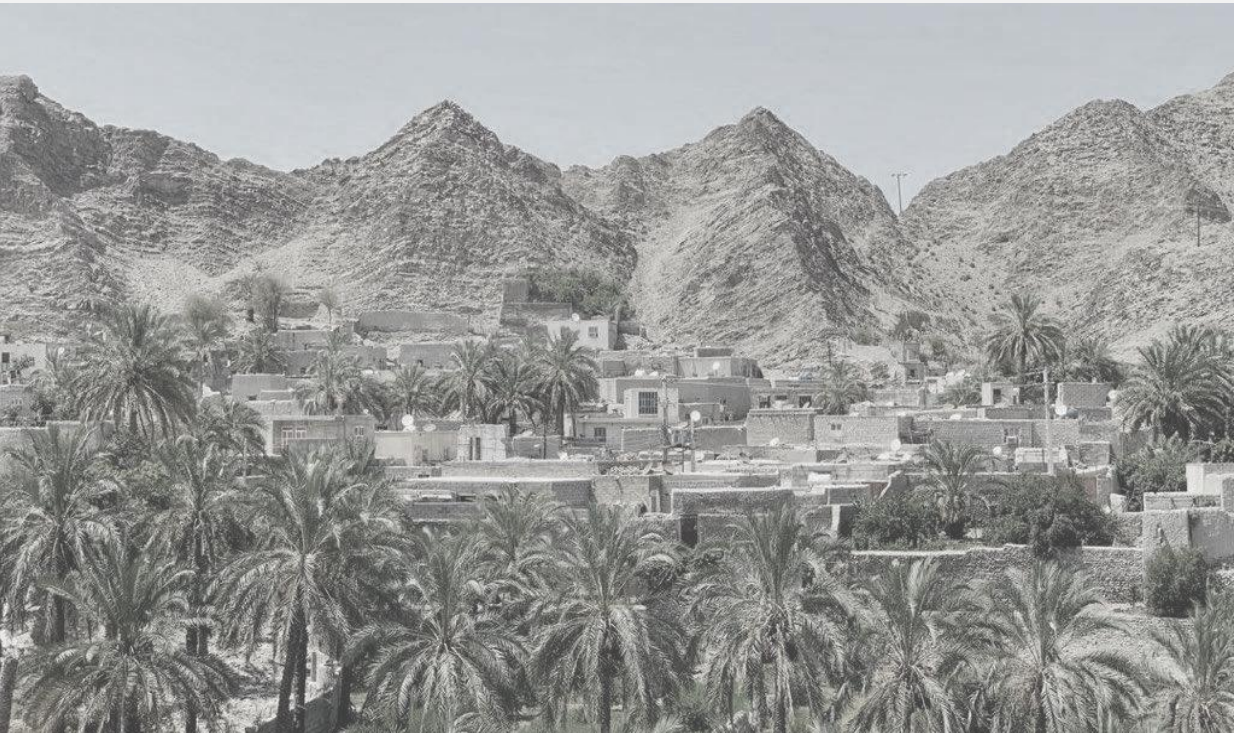
The income generated from palm tree pruning, an integral part of village life, must be revised to meet financial needs. These groves offer numerous applications within the architectural domain, including texture, design, and urban planning, particularly in hot and arid regions like the Sarbaz area. These long-standing trees, with a lifespan of approximately a century and towering heights of twenty meters, form an integral part of the architectural fabric and climate. Beyond their versatility as a product that can be processed in various ways and harvested consistently, they also provide ample shade and improved air quality, facilitating the cultivation of more delicate agricultural products. Moreover, strategically surrounding the villages, these trees help regulate temperature and humidity levels while mitigating the intensity of monsoon winds within the settlement area⁷. Thus, from an organic architectural perspective, they significantly impact the quality of life for the village residents.

RESEARCH QUESTION

How can the village’s potential be effectively utilised to advance the supply chain and create sustainable income and job opportunities while fostering sustainable architectural and socio-economic development?

SUB-QUESTIONS:

- 1. What architectural strategies can be employed to design a cooling facility for date storage that leverages traditional and vernacular systems to ensure efficient and sustainable operation?
- 2. What factors must be considered in establishing a streamlined supply chain for local products in the village, with minimal to zero cost and no dependence on external financial support?



ESSAY

What architectural strategies can be employed to design a cooling facility for date storage that leverages traditional and vernacular systems to ensure efficient and eco-friendly operation?

The architectural strategies combine traditional and modern techniques to design an efficient and eco-friendly cooling facility for date storage. Inspired by local vernacular architecture, windcatchers⁸ will be incorporated to promote natural ventilation and cooling. These windcatchers will be strategically positioned to harness prevailing winds and channel them into the storage facility. Evaporative cooling methods, such as water fountains or wetting building surfaces, will reduce indoor temperatures. The facility's design will prioritise thermal mass using locally sourced materials like stone and adobe, ensuring that heat is absorbed during the day and released slowly at night. Integrating shading elements, such as eaves and awnings, will minimise direct exposure to sunlight and prevent excessive heat gain. Combining these architectural strategies will create an energy-efficient and eco-friendly cooling facility for date storage.

What factors must be considered in establishing a streamlined supply chain for local products in the village, with minimal to zero cost and no dependence on external financial support?

Establishing a streamlined supply chain for local products requires careful consideration of several factors to ensure its durability and cost-effectiveness. Firstly, a thorough assessment of existing infrastructures, such as transportation networks and storage facilities, is essential to identify potential gaps and areas for improvement. The design will prioritise utilising existing resources to minimise costs. Secondly, community engagement and capacity building will create a self-sustaining supply chain. Empowering local farmers and entrepreneurs with the necessary skills and knowledge to manage the supply chain will reduce reliance on external support. Thirdly, the project will foster collaboration among stakeholders, including farmers, processors, and distributors, to establish efficient and cooperative relationships. Implementing transparent and fair trade practices will help ensure that all participants share the benefits equally. Moreover, incorporating digital technologies, such as mobile apps for tracking and logistics, will enhance the efficiency of the supply chain while keeping costs low. Lastly, the design will emphasise eco-friendly packaging and transportation methods to minimise environmental impact and align with the project's overall eco-conscious goals. Considering these factors, the proposed supply chain will aim to operate with minimal to zero cost and reduce dependence on external financial support.

By addressing the research question and sub-questions, the proposed architectural solution seeks to transform the economic landscape of the Sarbaz region in Baluchistan. By leveraging architectural ingenuity and incorporating eco-conscious practices, the project aims to create a model that improves the livelihoods of the local population and serves as an example for other vulnerable rural communities facing similar challenges.

Addressing Socioeconomic Challenges: The architectural solution must adopt a comprehensive standpoint to tackle the Baloch people's multifaceted socioeconomic adversities. Acknowledging the region's interconnected challenges is pivotal, necessitating an approach encompassing various dimensions. Consequently, the envisaged architectural intervention should encompass facets such as economic empowerment, preservation of cultural heritage, eco-consciousness, and holistic community development.

Fostering Economic Empowerment via Date Farms Chain Supply: The central thrust of the intervention centres on enhancing the economic prospects of Sarbaz's rural areas by establishing a supply system for date farming. Given the cultural reverence attached to dates and the abundant palm tree resources, there exists an opportunity for sustainable income generation and job creation. Through an approach that streamlines date processing and storage, villagers can engage in year-round production and storage of date-based products. This approach fosters economic resilience and reduces reliance on external fiscal aid.

Promoting Adaptability and Flexibility: To accommodate the community's evolving needs over time. Instead of imposing rigid and immutable structures, the proposed solution should empower the local populace to modify and expand their living spaces sans external aid. This approach ensures that the architectural framework remains pertinent and responsive to shifting socioeconomic dynamics while nurturing a sense of autonomy and self-reliance among the villagers.

Preservation of Cultural Identity: The region's distinctive cultural identity is paramount to the proposed architectural intervention. The project should not merely mirror the cultural heritage of the Baloch people; instead, it should actively champion it. The infusion of traditional architectural elements, communal spaces, and cultural rituals into the design fosters a profound sense of belonging and camaraderie among the local populace. This, in turn, bolsters social cohesion and contributes to overall communal well-being.

Prioritising Environmental Harmony: The architectural solution should also prioritise ecological balance. Given climate volatility and water scarcity challenges, the project must seamlessly integrate sustainable design tenets to mitigate its environmental footprint. The project can significantly curtail its ecological impact by implementing passive cooling methods, prudent water management strategies, and harnessing renewable energy resources.

Proposed Resolution: The envisaged architectural resolution for Baluchistan involves establishing a network of facilities dedicated to date processing and storage. These facilities will be strategically dispersed across the Sarbaz region, emphasising the integration of traditional and indigenous architectural techniques. The architectural blueprint will optimise natural ventilation, shading mechanisms, and passive cooling methodologies to ensure efficient and ecologically sensitive operations.

Additionally, the project will orchestrate a streamlined supply chain for local products within the village. This concerted effort will minimise expenditures and mitigate dependency on external financial assistance, nurturing economic autonomy and resilience. The holistic amalgamation of the date farms chain supply system and the streamlined local supply chain underscores the symbiotic connection between the villagers' financial prosperity and cultural heritage.

CONCLUSION:

In summation, the architectural graduation project embarks on a comprehensive and harmonised journey to confront the socioeconomic intricacies challenging the Baloch people of Baluchistan. By prioritising economic empowerment, cultural safeguarding, eco-consciousness, and holistic communal advancement, the proposed solution endeavours to engender positive and enduring transformation within the lives of the villagers. The project aspires to bestow sustainable avenues for income generation and job creation while preserving the region's distinctive cultural fabric by establishing a date farms chain supply system and a locally grounded supply chain. Ultimately, the aspiration is to formulate a model that can be replicated across similar contexts, thus contributing to the uplift of vulnerable rural communities grappling with analogous challenges.

RESEARCH



RESEARCH

METHODOLOGY

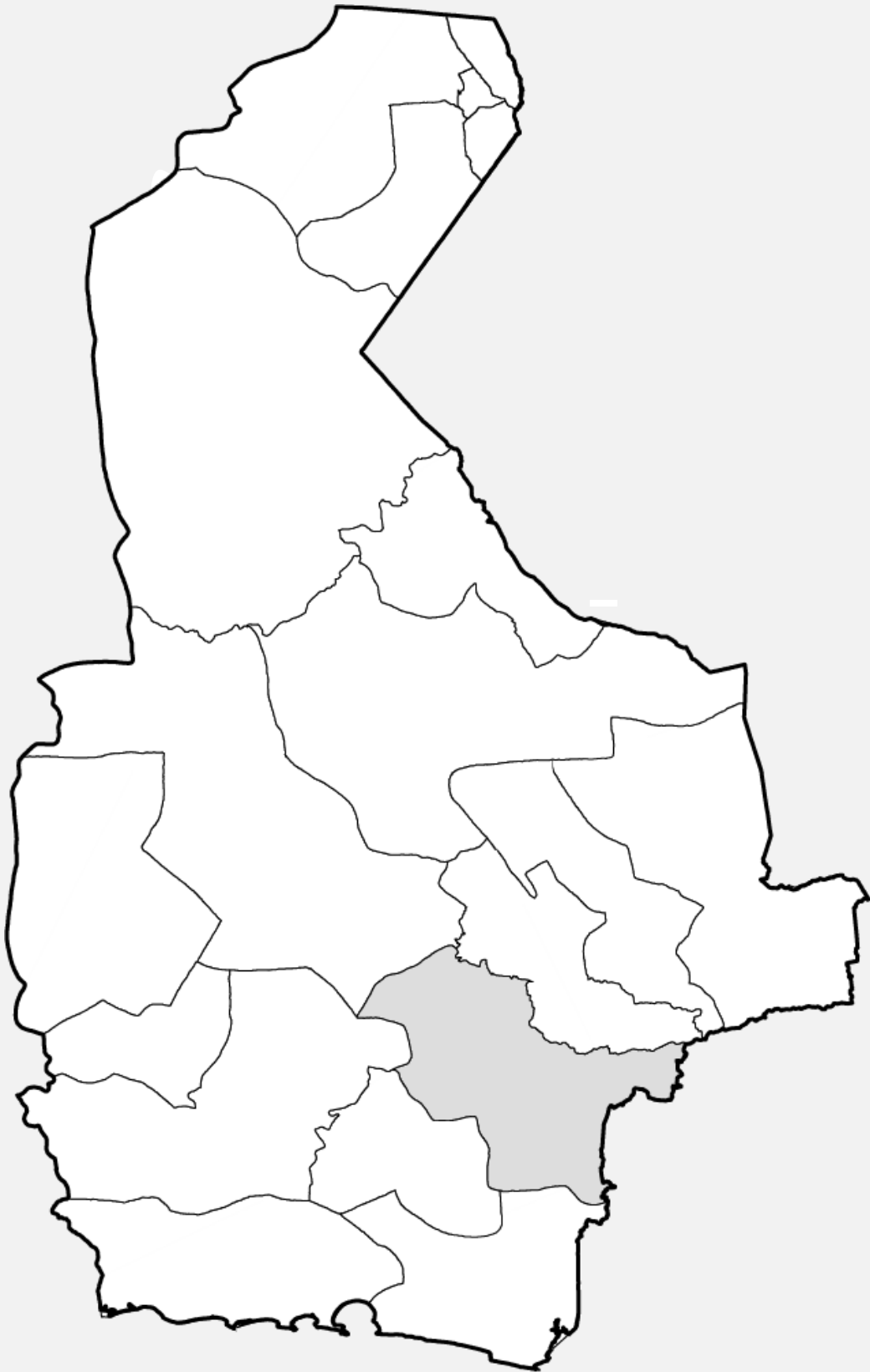
Due to the current limitations on travel and site visits in Iran, digital tools such as Google Maps, YouTube documentaries, and Google Earth were utilised to gather information for the study. Desk research involved reviewing literature, articles, and research papers, with additional efforts made to verify and ensure the accuracy of Persian-language sources obtained from government organisations within the country. This phase required extensive comparisons and searches to establish citation credibility. In parallel, two interviews were conducted with a few people with different roles in the area to gain first-hand insights into the challenges and potential of the area. Various maps were also created by overlaying and analysing climate, literacy, population, income, and other relevant data, contributing to the development of the design strategy.

Keywords : Baluchistan, Women, Climate change, living condition, Poverty, Economy



RESEARCH

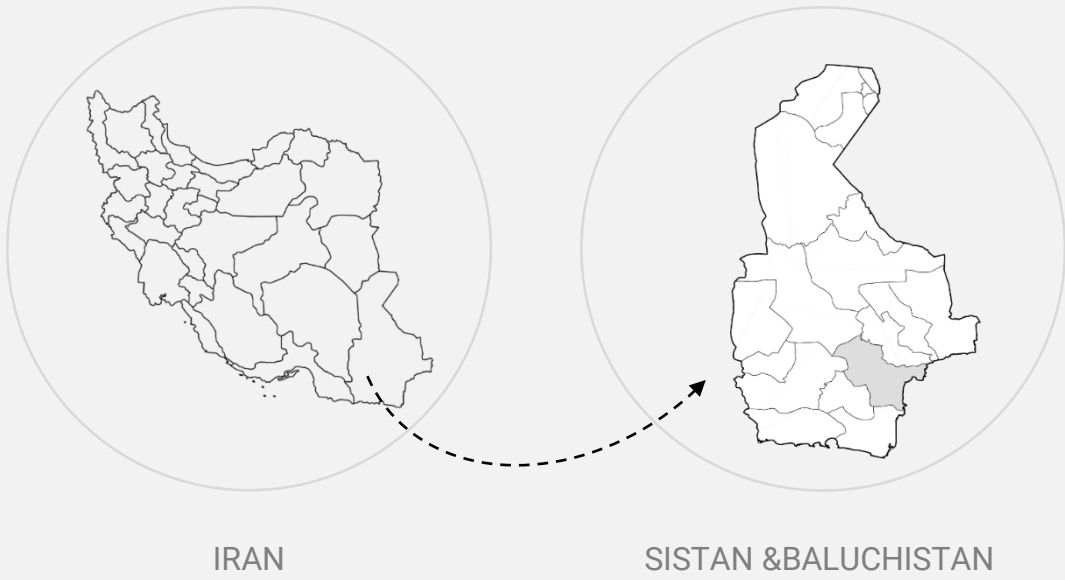
SISTAN AND BALUCHISTAN PROVIENCE



RESEARCH
LARGE SCALE

ABOUT SISTAN & BALUCHISTAN

The province of Sistan & Baluchistan is situated in the South-East of Iran. With an area of 181,726 km2, it is the second-largest province in the country. From the South, the region has a coastal border with the Oman Sea, on the East with Pakistan and Afghanistan, on the North, with Southern Khorasan Province. On the West, it borders Kerman and Hormozgan provinces. Sistan and Baluchestan comprise seven main cities: Zahedan (the capital), Zabol, Khash, Saravan, Iranshahr, Nikshahr and Chabahar. Although the largest province in the country, it is relatively sparsely populated. According to the 2016 census, only 2,775,000 people live in this province, constituting 3.4% of the country's population. About 50.4% of the population lives in rural areas, with the remaining 49.6% living in the cities. In general, desert and semi-desert climatic conditions prevail in the Baluchistan region. In most towns of Baluchistan, the maximum temperature is above 40 degrees Centigrade.



Darak Beach in Sistan-Baluchestan province (Tehran Times 2020)



Palm grove in Sistan-Baluchestan province (Khabar online 2014)

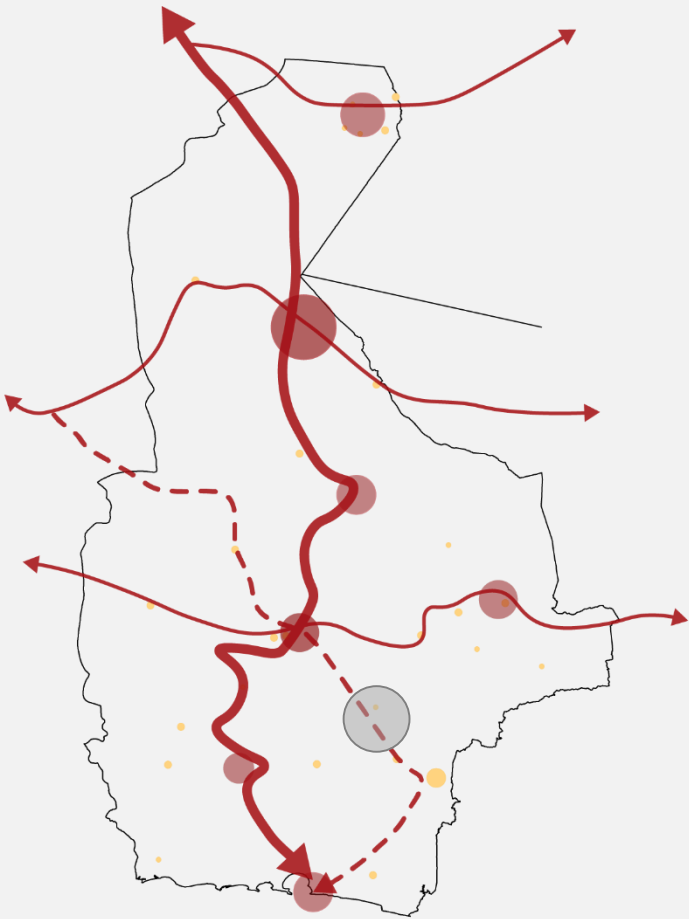


Miniature Mountains, which are situated near Chabahar(Tehran Times 2019)



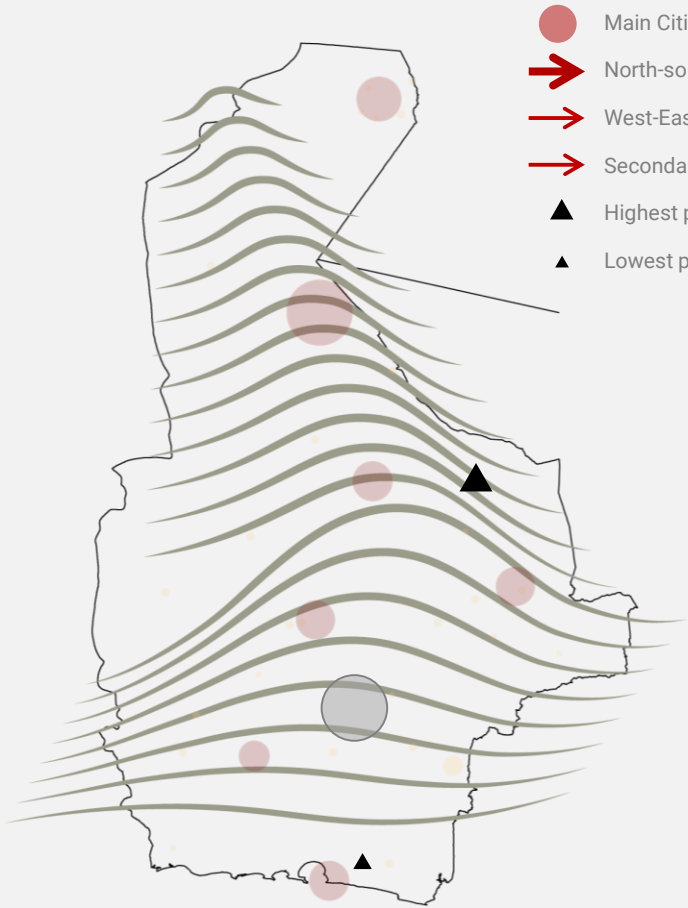
A view of the centuries-old Seb castle in Sistan-Baluchestan province (Tehran Times 2020)

RESEARCH
LARGE SCALE



MAIN ACCESS

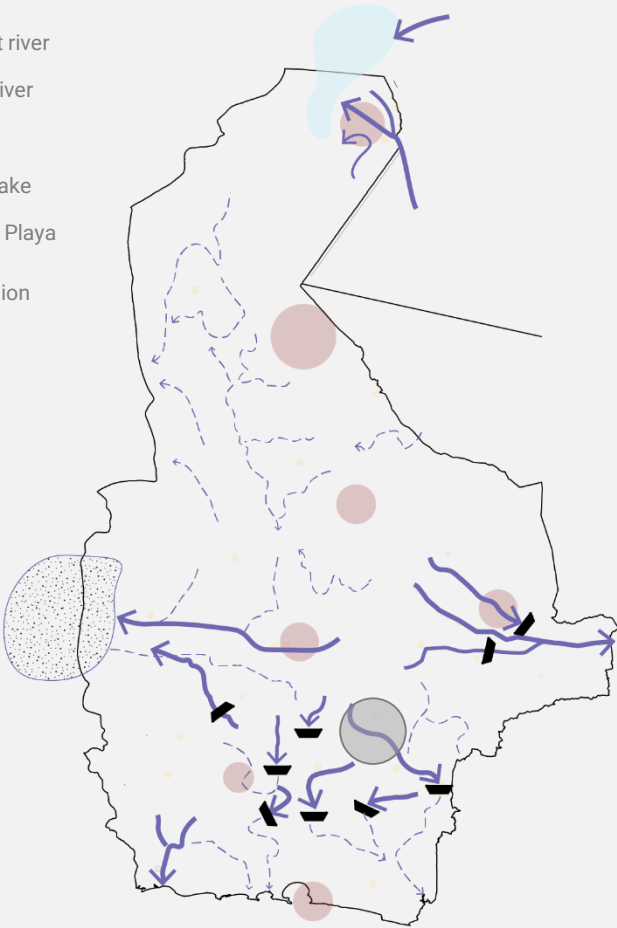
The province has one main road connecting the north to the south, passing through Iranshahr, located in the centre. This road is crucial for trade, as it leads to the coast of the Oman sea in the south. Additionally, three other main roads connect the west to the east in the area's north, central, and southern parts. These roads are also vital trade routes to Afghanistan and Pakistan. Furthermore, the southeast also passes through Iranshahr, making it the most significant west-east connection in the region.



MOUNTAINS

The Baluchistan region boasts a stunning array of mountains characterised by their compact folds spanning in north and south directions. These mountains serve as a conduit leading to the Lut desert from the west and the Sistan plain from the east. Among these elevations, Leopard Mountain is a notable peak that offers a commanding view of the Sistan plain. However, the highest mountain in Balochistan is Taftan, where the Taftan volcano is situated, rising 4034 meters above sea level, an impressive height indeed.

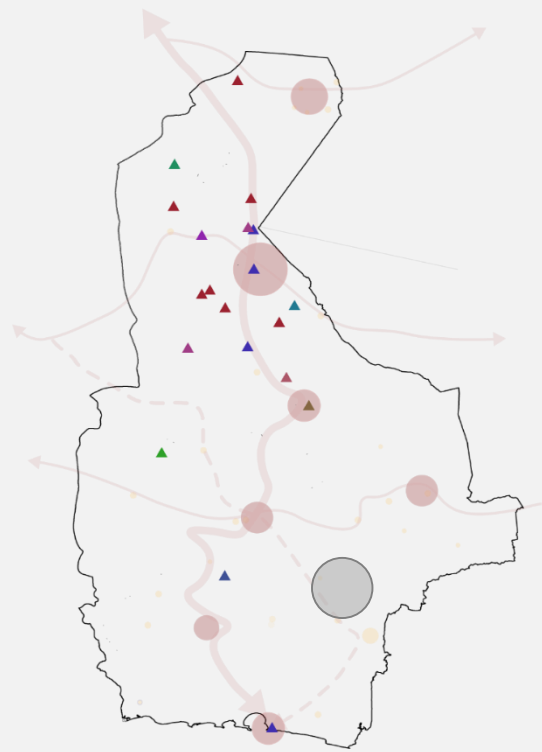
- Main Cities
- ➔ North-south connection
- ➔ West-East connection
- ➔ Secondary Road
- ▲ Highest point
- ▲ Lowest point
- ➔ Permanent river
- ➔ Seasonal river
- ▬ Dam
- Hamoon Lake
- Jazmurian Playa
- Sarbaz region



MAIN SURFACE WATER RESOURCES

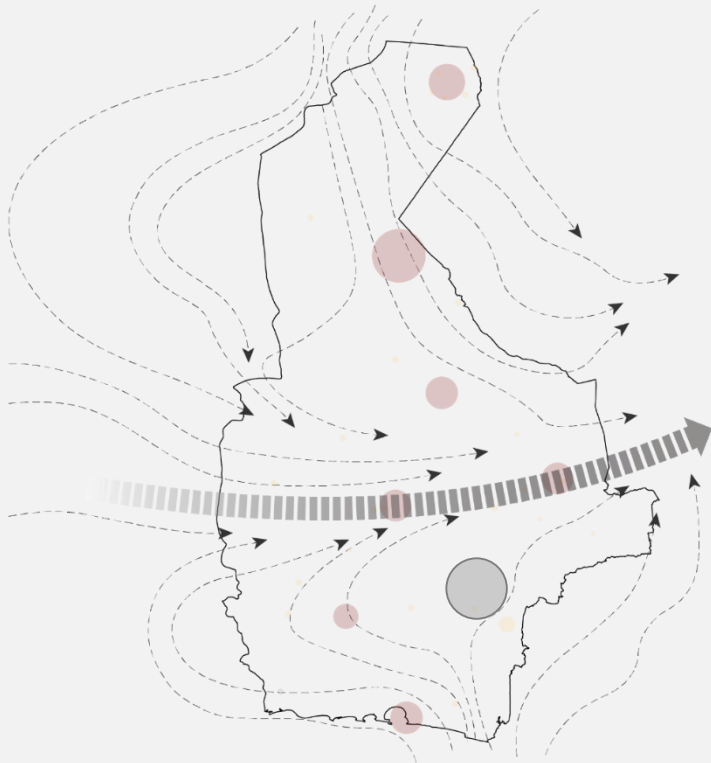
The Jazmurian area is between Kerman and Sistan-Baluchistan, and its primary water source comes from the Halil Rood and Bampur Rivers. Unfortunately, the dams in these provinces have not allocated water rights to this wetland, resulting in significant parts of the swamp drying up. The central and deeper details of the area are now full of mud and are drying up entirely. Additionally, the Hirmand River used to flow in Iran and Afghanistan. Still, after the separation of Herat from Iran, the river's flow has been a contentious issue between the two countries. Even though a peace treaty was signed in 1972 to address the issue, dam construction in Afghanistan and drought in Iran have caused Lake Hamon to almost dry up, which has had severe environmental consequences for Sistan and Baluchistan.

RESEARCH
LARGE SCALE



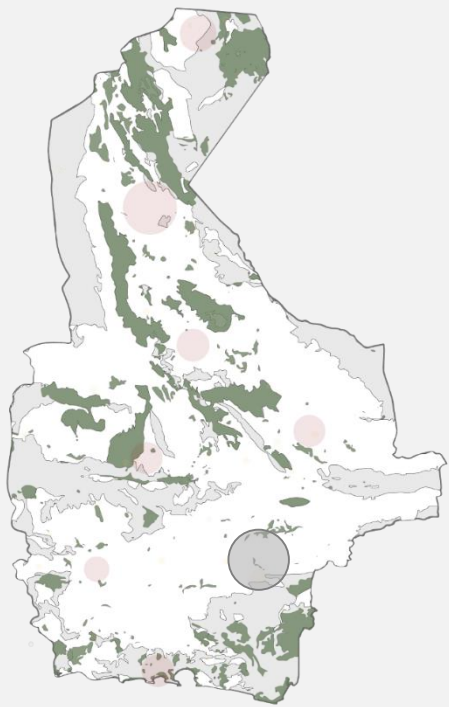
MINES

Sistan and Baluchistan is a province in Iran known for its vast array of mines. They say it's like a rainbow of different minerals! Apparently, there are over 400 different mines in this province, including metallic and non-metallic minerals like chromite, iron, and manganese, as well as construction materials like granite, rubble, sand, and clay. It's pretty amazing to think that these mines contain 5% of Iran's mineral reserves.



WIND

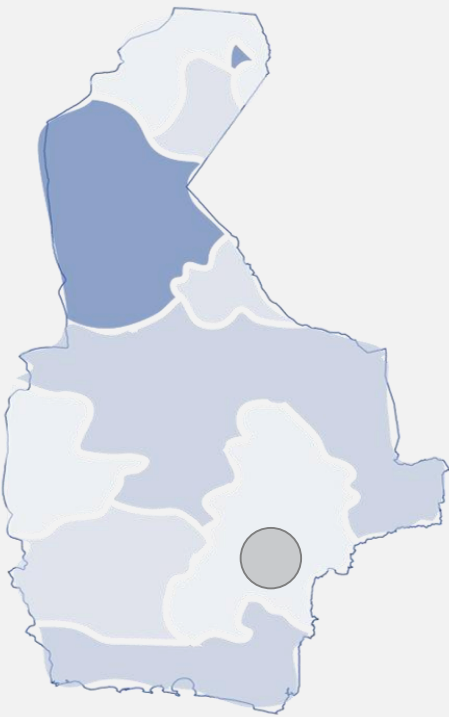
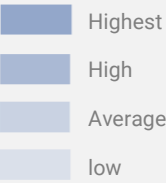
The winds of Sistan and Baluchistan (calls 120sistan wind) can last up to 180 days, a direct result of past droughts. These winds significantly impact the northern and sometimes central regions from mid-May to mid-September. Environmental experts have identified the drying of the Hamoon international wetland, drought, and water cuts of the Hirmand River as the primary causes of the increased erosive properties of the winds.



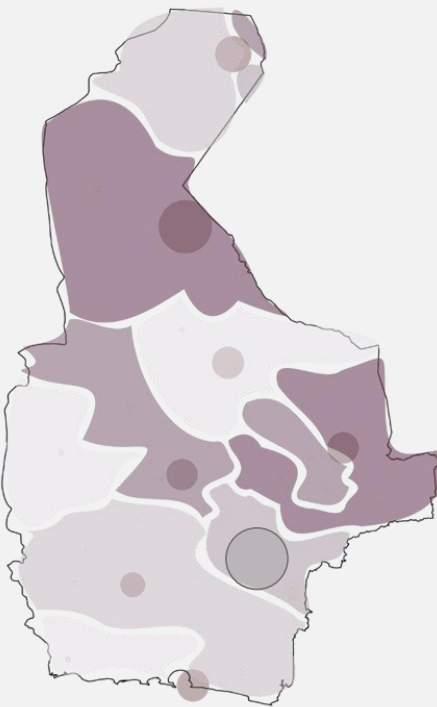
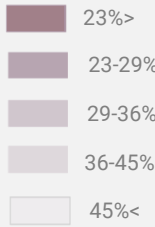
LAND TYPE

As can be seen on the map, the most significant portion of the land, about 94.47%, is poor pasture. The rest of the land respectively is desert-bad land 6.63%, wild green 2.46% and agriculture 0.41%.

INCOME



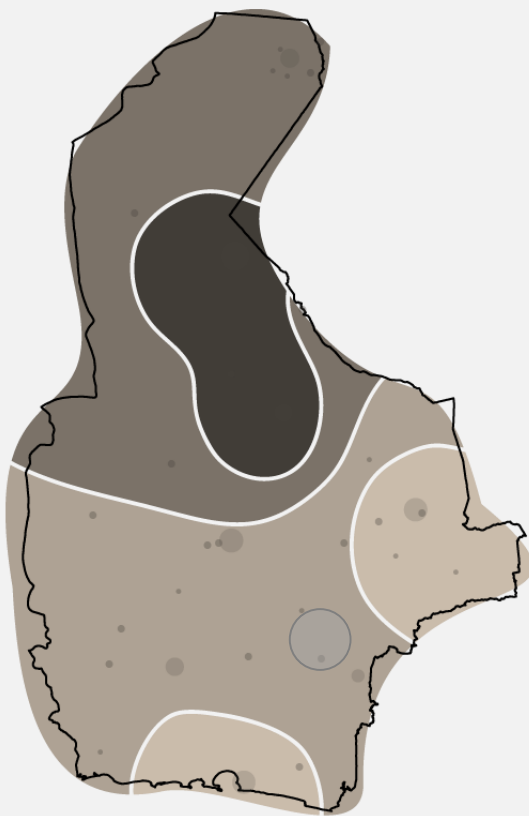
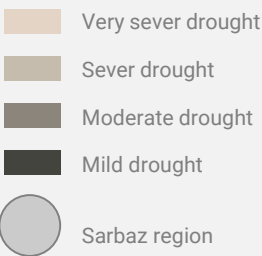
UNEMPLOYMENT RATE



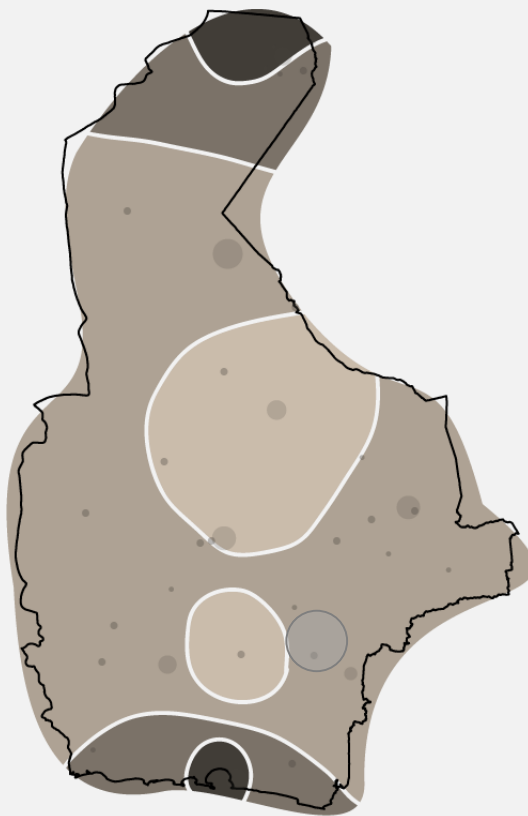
RESEARCH
LARGE SCALE

OVERVIEW OF DROUGHT TREND IN THE REGION

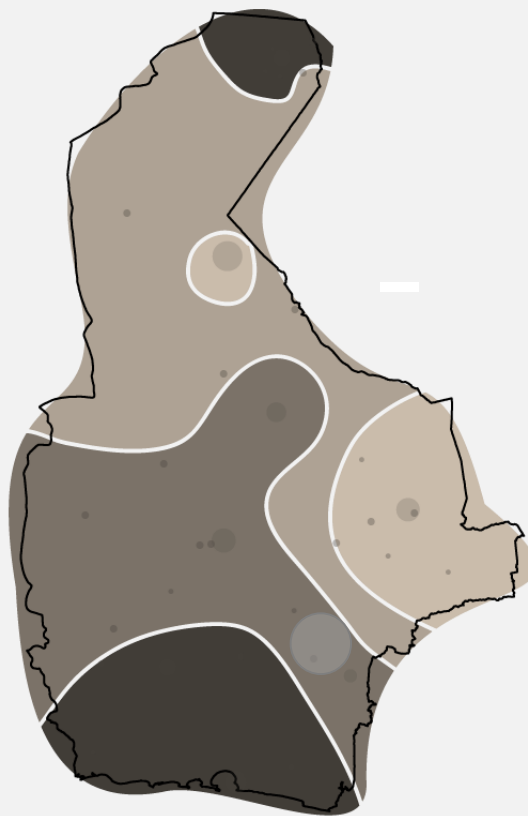
According to the studies, the drought in Sistan and Baluchistan is among the most severe droughts. But the research results show that very severe and severe droughts will decrease and moderate and mild droughts will increase. But according to the forecasts, the drought in the project location is becoming more intense



2003



2005



2015



2022

Overview of the rural areas growth

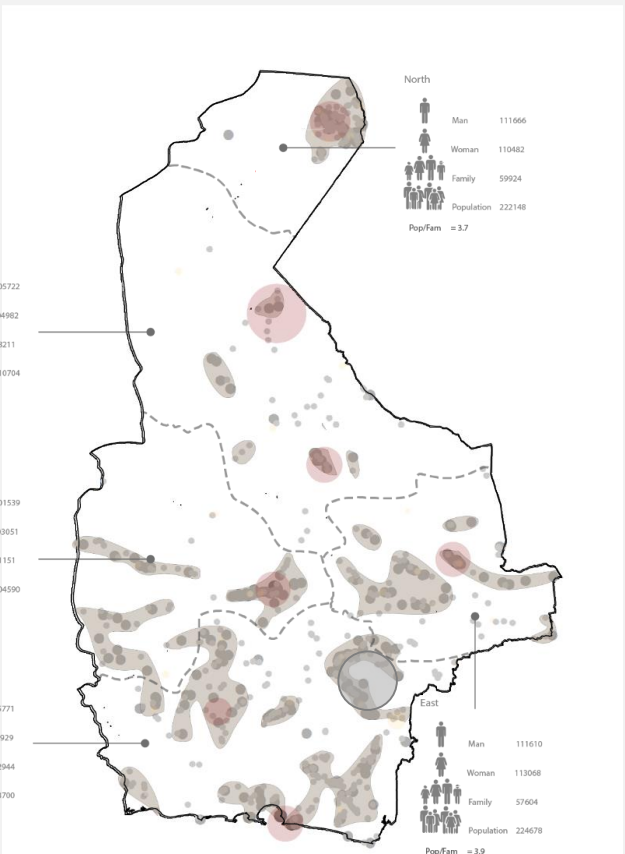
According to the data from the Land Preparation Plan Organization of Iran, the number of villages increased over the past decades. With the growth of the population, the rural population also increased. Sarbaz state has one of the most concentrated villages in the province. 89% of the population live in villages, and only 11% live in cities.



1956

1976

1996



2016

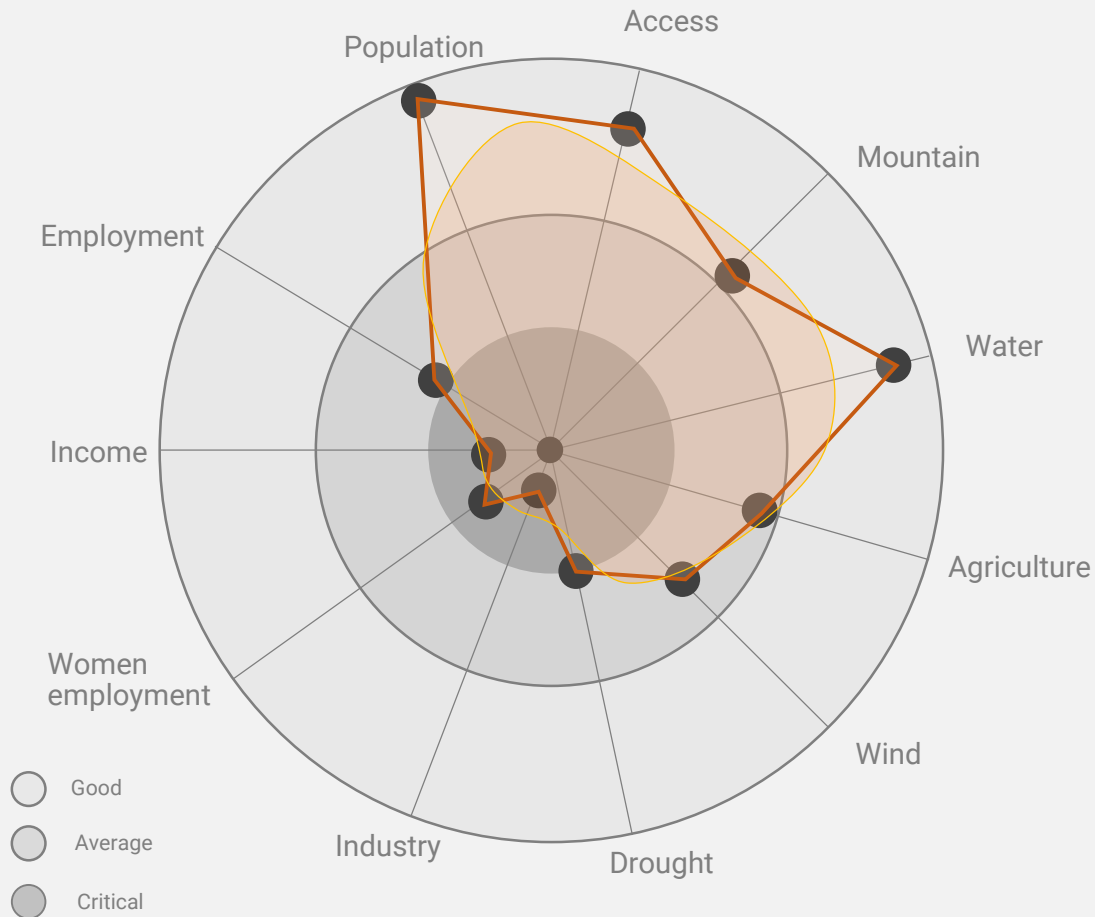
RESEARCH
LARGE SCALE

FUEL TRAFFICKING CHALLENGES IN IRAN'S SISTAN AND BALUCHISTAN REGION

Within Iran, a pronounced dissonance emerges between the cost of oil products domestically and those in contiguous territories such as Pakistan and Afghanistan. This incongruity has given rise to a distinctive phenomenon recognized as fuel selling or transfer, which finds particular prominence in regions like Baloch. Predominantly, individuals operating unwieldy vehicles exploit this divergence in pricing, facilitating the movement of surplus fuel to locales where demand exists for procuring fuel beyond the confines of the government-sanctioned framework.

Despite governmental prohibitions and the application of stringent measures to regulate fuel consumption, the imperative for enhanced employment opportunities in Sistan and Baluchistan remains a driving factor propelling individuals to persist in procuring, exchanging, and conveying fuel. Advocates of these actions contend that they are compelled to partake in these undertakings as a means of livelihood, despite the unwavering stance of the government.

Invariably, these individuals are confronted with harrowing circumstances that culminate in loss of life. Instances of high-speed accidents, encounters involving law enforcement, and fatalities stemming from conflagrations resulting from vehicular mishaps constitute a spectrum of hazards that precipitate their untimely demises. The adversities encountered within the ambit of their responsibilities underscore the perils they willingly embrace for safeguarding others, often at the expense of their own lives. Regrettably, concrete official data concerning fatalities linked to fuel trafficking remains elusive, yet reports indicate a daily toll of at least one fatality attributable to engagement in fuel trafficking activities.



CONCLUSION

DATA ANALYSIS
Based on the collected data, it is apparent that the Sarbaz region faces significant challenges in terms of unemployment, drought, and poverty. These issues must be addressed to ensure the well-being of the local population. However, there is also potential in the area, with a relatively high water access level for rural residents compared to other regions and a strong focus on agriculture. By considering these factors and implementing effective strategies, the Sarbaz region can overcome its challenges and unlock its full potential.

RESEARCH
MEDIUM SCALE

SARBAZ

Sarbaz is located in the southeast of Sistan and Baluchistan province, with the centre of Sarbaz city. This city is bounded by Mehrestan and Iranshahr cities from the north, Ashar district from the east, Rask city from the south, and Qasrqand city from the west, which has an area of 6335 square kilometres. This city consists of 444 villages with more than 191,000 people, of which 200 live in urban areas, and 88,980 live in rural areas. Sarbaz city is one of the oldest areas of Balochistan. The climate in the region has caused a variety of fruits, and the presence of a valley and a river of 313 km is the habitat of all kinds of fishes and Iranian short-nosed crocodiles. It has a hot and humid climate; the air temperature rarely reaches zero degrees in winter, and in summer, the maximum temperature reaches 45 degrees.



Bandan in Sarbaz city

- Sarbaz city is one of the oldest regions of Balochistan.
- 89% of the population live in villages, and only 11% live in cities
- Diverse agriculture.
- Most of the agricultural products of Sarbaz are dates
- Habitat of different kinds of fish and Iranian short-nosed crocodiles.



Sarbaz bridge



Typical rural house in Sarbaz city



Sarbaz Castle (seeiran.ir)

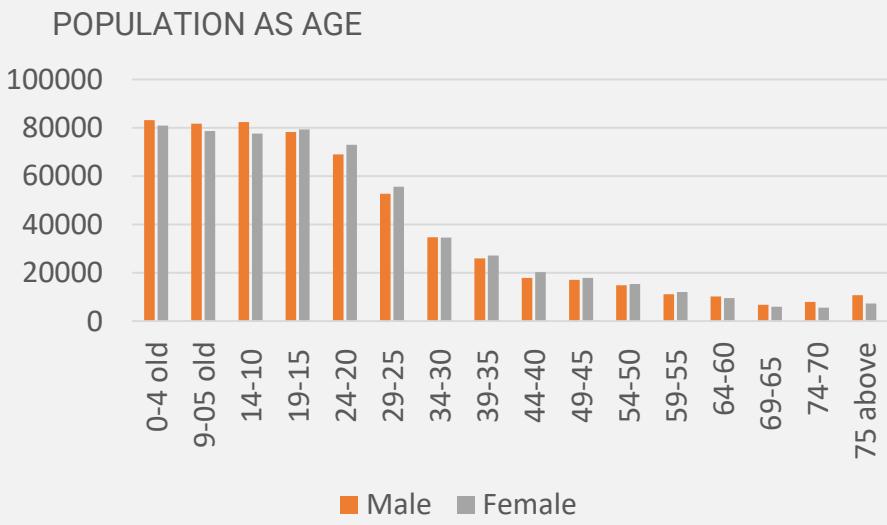
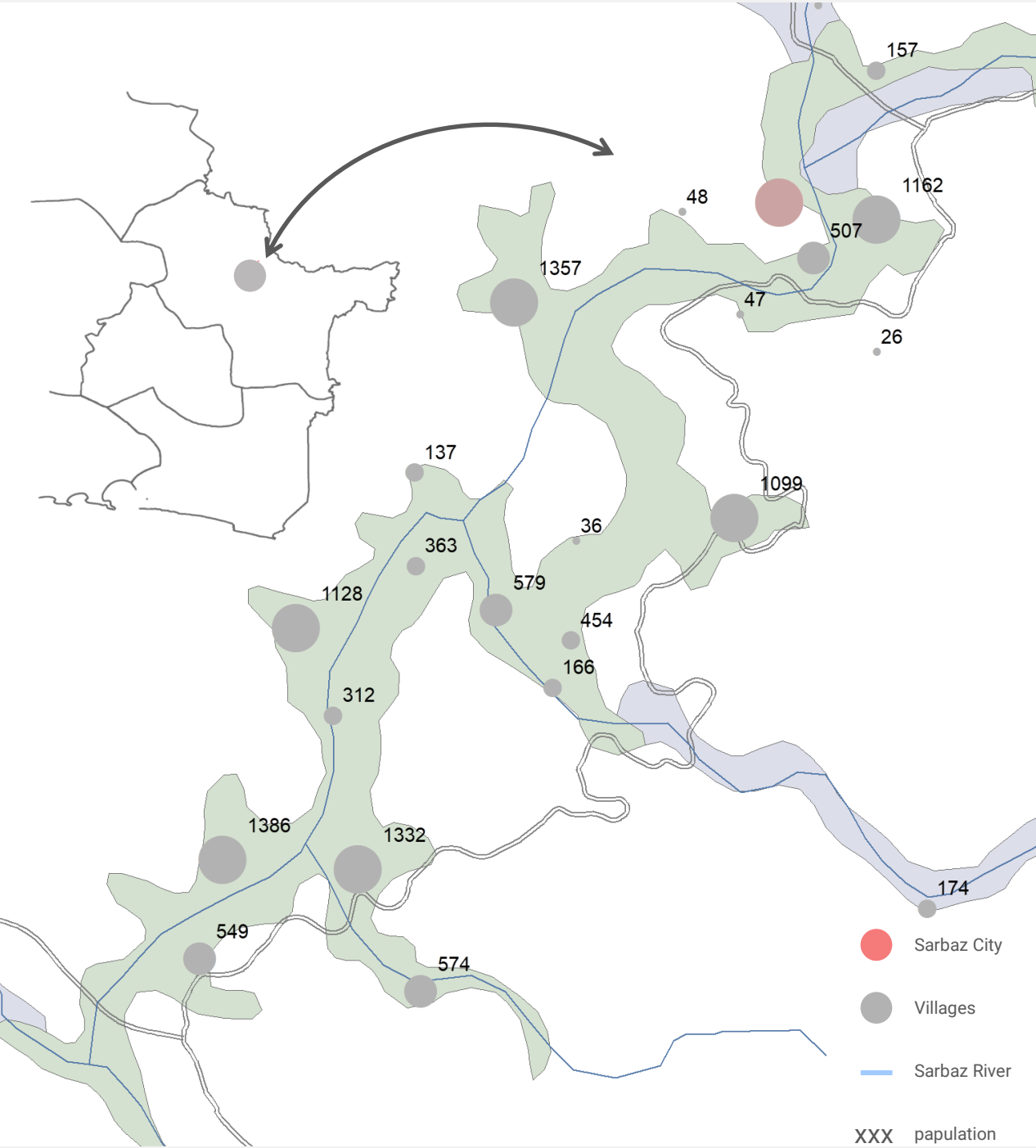


Gando: the only crocodile native to Iran

RESEARCH
MEDIUM SCALE

RELATION BETWEEN SARBAZ CITY AND VILLAGES

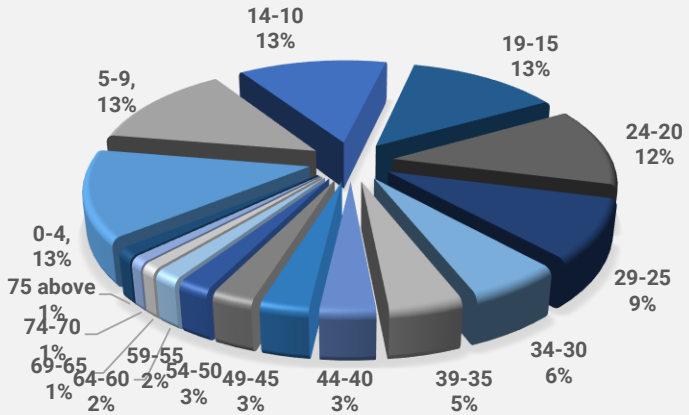
POPULATION DISTRIBUTION IN SARBAZ VILLAGES



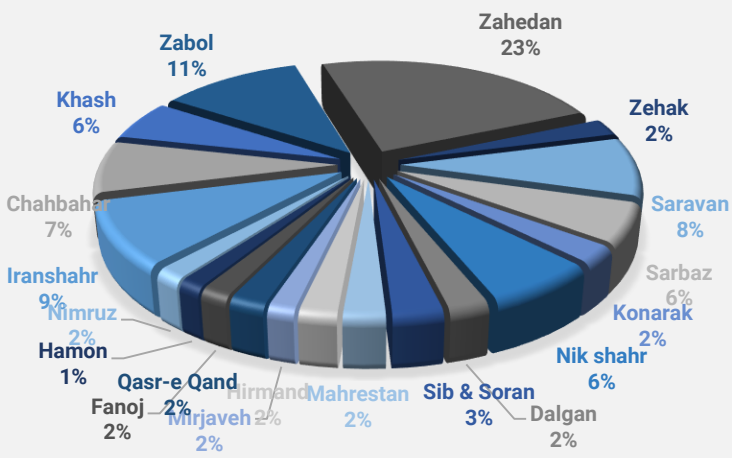
CONCLUSION

Based on the data and analysis, it is evident that there is a significant demand for the opportunity that is being proposed. The majority of the population falls within the age range of 10 to 50 years, which aligns with the target group for this project. This highlights the necessity for the proposed opportunity and its potential to make a positive impact.

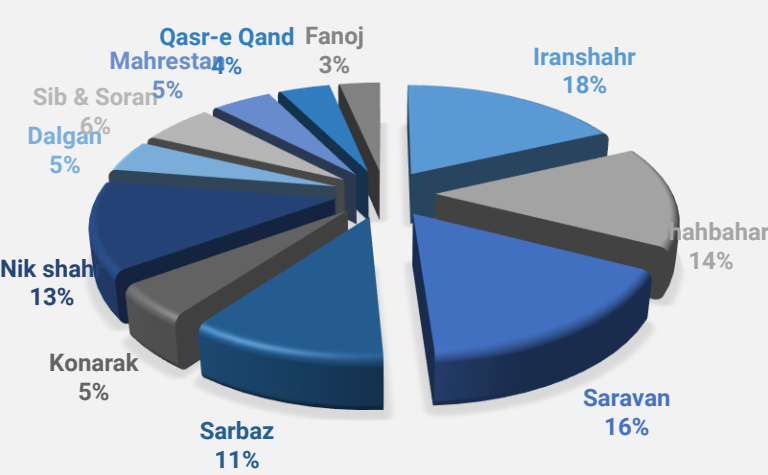
The population as age in the rural area



The population of cities in state

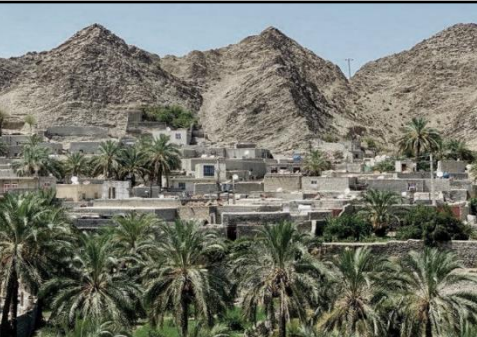


The population of Baluchistan cities

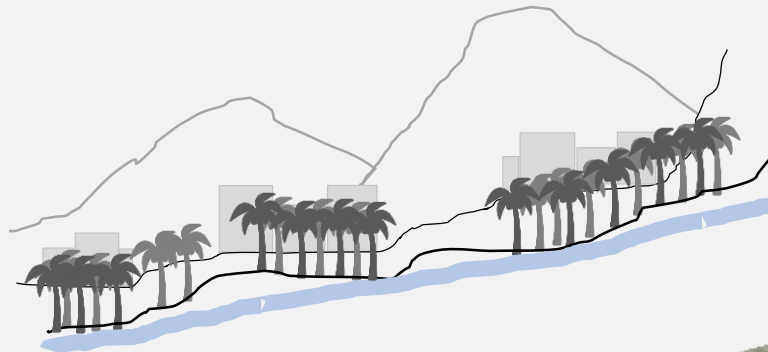


RESEARCH
MEDIUM SCALE

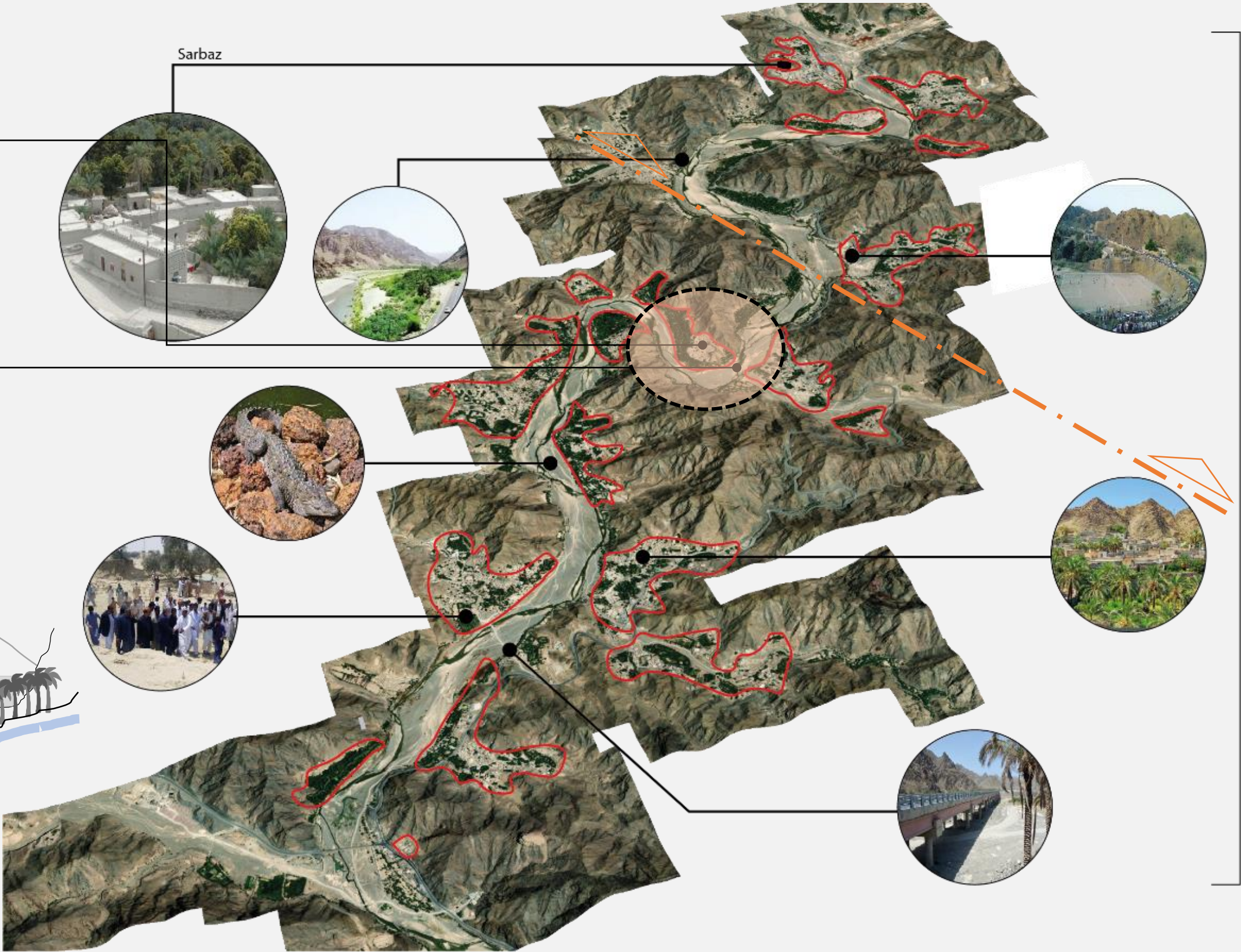
SARBAZ VILLAGES



PARKAN VILLAGE



SCHEMATIC ITAK VILLAGE SECTION



Most produced



RESEARCH
MEDIUM SCALE

CHALLENGES AND OPPORTUNITIES IN BALUCISTAN

MAIN CHALLENGES

Sarbz faces a number of challenges, including an infrastructure deficit, drought, unemployment and poverty, limited job opportunities, limited industrialization, and inadequate education and skills gap. However, despite these challenges, the area has potential in natural resources, strategic location, tourism, agriculture, renewable energy, and rich cultural heritage. To address these challenges and take advantage of these opportunities, it will be necessary for the government, private sector, and local communities to work together in a coordinated effort.

WEAKNESS

- Drought & Flood → Increasing
- Poverty → Located in the lowest income area
- Close distance to the border of un-satiable countries → 75 km to the Pakistan border
- Lack of industry → Absence of packaging and cold storage industries
- Irresponsible Authorities → Lack of support from the government, for instance : The difference in the price of damage caused to farmers with insurance payments
- Smuggling → Diverse products both native and non-native
- Unemployment → Located in the range of 36-45% unemployment



DROUGHT



POVERTY



UNEMPLOYMENT

OPPORTUNITIES

Sarbaz has excellent potential for economic growth and development. The regain offers vast agricultural potential and low-cost labour, with palm products as an excellent investment opportunity. The young and active population brings fresh ideas and innovation to the table. However, infrastructure development, education access, and a supportive business environment are necessary for maximizing the potential. By leveraging its assets, sarbaz can become a dynamic hub of economic progress and improved quality of life for its residents.

STRENGTH

- Series of villages → 22 villages along the river
- Young population → More than 67% of the population is under 30 years old
- Water → Sarbaz river
- Date production → 9,000 tons of dates have been harvested from 2,300 hectares of groves in Sarbaz city.
- Accessibility → Access to 2 main city, Chabah and Iranshahr
- Agriculture → Diverse products both native and non-native
- Tourism → Due to the different climate



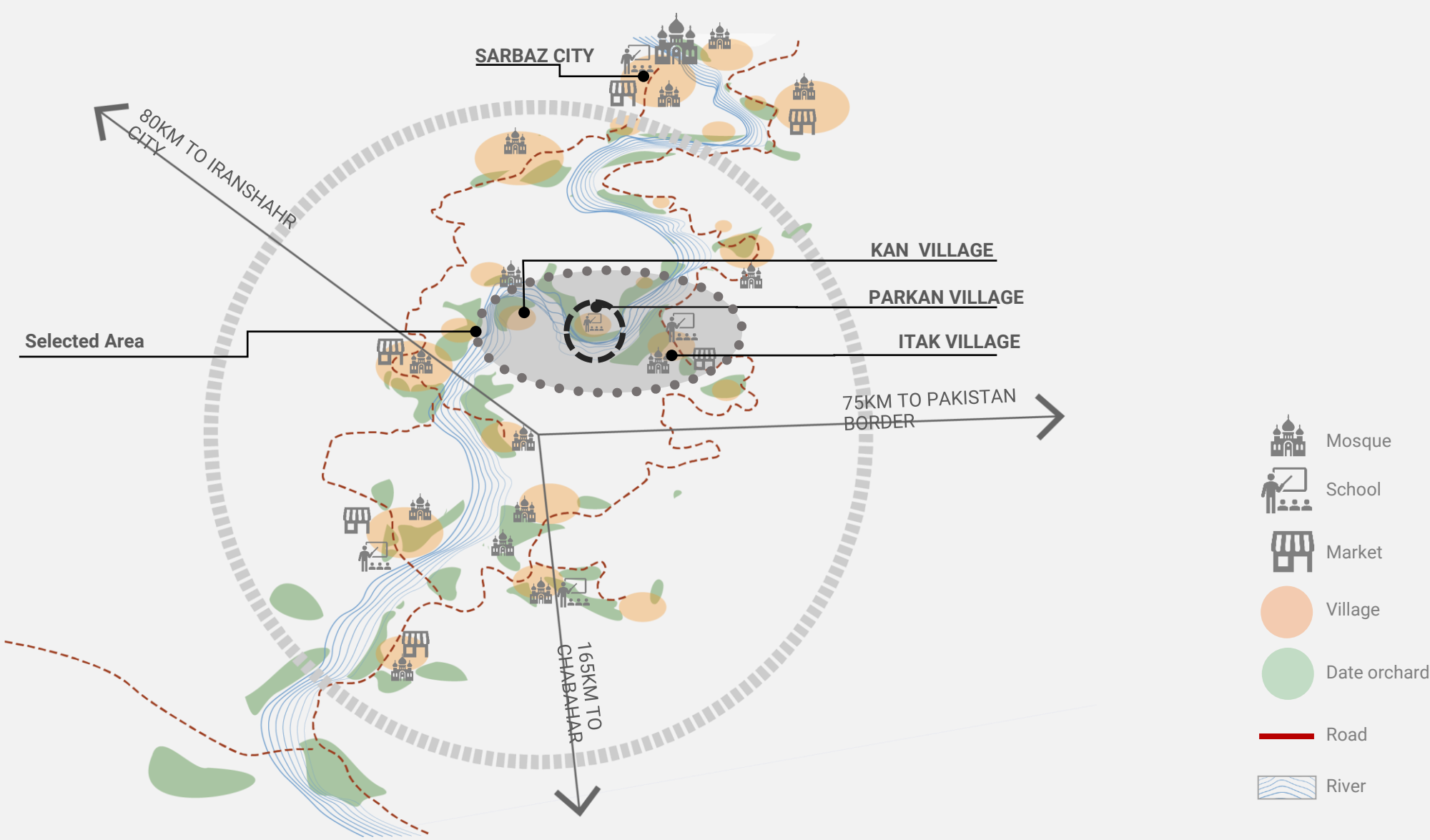
RESEARCH
MEDIUM SCALE

ACCESSIBILITY AND VILLAGES LANDMARKS

The Sarbaz region comprises around 20 villages with a population between 100- 800 people, stretching about 7 kilometres along both sides of the Sarbaz River. These villages fall into three main types based on where they are and how easy it is to get to them:

- villages close to the main road.
- villages that have roads running alongside the river.
- villages that are harder to reach because of steep slopes and lack of roads.

I focused on a smaller area with all three village types for a closer look. In this area, the plan considers all three types of villages. This helps us understand the different ways people live , their challenges regarding where they live, and how they can get around.



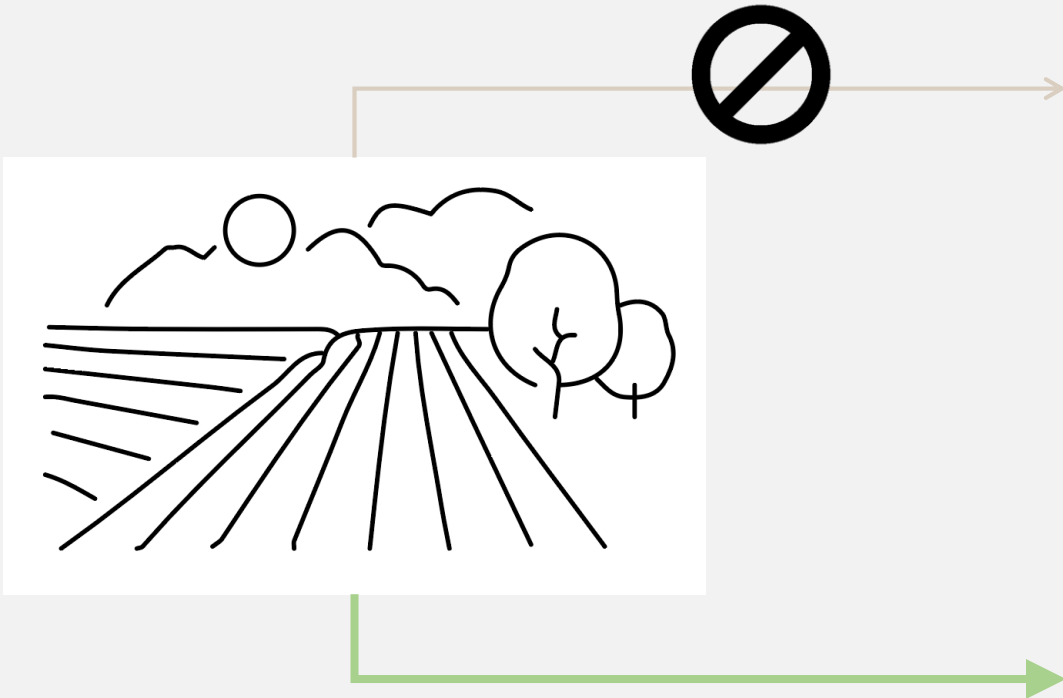
Conclusion:

By focusing on three representative villages within Sarbaz, I abled to capture the overarching typologies prevalent in the region, thus serving as a microcosm of its challenges and potential. The selection of these villages was deliberate, as Sarbaz finds itself at a pivotal juncture demanding strategic intervention and thoughtful planning. The array of challenges, underscore the urgency for comprehensive solutions. However, amidst these adversities, Sarbaz's latent potential for transformation remains palpable. With a burgeoning youthful demographic, a vibrant date production industry, and untapped agricultural prospects, the foundation for positive change is present. Realizing this potential hinges upon the commitment of local and national authorities to not only address existing vulnerabilities but also to steer the region toward greater resilience and self-sufficiency.

CASE STUDY:
LADY OF THE ROSES



Shahindokht Sanaati (Sarlati) is an inspiring figure whose impactful efforts transformed the landscape of a less-developed rural region in Kerman, Iran, before the Islamic Revolution. Amid a community engaged mainly in Opium poppy cultivation, she chose a different path by planting roses and harnessing their essence to extract and sell rosewater. With unwavering determination, Sanaati worked diligently to promote this alternative activity, gradually gaining the trust and interest of the local populace. Her dedication and vision bore fruit as she managed to bring about a remarkable shift in the region's agricultural practices. Through her persistent advocacy and hard work, she successfully turned the tide against poppy cultivation, which had long been the norm. The once-forgotten beauty of roses began to flourish, revitalising the environment and empowering the local economy. Sanaati's remarkable journey showcases the power of an individual's commitment to positive change. Her legacy is a reminder that even in the face of daunting challenges, one person's determination can sow the seeds of transformation, cultivating progress and hope for an entire community.



RESEARCH
INTERVIEW

I had the privilege of engaging in separate conversations with various individuals to gain a deeper insight into the people’s lives in the region. Among those, I spoke with **Khalil Baluchi**, a knowledgeable Baluch social activist deeply connected to Baluchistan and the Sarbaz region. He leads a substantial organisation focused on mobilising public funds and constructing schools and private house for less-affordable local people.

Sorush Salavatian, the visionary founder of the organisation 'Jazmorian is not alone,' shared his experiences as a social activist over the past five years. He has been actively involved in various projects, including schools, housing, sanitary facilities, water tanks, and more, all designed to enhance the living conditions in the area.

Additionally, I had insightful discussions with a 30-year-old resident from Itak village, whose identity remains confidential. This individual provided valuable perspectives on the local community.

Throughout the various phases of my project, my conversations centred around critical topics, including:

- Employment situation
- Challenges
- Potentials
- Needs
- Existing architectural patterns
- Financial aspects

Highlights from the interviews included:

- The absence of communal spaces in villages impeding community interaction and unity.
- The role of mosques as social hubs for men, hosting various activities and discussions.
- The utilisation of outdoor spaces for ceremonies and celebrations.

- Despite adhering closely to cultural norms, there exists a willingness within the community to explore new opportunities.
- The significant challenge posed by inadequate infrastructure hindering the region's development and progress.
- Pressing issues related to accessibility, encompassing physical access and opportunities that require attention.
- The need for more suitable employment options hinders the willingness of women to work.
- A recent positive shift in attitude towards vernacular architecture.
- The influence of funding sources on project size and type sometimes overshadows the villagers' actual needs.
- The link between poverty and underage marriages, as families perceive this as a strategy to alleviate financial burdens.
- Varied project outcomes, with specific initiatives such as Jadgal School and Kapari School successfully integrating into the local community, while others still needed to engage with residents' lives and requirements thoroughly.
- Instances where government use of cement blocks for housing construction led to transforming Kapari villages' buildings into livestock stables.

In conclusion, these interviews yielded a wealth of valuable information. As an architect, a vital realisation emerged — transforming the community's living conditions transcends the mere provision of necessities, leaving them to navigate their circumstances independently. True empowerment stems from raising awareness about the community's significance and actively involving them in their surroundings' continual development and care. This participatory approach recognises the community as an essential and foundational factor, ultimately determining the success of any project to enhance their lives.



Sorush Salavatian

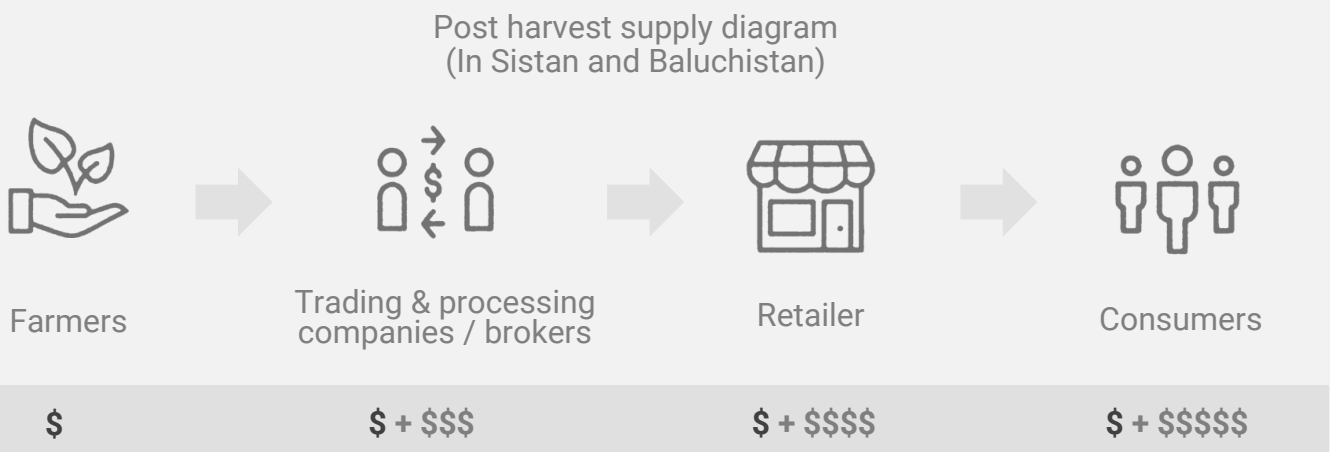


Khalil Baluchi

RESEARCH

CURRENT PRODUCTION SITUATION IN THE AREA

One of the best quality dates in Iran is produced in this region. However, this product is sold under other brands, including the brand of Pakistan and other Iranian cities, and at a very high price, but the farmers of this region are the poorest people; they are always indebted to Pakistani and Iranian intermediaries, brokers and businesspeople. Due to the lack of proper storage, packing, and transportation facilities, farmers have no choice but to sell their products at low prices. Brokers pay the farmer 3,500 Tomans (Iranian currency) per kilo of dates, while the price per kilo in the market is 30,000 Tomans(Iranian currency), which is ten times more than the price paid to the farmer. In diagram 01, the healthy post harvest supply system has compared to the typical procedure in Sistan and Baluchistan.



Most produced agricultural product



Date production issues



Date orchards occupy the largest cultivated area in Sarbaz city, and their products are of excellent quality. Due to date's ability to grow and resist drought, salinity, and heat, it plays a vital role in the economy of farmers and residents of the region. Date cultivation in this province has a history of more than 2 thousand years, so the first date trees mentioned in the history of Baluchistan were related to 327 BC and were brought to this region by the army of Alexander the Great. The palm tree is holy in local culture; its loss is equivalent to the death of loved ones!

RESEARCH

Addressing the widespread poverty issue in the region involves creating permanent job opportunities.

To tackle this challenge, I considered the region's plentiful date product, which could make around 100 sub-products, and proposed a product path among these 3 selected villages. The idea can also expand to neighbouring areas in the future.

The location of Parkan, between Itek and Kan villages, is suitable for housing facilities and providing services to the surrounding communities.

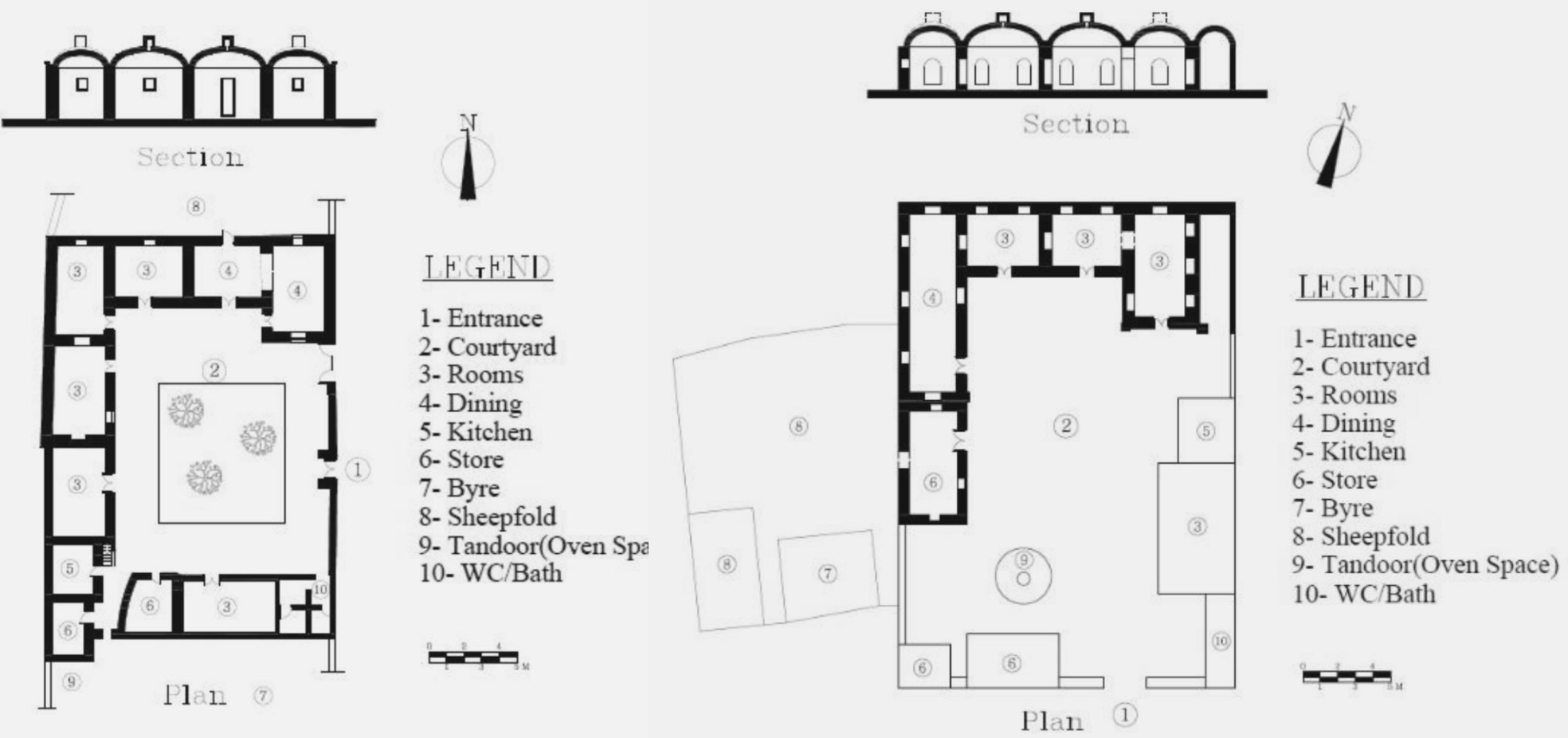
The village's high density and limited land availability led me to choose the project site at an underutilised and relatively vacant land intersection, with the village entrance and orchard pathway to serve a multipurpose function.



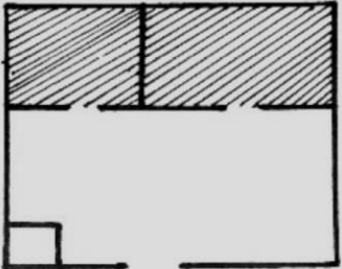
RESEARCH

RESIDENTIAL ARRANGEMENT TYPOLOGIES IN BALUCHISTAN

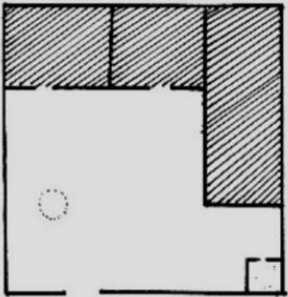
Clustered houses encourage social interaction and a sense of community. The proximity of the houses allows for more accessible communication and shared social spaces, fostering a strong social fabric among the residents. In the In the culture, children build their homes adjacent to the courtyards of their parents' houses after marriage, which creates distinct family clusters. This arrangement contributes to the organic interconnectedness of these family units within the village's fabric. Furthermore, the imperative considerations of site requirements such as topography, access routes, water availability, and adequate airflow within buildings added more rationale to designing a complex characterised by distinct and flexible spaces.



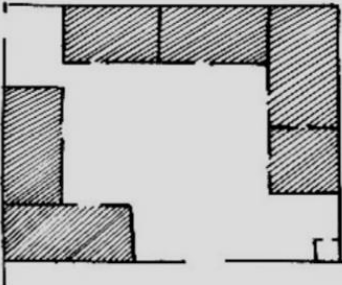
Type A



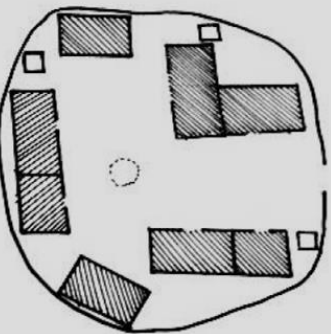
Type B



Type C



Type D



RESEARCH
EXISTING MATERIAL ON SITE

By integrating indigenous materials into the design procedure, structures can harmoniously merge with the surroundings and display the region's abundant cultural legacy. Moreover, using local materials curtails transportation expenses and diminishes the carbon footprint of importing construction resources from distant sites. This practice concurrently bolsters the regional economy by harnessing resources easily accessible within the vicinity. Integrating local materials into the design amplifies the architecture's visual allure and strengthens the connection to the locale's identity and cultural essence. This holistic approach creates a more profound and contextually fitting constructed environment.

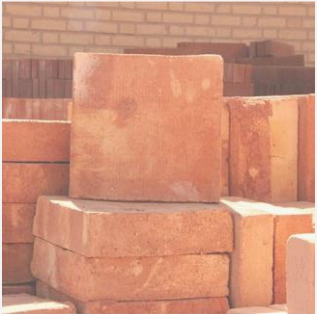
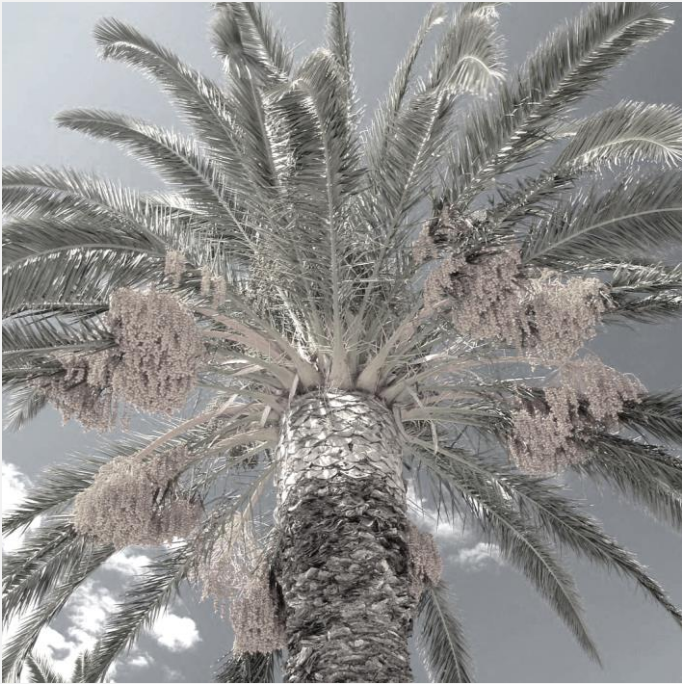
SOIL, FROM RIVER AND MOUNTAIN



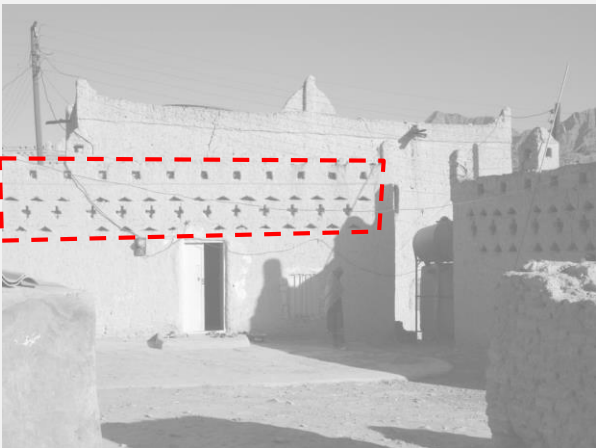
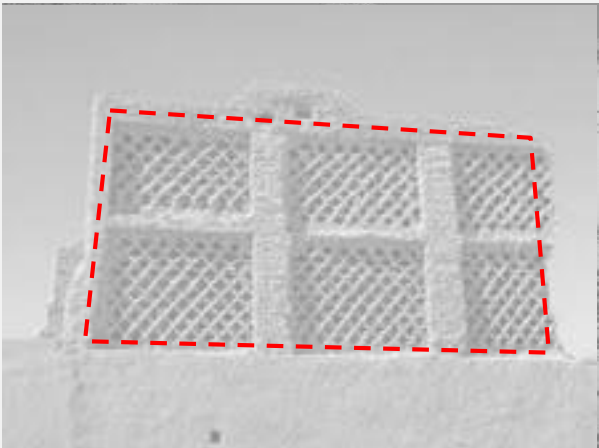
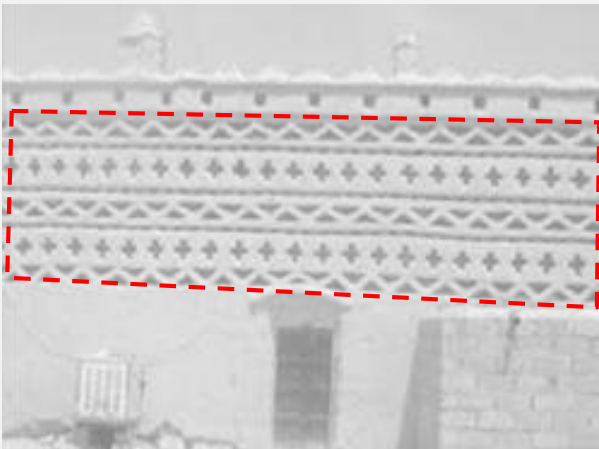
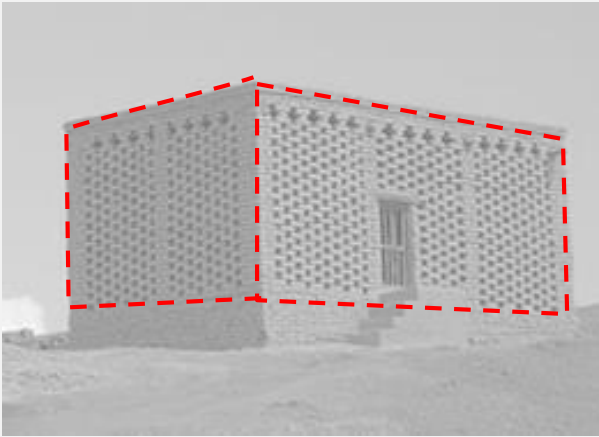
STONE, FROM RIVER AND MOUNTAIN



ALL PART OF PALM TREE

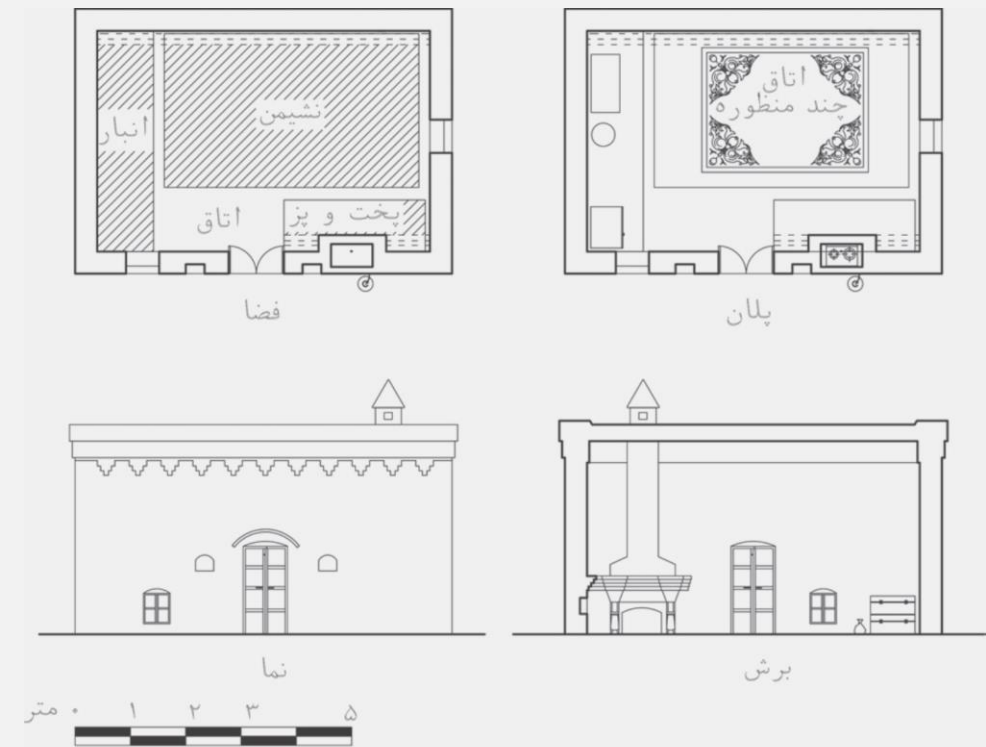
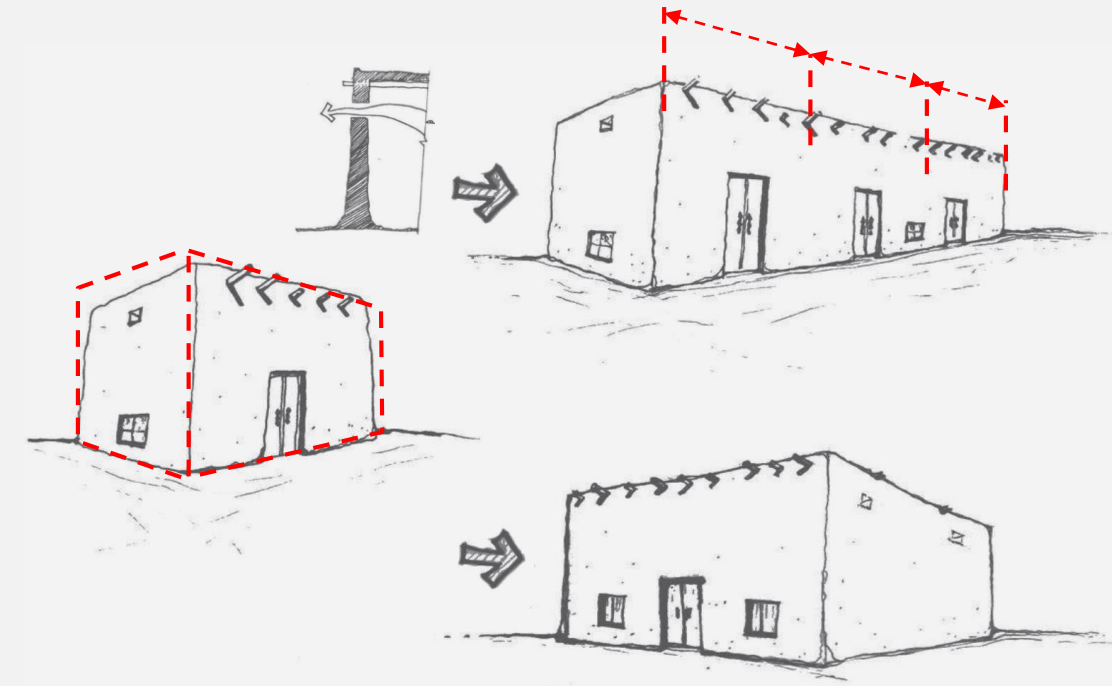


RESEARCH
TEXTURE AND PATTERN ON FAÇADE



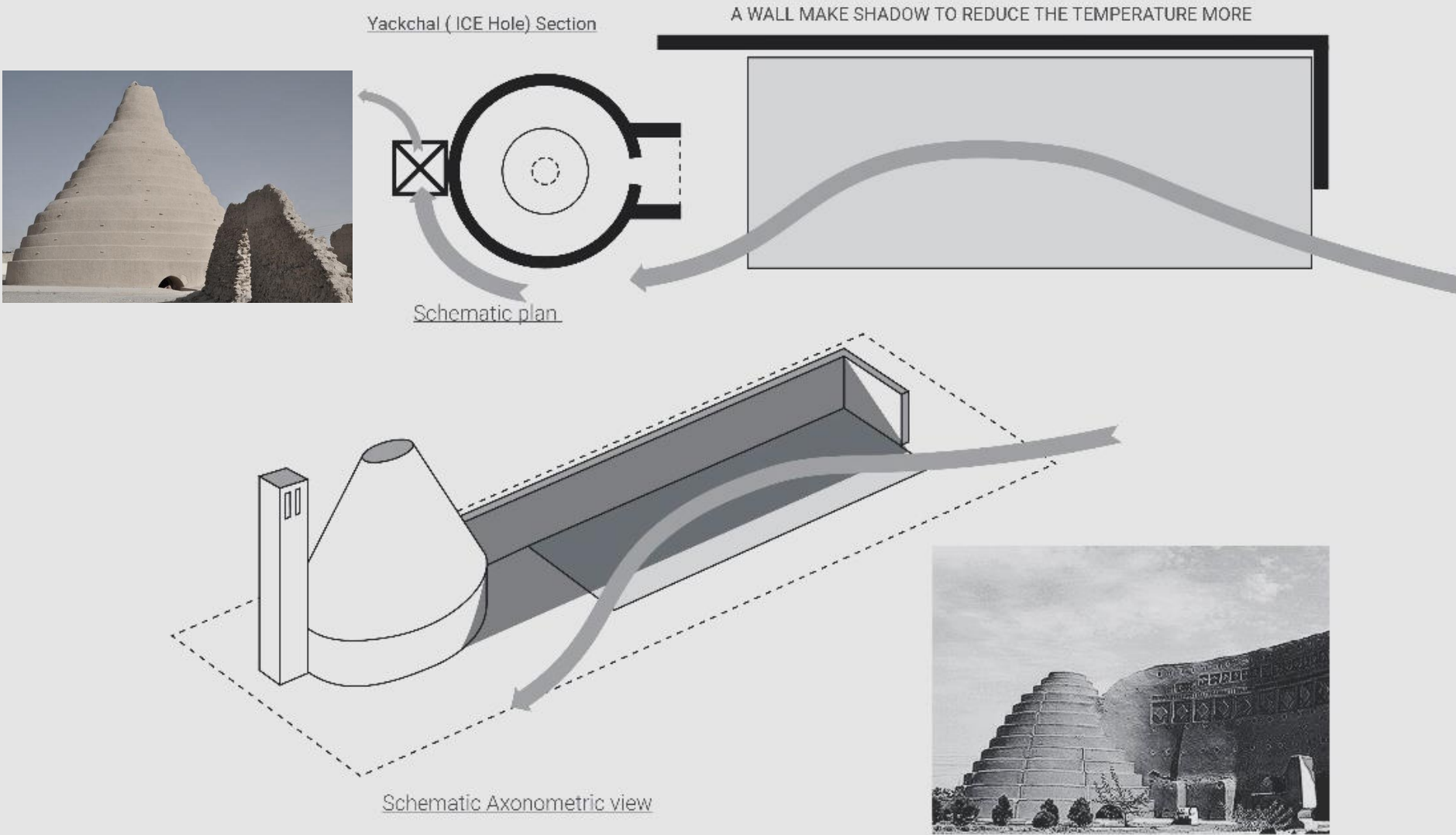
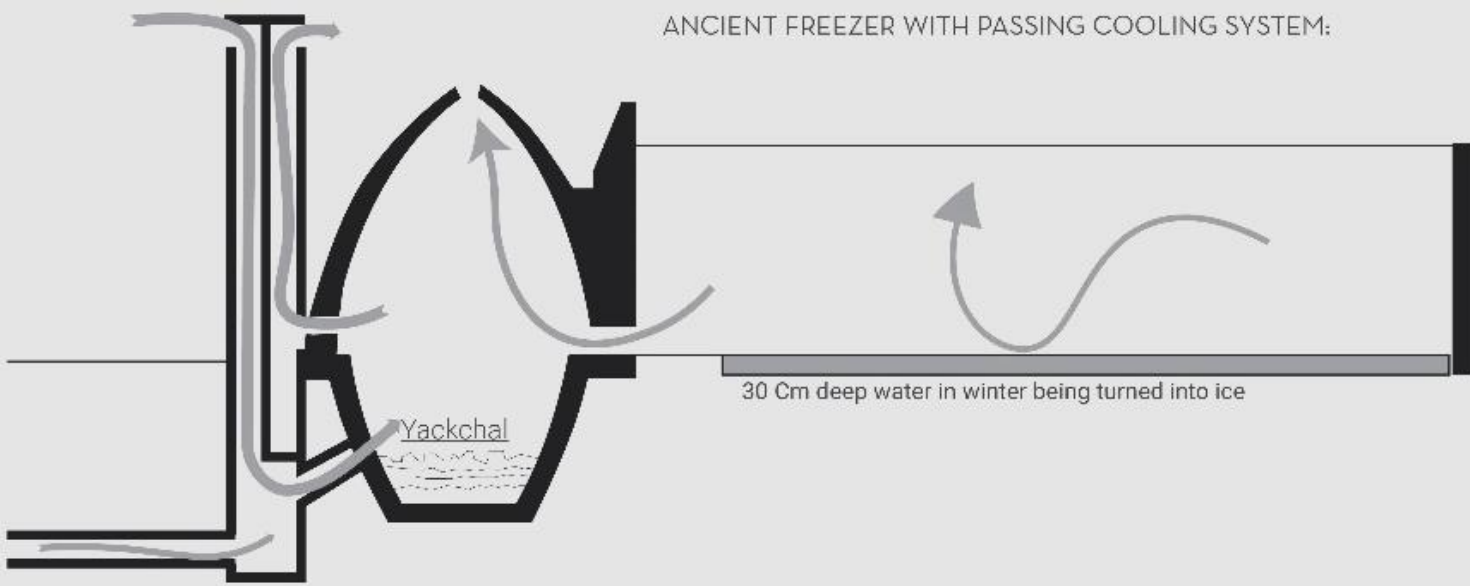
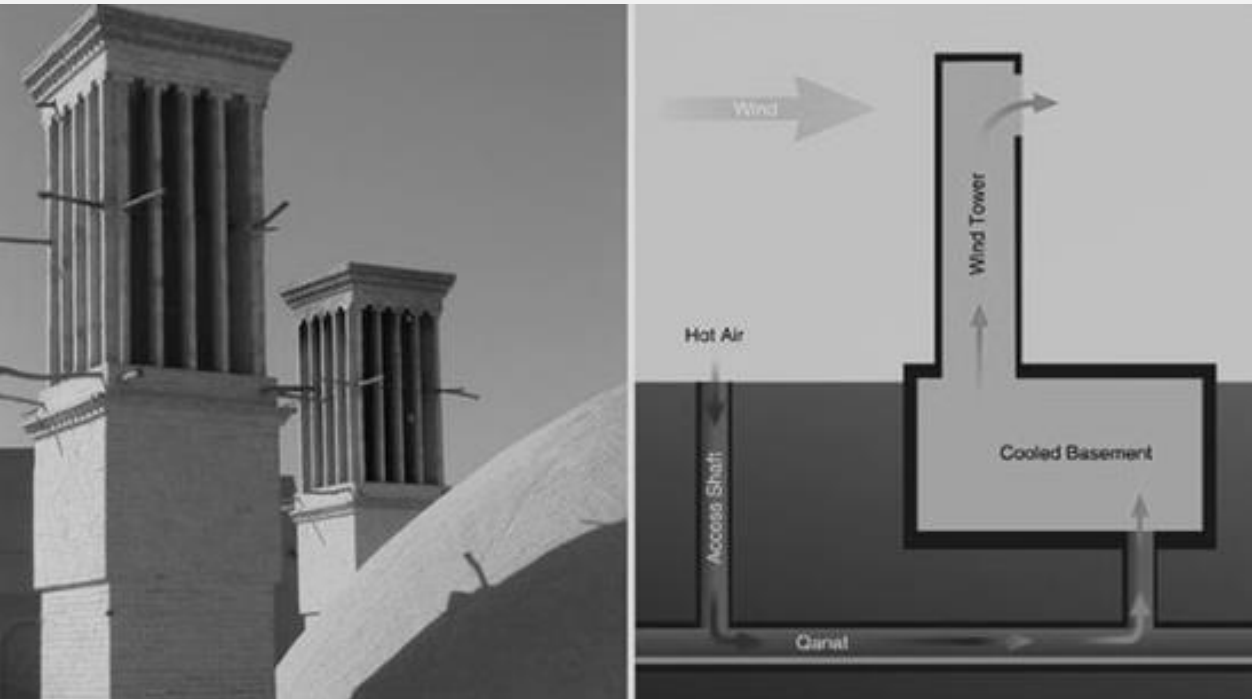
FLAXIBLE AND EXTENDABLE TYPOLOGY

Perforated walls are a popular feature in the local architecture of this area. They offer several benefits, including allowing sunlight to enter the rooms more gently and ensuring good airflow. Moreover, their simple layout plan with minimal separation walls allows for easy expansion by adding rooms on one side of the existing space as needed.



RESEARCH
TRADITIONAL PASSIVE COOLING SYSTEM

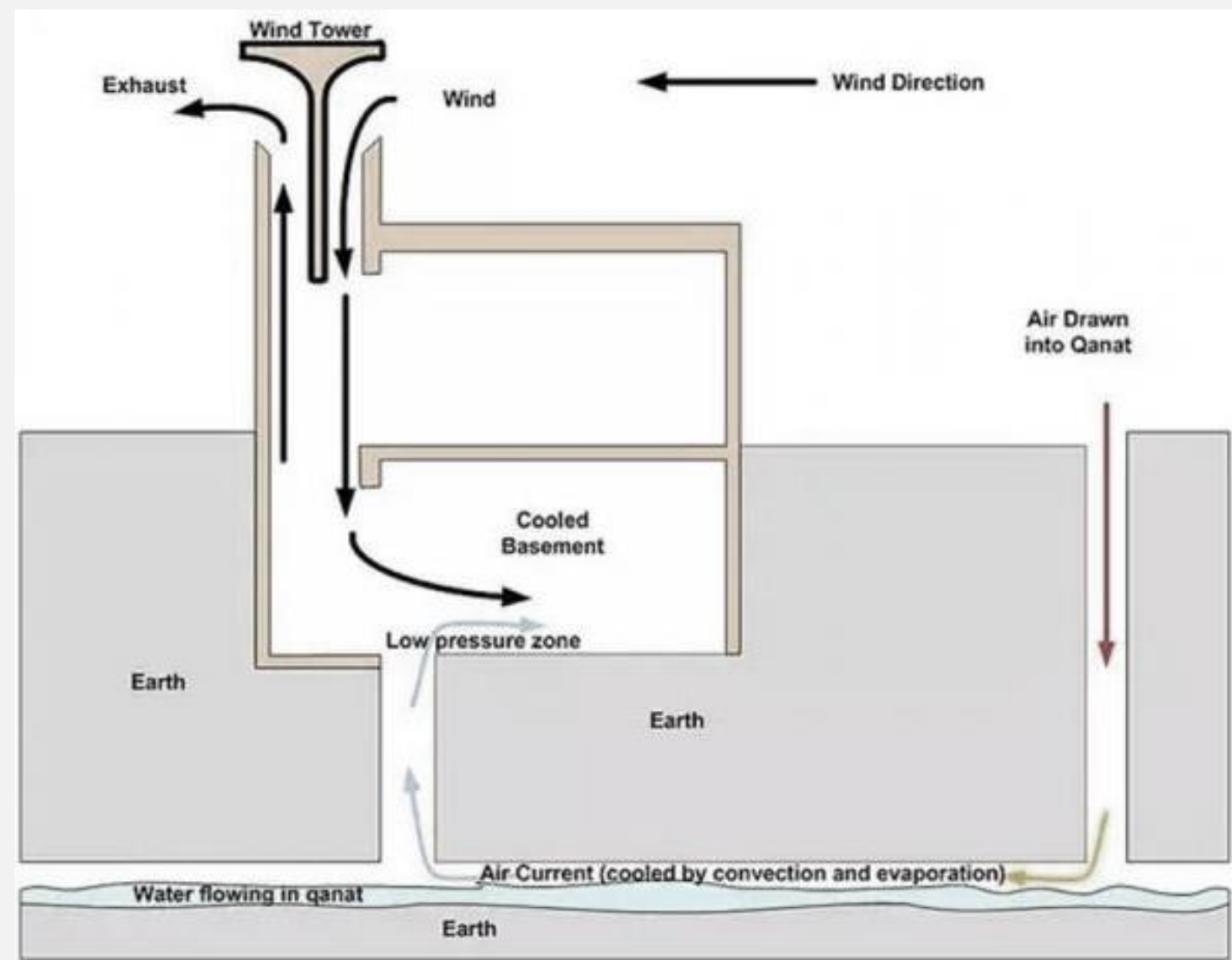
In ancient Iranian architecture, ingenious passive cooling systems were devised to combat the region's scorching temperatures. One notable example is the traditional "Yakhchal," a subterranean icehouse. The Yakhchal utilised thermal mass principles and natural convection to keep its contents cool. Its thick mud brick walls and a conical dome efficiently insulated the interior, while the underground structure tapped into the earth's stable temperature. Moreover, wind catchers, known as "Badgirs," were another integral element in maintaining comfortable indoor conditions. These tower-like structures harnessed prevailing winds to create a natural ventilation mechanism. As air flowed through the Badgir and into the living spaces below, it induced a cooling effect. The synergy between Yakhchal's thermal design and the strategic use of wind catchers exemplifies the harmonious integration of architecture with nature, resulting in an effective and sustainable cooling solution that remains remarkable today.



RESEARCH

TRADITIONAL PASSIVE COOLING SYSTEM

Overall, passive cooling systems can be a suitable and sustainable option for cooling in low development areas, especially when traditional refrigeration methods may not be accessible or cost-effective. However, their effectiveness may be limited by external factors such as weather conditions, and they may not be suitable for all applications.



Advantages	Disadvantages
No external energy input required, leading to lower operating costs and increased sustainability.	Limited temperature control: passive cooling systems may not be able to maintain precise temperatures, especially in extreme weather conditions.
Reduced environmental impact: passive cooling systems do not require electricity or other fossil fuels, leading to lower greenhouse gas emissions.	Dependence on ambient temperature and weather conditions: the effectiveness of passive cooling systems can be affected by changes in the external environment, such as fluctuations in temperature or humidity.
Simplicity: passive cooling systems are relatively simple and easy to maintain compared to active cooling systems, which require more complex components and regular maintenance.	Limited storage capacity: passive cooling systems may not be able to store as much food as active cooling systems, due to the need for insulation and thermal mass.
Durability: passive cooling systems are less prone to mechanical failures and breakdowns, which can be costly to repair.	Limited application: passive cooling systems may not be suitable for all applications, especially those that require precise temperature control or a large amount of storage space.

RESEARCH

DESIGN PRINCIPALS _ RESEARCH CONCLUSION

The architectural design proposed for the date farms chain supply system in the Sarbaz region of Baluchistan focuses on creating functional, culturally relevant, and eco-friendly structures. The procedure considers the unique needs and challenges of the community, the arid climate, and the cultural significance of date farming. Here are some key features and principles of the architectural design:

1. INTEGRATION WITH THE LANDSCAPE:

The design aims to blend with the surrounding landscape harmoniously. The buildings will be planned to complement the region’s natural beauty and harmonise with the desert environment. Earthy tones, locally sourced materials, and organic forms will be used to establish a visual connection between the architecture and the surrounding date groves.

2. PASSIVE COOLING AND VENTILATION:

Given the hot and arid climate of Baluchistan, passive cooling techniques will be integrated into the design. Strategies such as strategic orientation, shaded courtyards, and natural ventilation will help maintain comfortable indoor temperatures and reduce the need for mechanical cooling. This ensures that the buildings are energy-efficient and environmentally sensitive.

3. FLEXIBILITY AND ADAPTABILITY:

The architectural design will prioritise flexibility and adaptability. The facilities should be designed as modular structures, allowing for easy expansion or modification as the needs of the community change over time. The villagers can adjust the spaces to suit their evolving requirements without external assistance, promoting self-sufficiency and ownership.

4. ECO-CONSCIOUS BUILDING MATERIALS:

Using locally sourced and eco-conscious building materials is a fundamental architectural design principle. Materials such as locally sourced stone, adobe, and rammed earth will be utilised to reduce construction costs and minimise the environmental impact. By promoting local craftsmanship and traditional building techniques, the project will strengthen the community's ties to its cultural heritage.

5. INNOVATION DESIGN:

The cooling facilities for date storage will be designed to focus on maintaining optimal temperature and humidity levels. Traditional cooling techniques like windcatchers and evaporative cooling may be integrated into the design to create a natural and energy-efficient cooling system. The goal is to extend the shelf life of dates and preserve their quality, ensuring a steady income for the farmers.

6. INCLUSIVITY:

The design features communal spaces and gathering areas within the facilities, fostering a sense of unity and cultural celebration. These spaces provide a platform for the community to come together, exchange knowledge, and honour their cultural heritage. Promoting social interaction and cohesion, the design nurtures a feeling of belonging and community pride, embracing diversity and ensuring everyone's voice is heard.

7. PRODUCTIVITY:

The landscape design will focus on water management and conservation. Rainwater harvesting systems, greywater recycling, and efficient irrigation methods will be integrated to address water scarcity issues. The design will also incorporate drought-resistant plants and trees to create a green and eco-friendly environment.

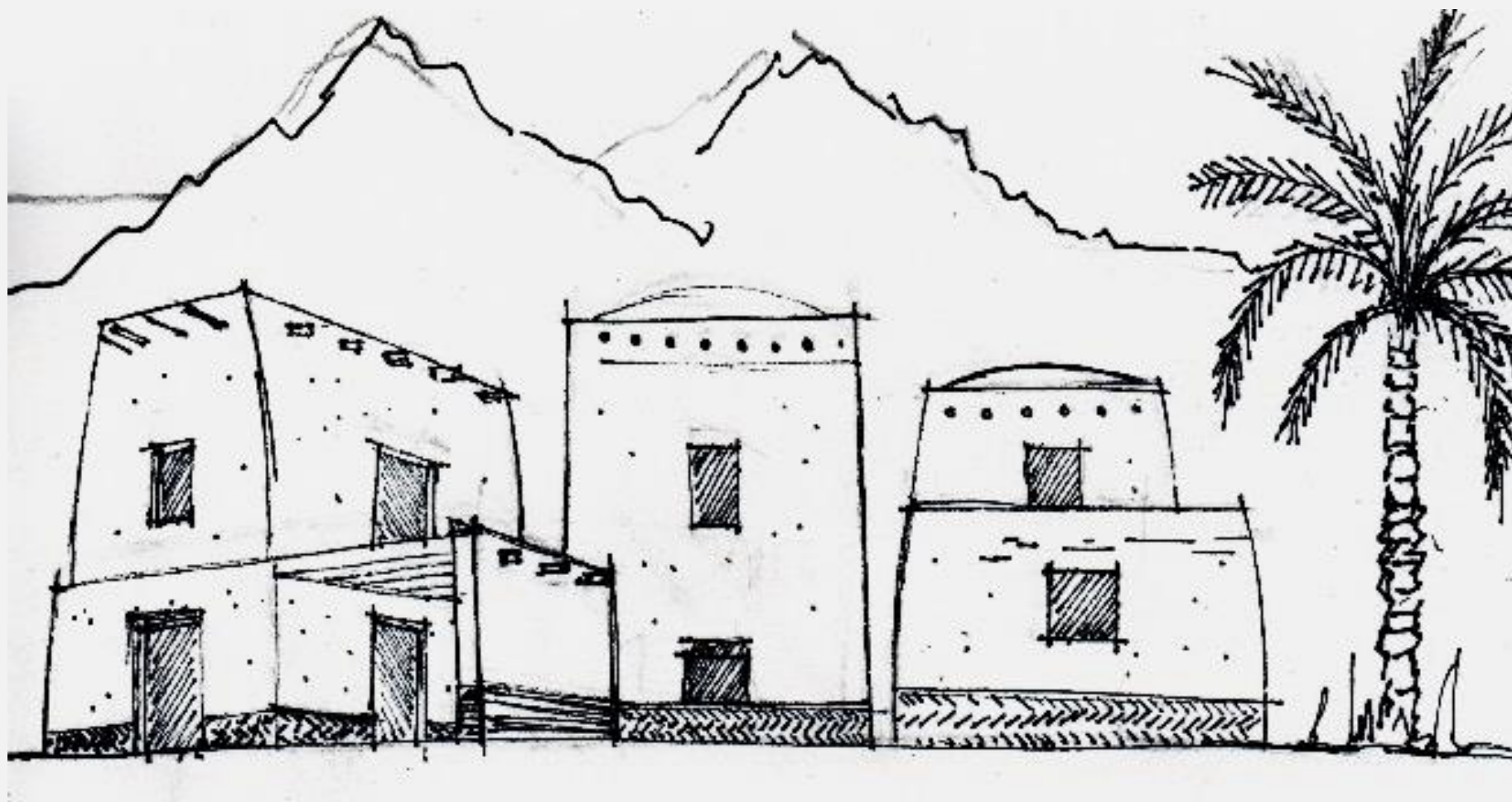
8. ACCESSIBILITY :

The architectural design will prioritise accessibility and inclusivity to ensure that the facilities can be used by all community members, including people with disabilities and older people. Barrier-free access and user-friendly layouts will be incorporated to create an inclusive and welcoming environment.

Overall, the architectural design for the date farms chain supply system aims to create functional, economically viable, culturally meaningful, and environmentally conscious areas. By incorporating the principles of eco-friendliness, cultural preservation, and community engagement, the design seeks to empower the Baloch people of Sarbaz and enhance their quality of life while preserving their rich heritage and traditions.

DESIGN

SARBAZ- PARKAN



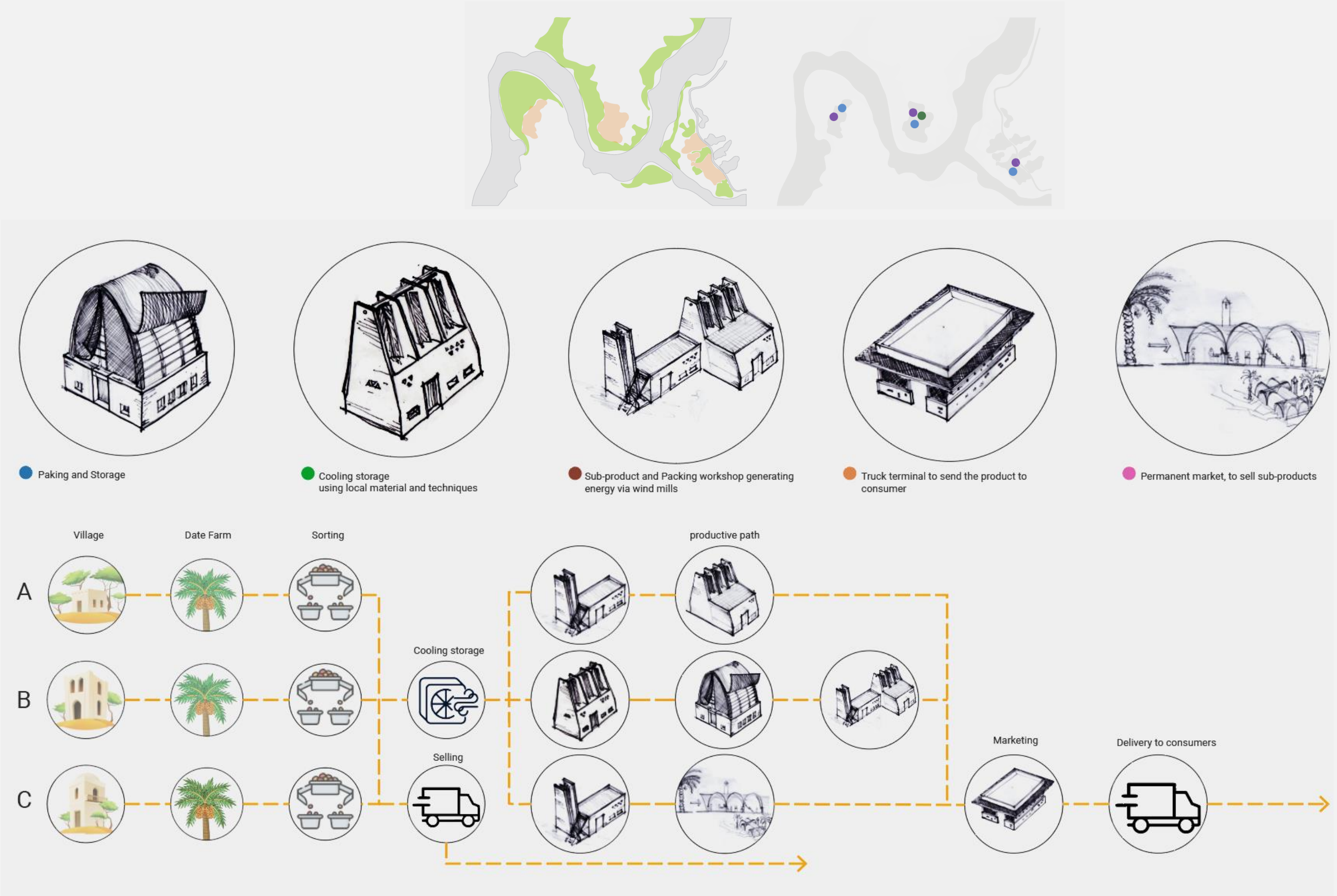
DESIGN PRINCIPALS



DESIGN

PRODUVTIVE PATH

My strategy for the Sarbaz region involves setting up a series of date processing and storage center. This center will incorporate a mixture of traditional and contemporary architectural practices to ensure environmental sustainability. My design incorporate natural ventilation, shading, and cooling techniques to maximize efficiency. Furthermore, I would establish a local supply chain for village products, which will lower expenses and encourage economic self-sufficiency. By joining the local date farms with an efficient supply chain, can creating a model that values both financial success and cultural legacy.



DESIGN - APPROACHES

PRODUVTIVE FIELD

Approach A

River center
Connecting villagers along the river through a collective activities and goals

Approach B

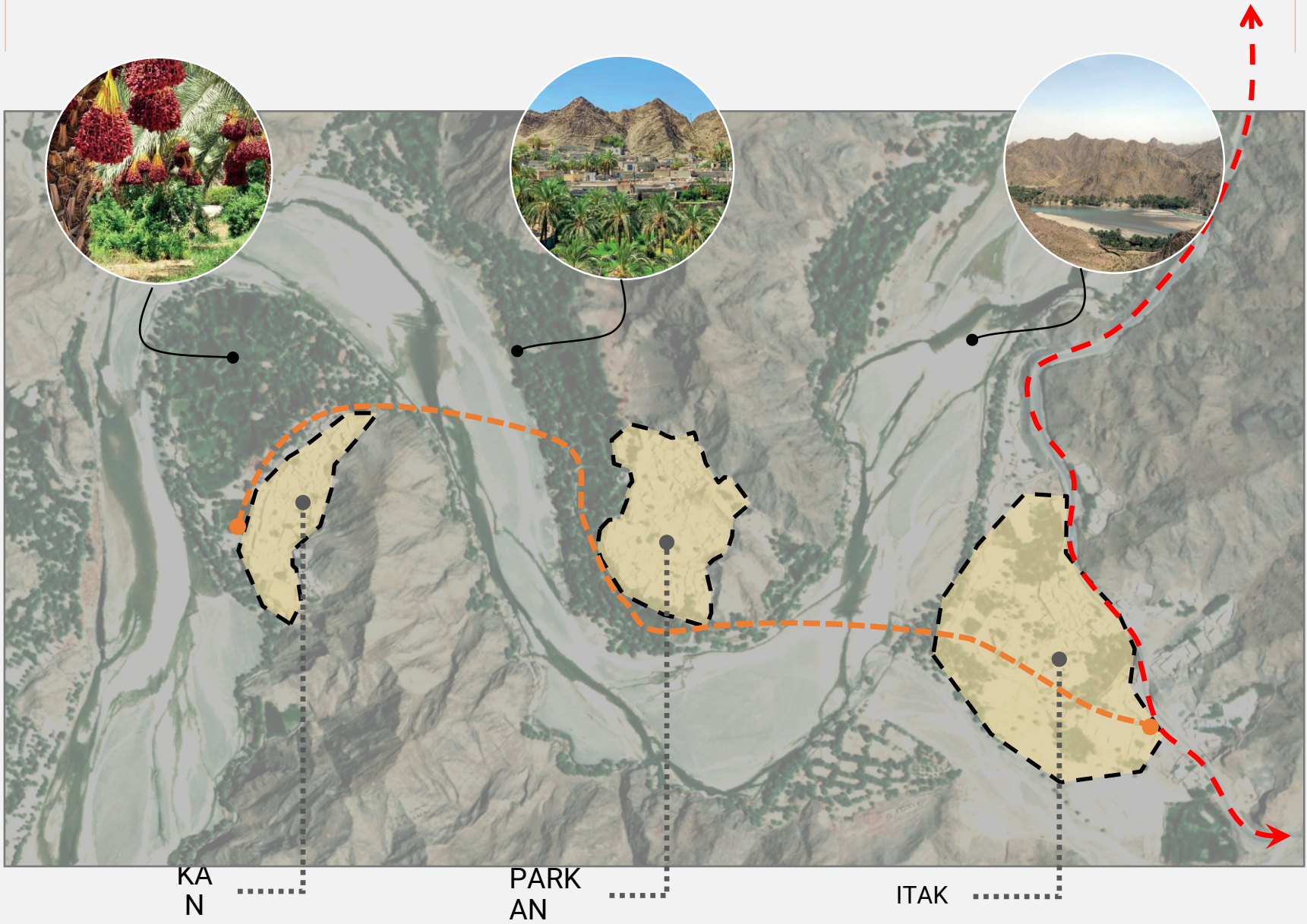
Production land field
Connecting villages along the river through a collective production activities and goals

Statement

Define a productive path along the river with stops of various functions.

Statement

Simulation of factory production line between villages , every step has different function.



DESIGN

APPROACH A – USING THE INTERMEDIATE AREA

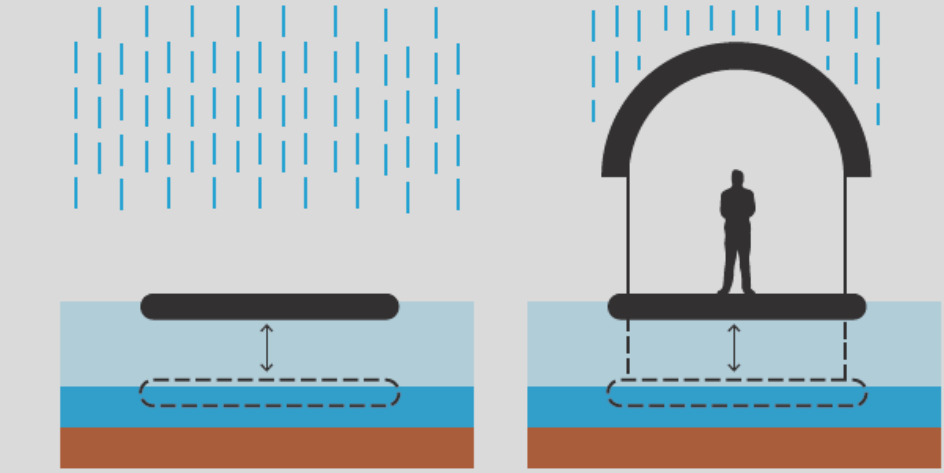
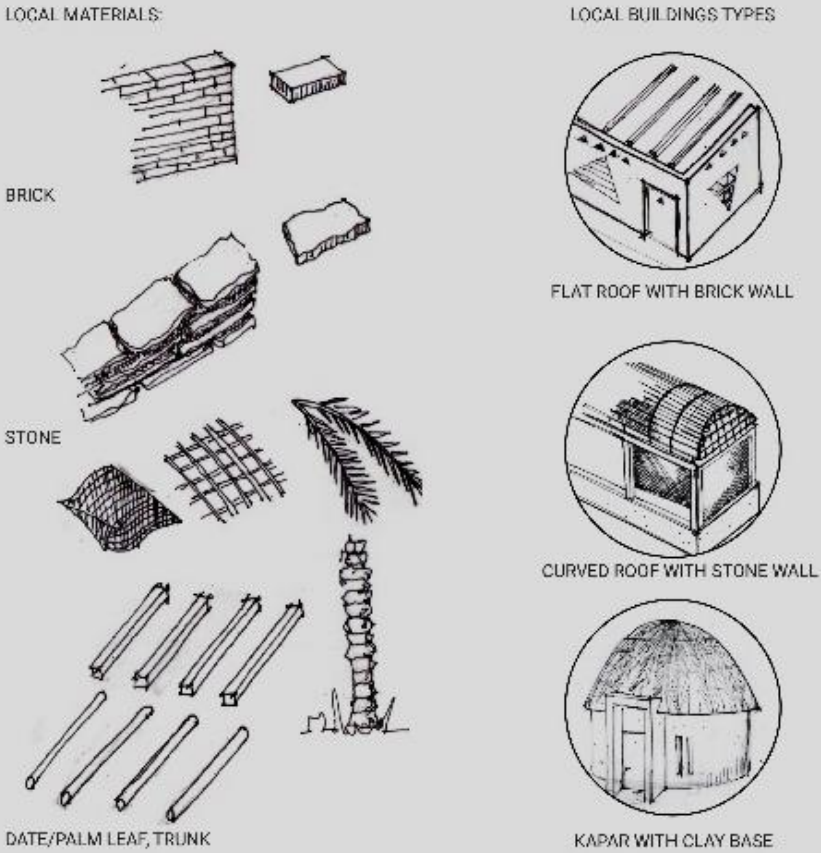
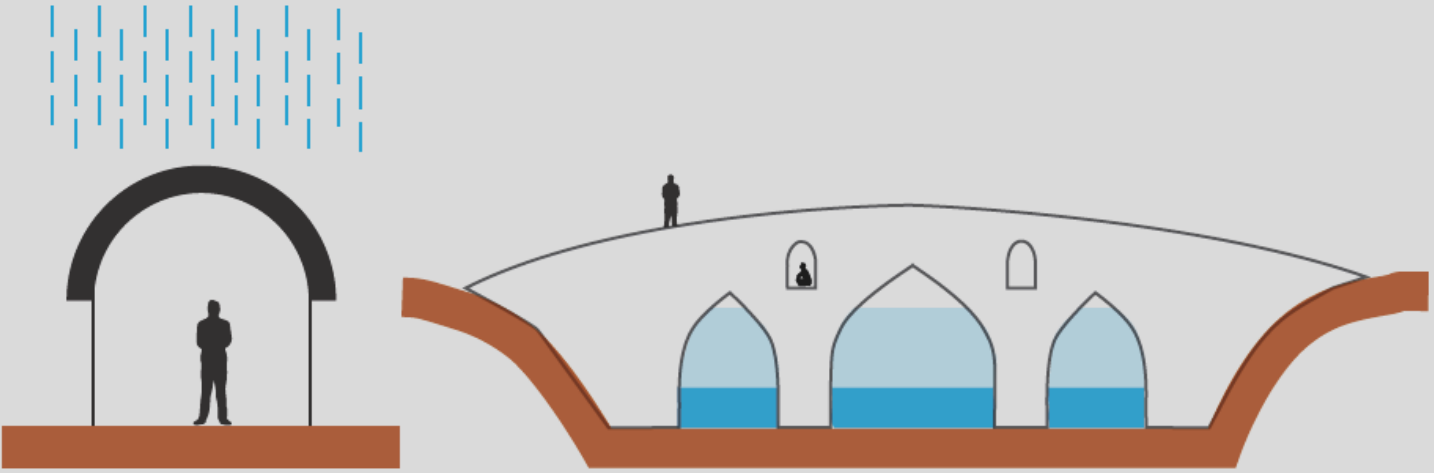
WATER CONNECTION

The river is seasonal; it has very little water for more than half of the year; the villagers cross the riverbed to get to and from each other and to the main road. In recent years, flooding has increased, and these three villages are almost disconnected when the river is complete. The main idea of this concept is taken from the caravanserai’s bridge in traditional Iranian architecture, the bridge as a place for residence or business had functional spaces in its structure, and the upper space was used as a commuting place. Creating a connection between the three villages is a concern to provide a permanent link between them with the architectural design. Also, to design portable structures inspired by nomadic lifestyles and living structures. These functions can vary in different seasons depending on the needs of the residents; for example, in the hot season, when dates are harvested, they can become temporary warehouses and workshops related to agricultural products, and in the more pleasant season, a place for tourists to stay. In this idea, the project's main principle is to use local materials and traditional techniques and the possibility of construction and service change by the region's residents.

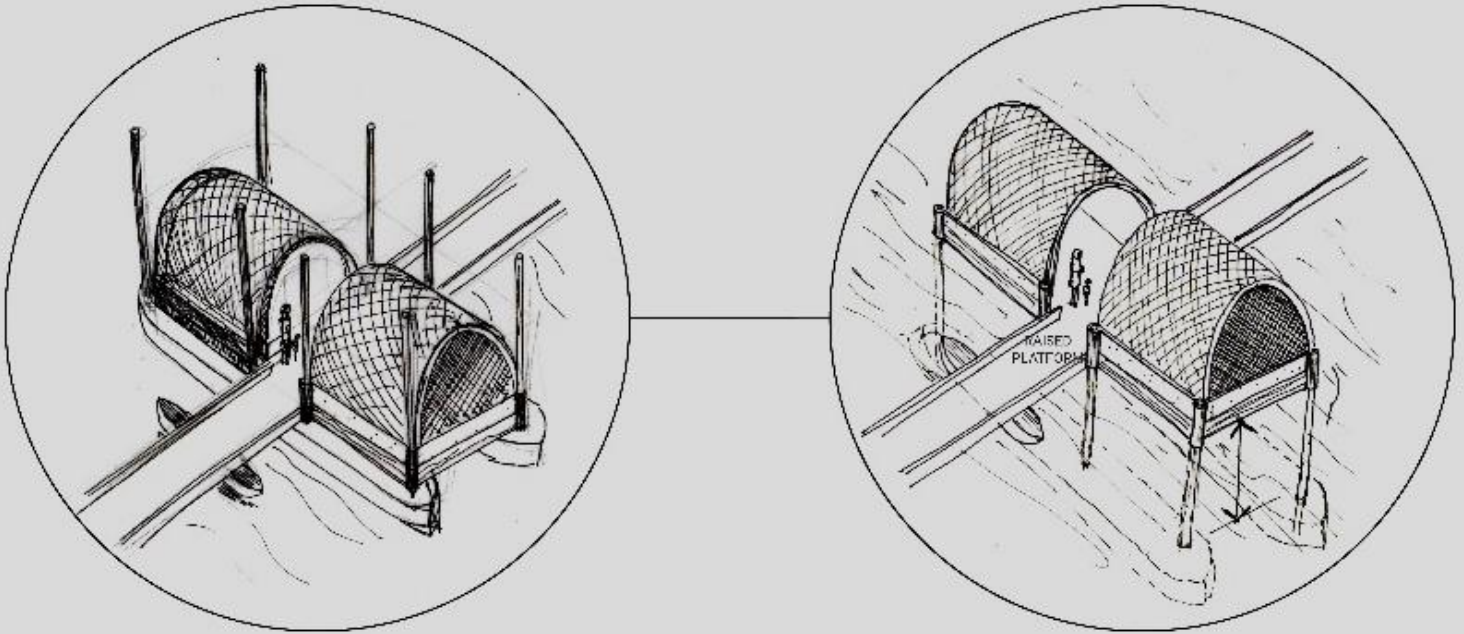


The Khaju Bridge, Isfahan, Iran, serving as a connector and market place

FLOATING BRIDGE DIAGRAM



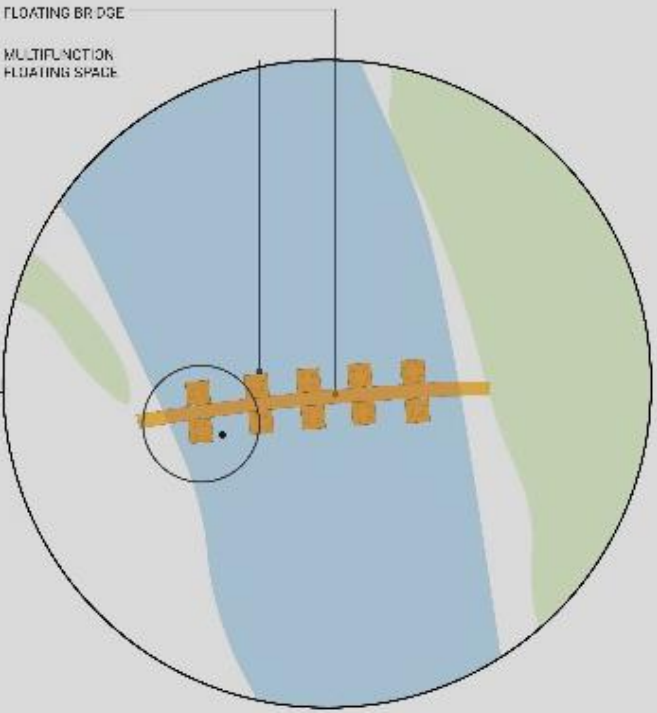
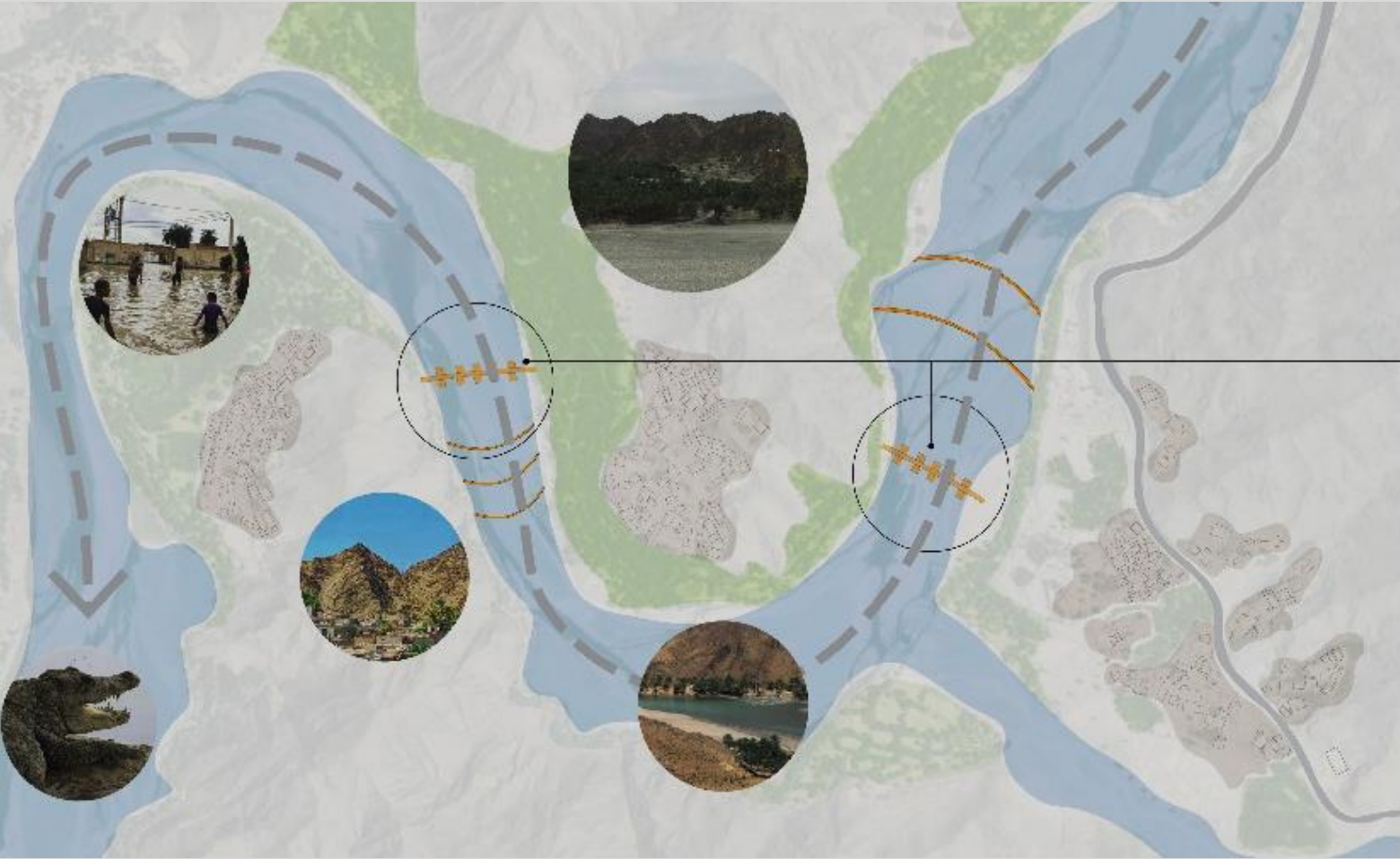
+ FLOATATION TECHNOLOGY = FLOATING BRIDGE



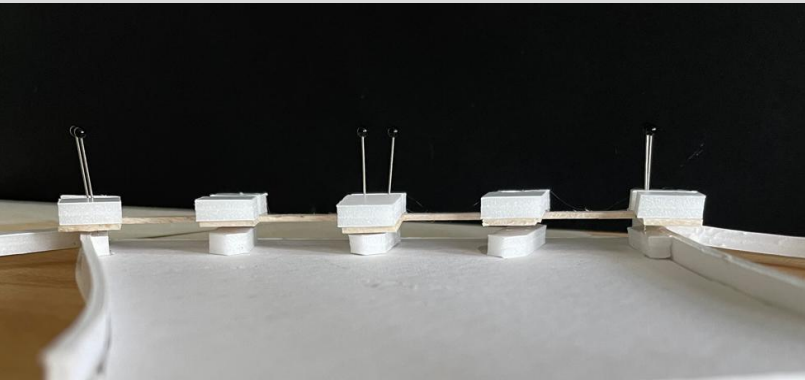
DESIGN

APPROACH A – USING THE INTERMEDIATE AREA

CONCLUSION:
while the idea of constructing a bridge to create additional space without occupying steep lands already used for other activities may seem innovative, it's important to consider the potential challenges. Extreme floods could pose a significant challenge to those already struggling for basic necessities. It's important to carefully weigh the benefits and risks before moving forward with such a project.

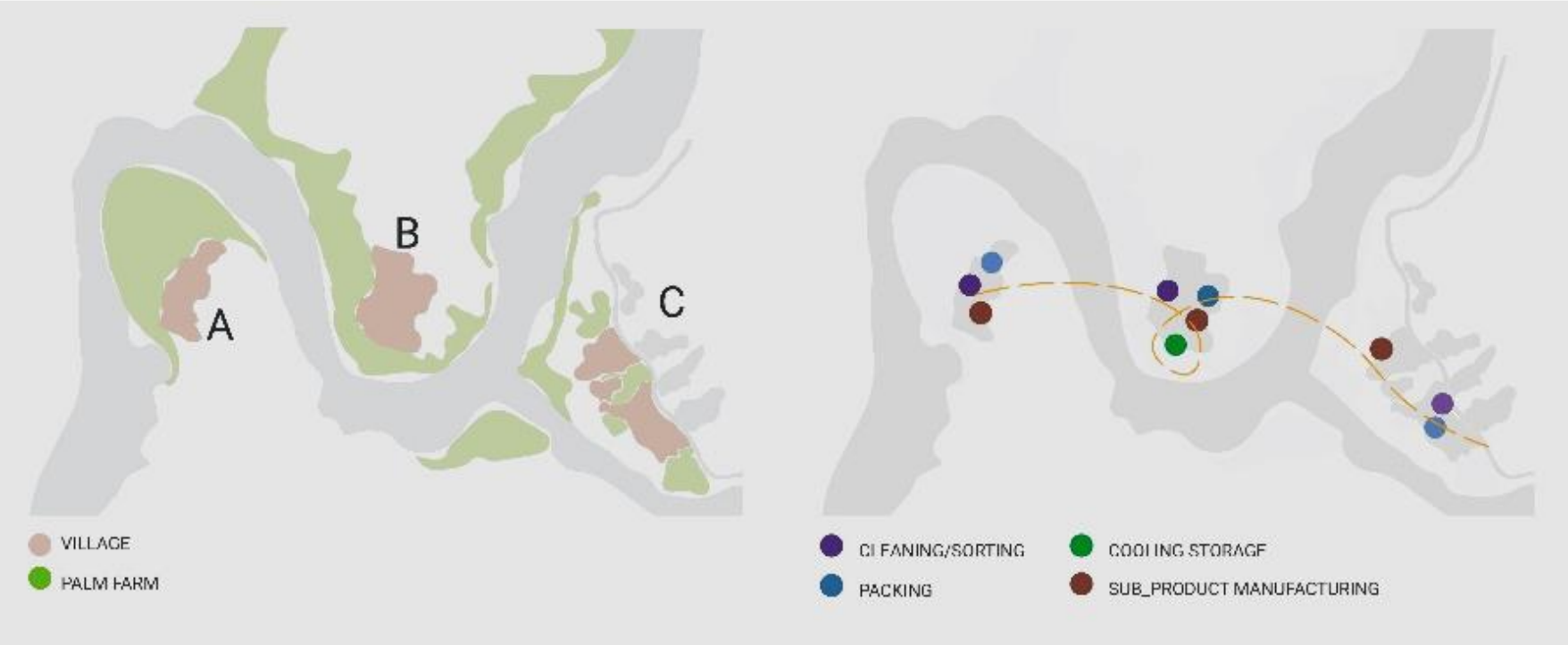


Floods in Sarbaz river during heavy rainfall. They can cause damage and wash away light constructions.



DESIGN
APPROACH 2 – PRODUCTIVE PATH THROUGHOUT FARMS

This idea focuses on creating jobs through creating a workspace chain based on the characteristic potential of each village. The production circle includes harvesting, producing side products, packaging, selling and sending the final products to the consumer. The small workspaces are built with local architectural materials and techniques that can be developed in the future by themselves. The ultimate goal is to connect three villages to convert primary agricultural products into final products and sell them without intermediaries. The required spaces are spread among the towns and connected to each village's landmarks through a light structure platform, making it easier for residents to travel between villages. The Silk Road concept inspires the concept.



- Inside the village view with date storage and packing workshops located along a defined path
- A defined path physically connects all the workshops and landmarks of all three villages

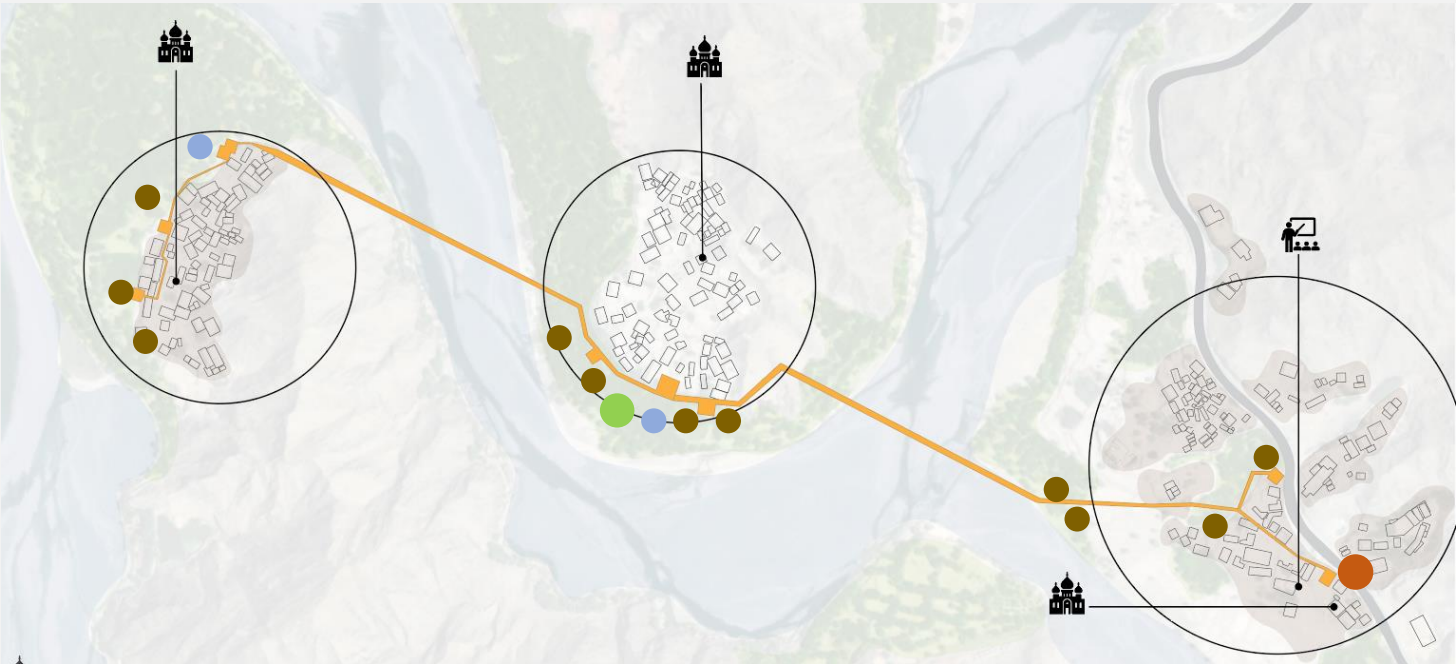


DESIGN
APPROACH 2 – PRODUCTIVE PATH THROUGHOUT FARMS

BRAIN STORM – INITIAL SCHEMATIC DESIGN



The Parkan located between Itek and Kan villages, is suitable for housing a cold storage facility and providing services to the surrounding communities. The village's high density and limited land availability led me to choose the project site at an underutilized and relatively vacant land intersection, with the village entrance and orchards pathway to serve a multipurpose function.



- Cleaning /Sorting
- Cooling storage
- Sub- product
- Market- final delivery

Village A- Kan

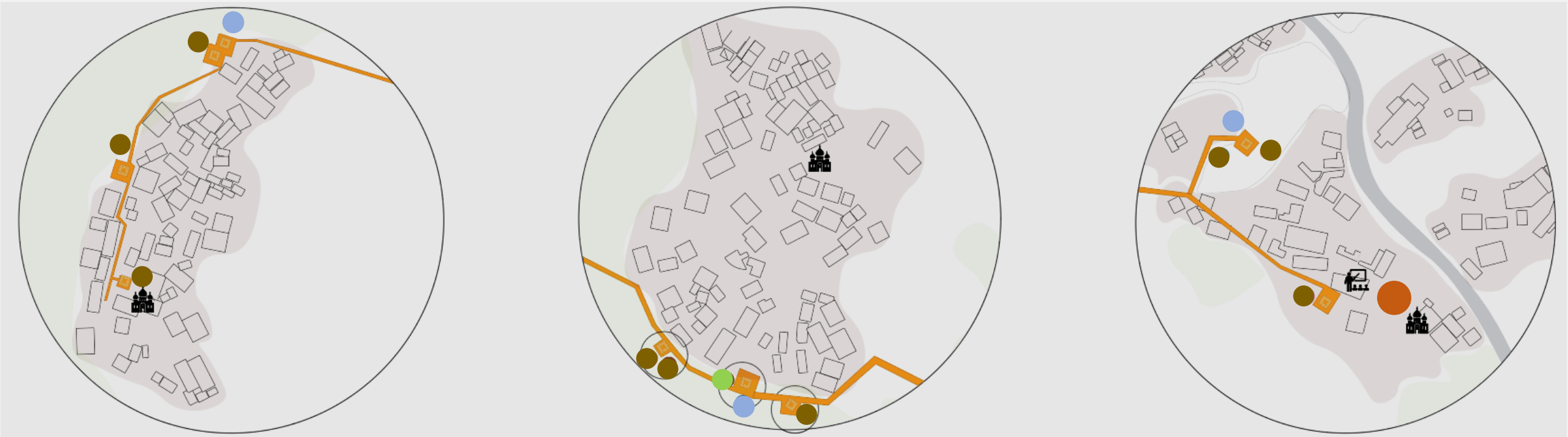
Sub-product is the most profitable process in this chain; this can also provide more connection to other villages and protect the residents from isolation.

Village B- PAKan

Store fruits after harvesting in a place with proper temperature is the critical factor of the process, so the building proposed to locate here to help with appropriate distribution..

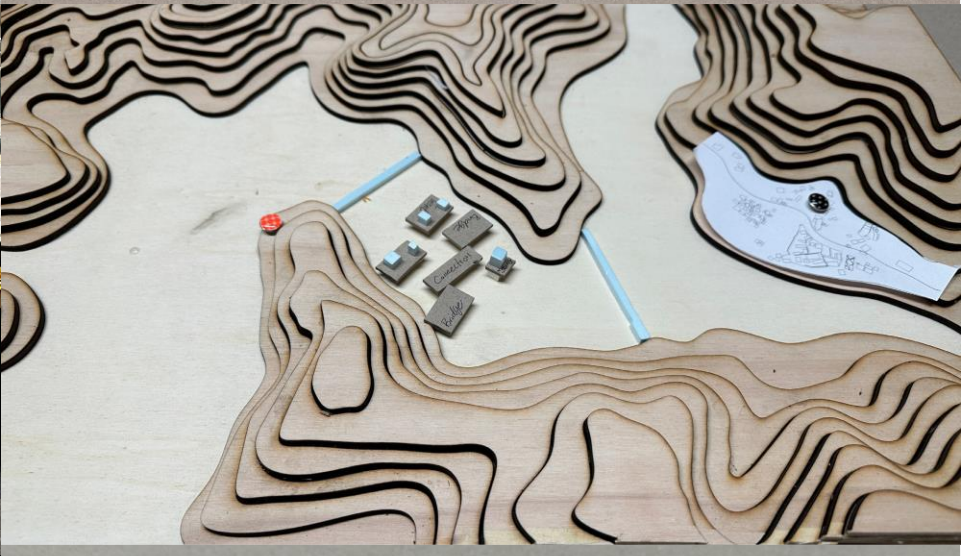
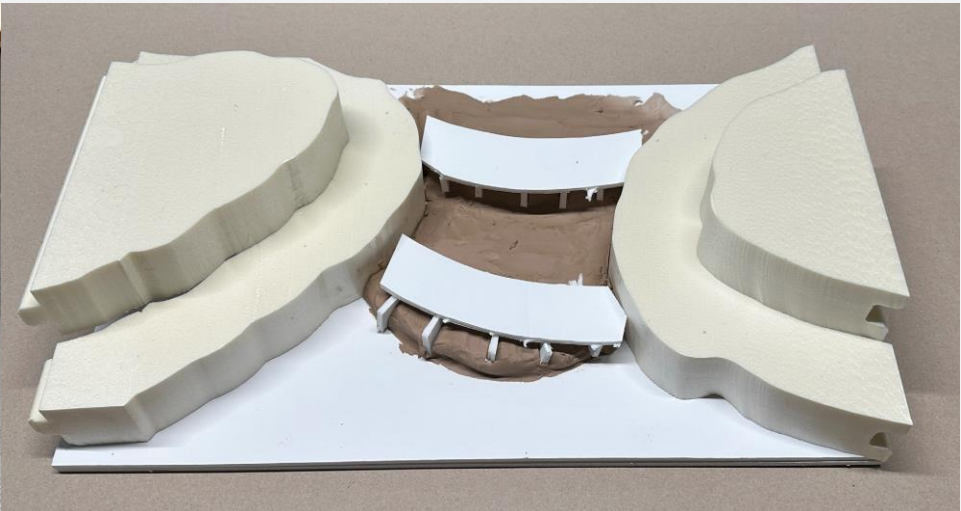
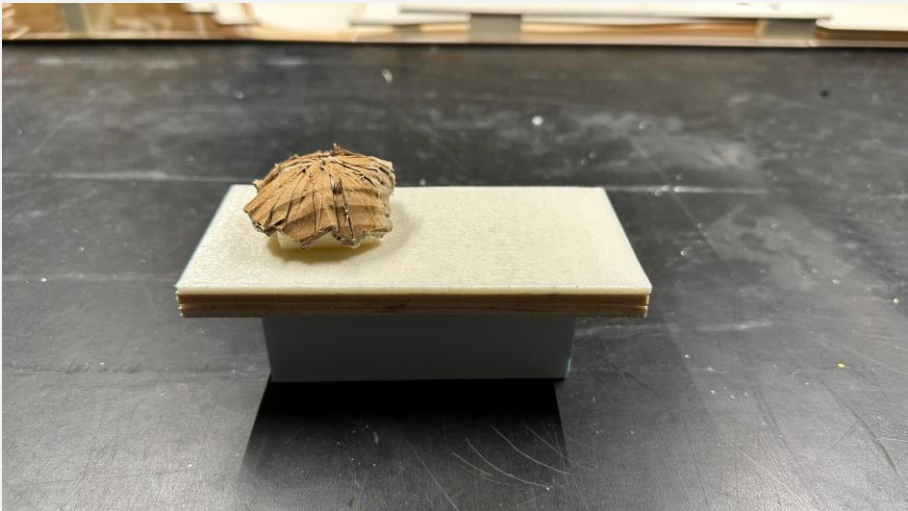
Village C- ITAK

Village C is where the permanent market of agricultural product placed also the terminal where they send their final products to end users



WINTER SCHOOL

I had the privilege of participating in a winter school workshop that was held over a three-day period, and it was a highly rewarding experience. The other participants shared an array of fresh and insightful ideas that have provided me with a new perspective on my project. What I found particularly valuable was the discussion on how we could manage the river to enhance the natural view. Overall, the workshop was truly inspiring, and I now have plenty of material to contemplate as I continue with my work.



DESIGN

CURRENT SITUATION – PARKAN VILLAGE

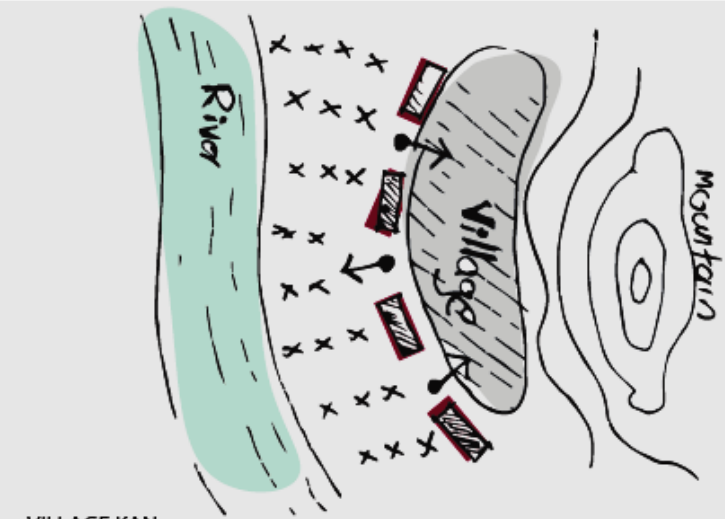


DESIGN
SELECT LOCATION

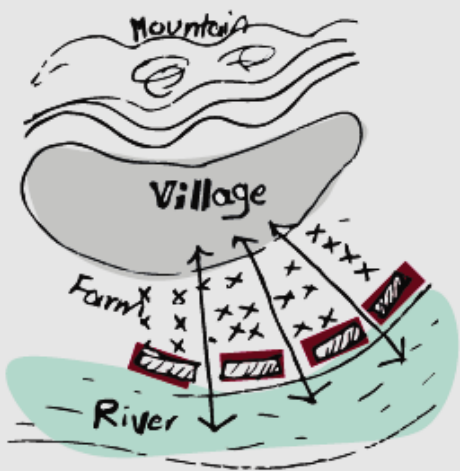
After analyzing the area's various factors, I decided that the best location for the project would be between the river and the agricultural expanses. This decision was made based on careful consideration of the site's developmental potential, as well as the need to preserve the village's structural integrity and maintain ecological balance. By taking a holistic approach that balances development with environmental concerns, we can ensure that the project benefits both the community and the surrounding ecosystem.



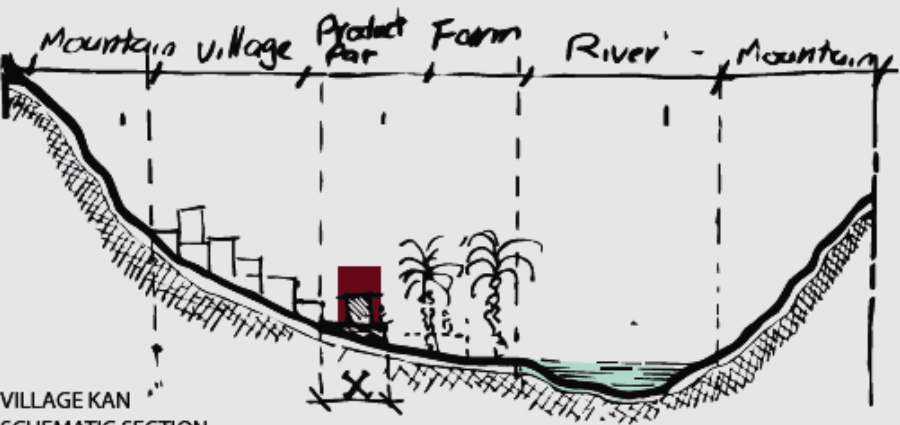
Parkan village



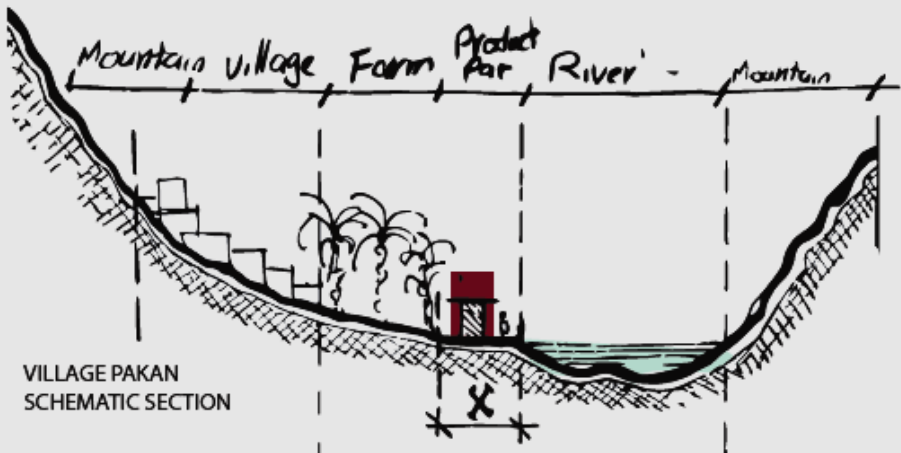
VILLAGE KAN
POTENTIAL TO ADD THE PRODUCTION PATH BETWEEN VILLAGE AND THE FARMS/DATE GROVE



VILLAGE PAKAN
POTENTIAL TO ADD THE PRODUCTION PATH BETWEEN RIVER AND RIVER INSIDE THE FARMS/DATE GROVE



VILLAGE KAN
SCHEMATIC SECTION



VILLAGE PAKAN
SCHEMATIC SECTION

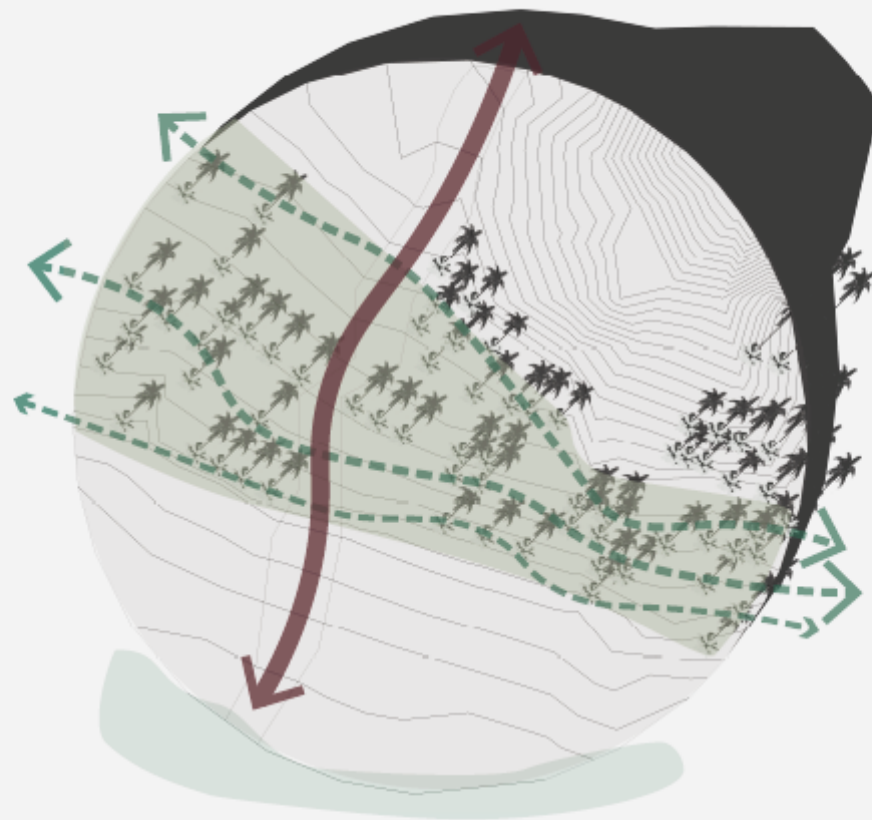


Study on the site physical model to

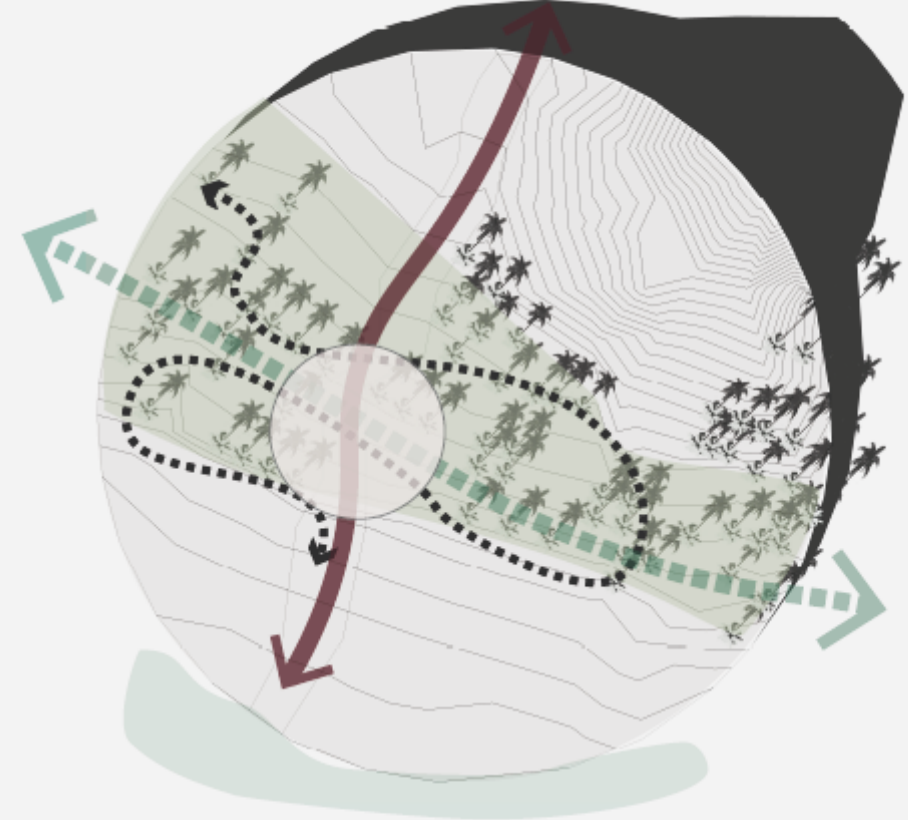
DESIGN
SITE ANALYSES



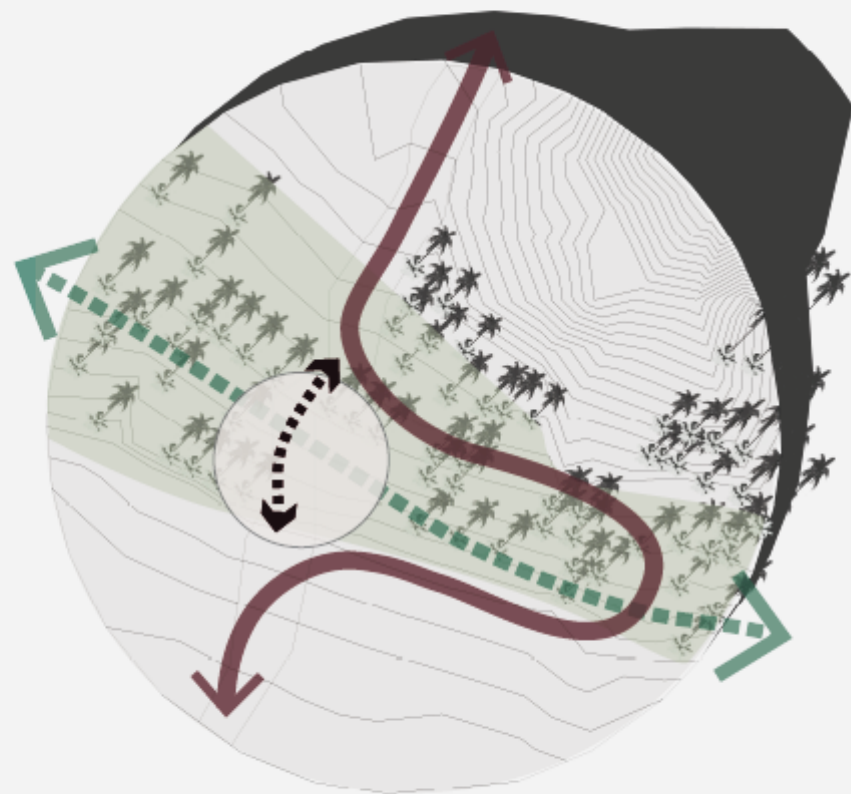
CONNECTION TO OTHER VILLAGES THROUGHOUT FARMS OR
INNER VILLAGE



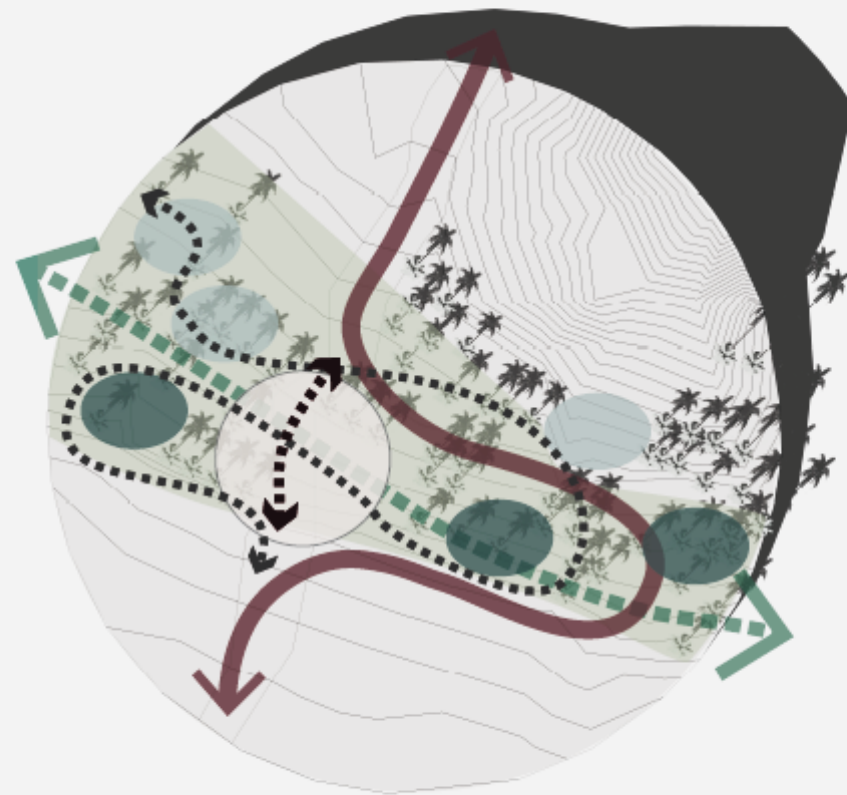
CONNECTION TO OTHER VILLAGES THROUGHOUT FARMS OR
INNER VILLAGE



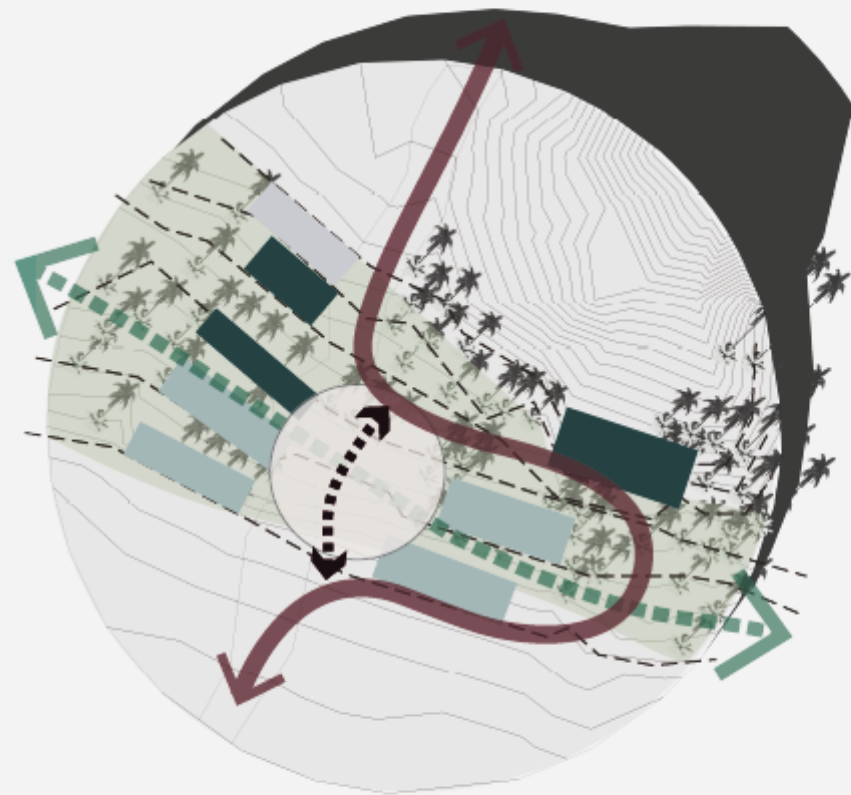
CROSSING TO MAIN PATH . NEW KNOT TO ADD PRODUCTION PATH



BEND ROAD AS PER TOPOGRAPHY TO GET SMOOTH RAMP
INSTEAD OF STEEP EXISTING ACCESS

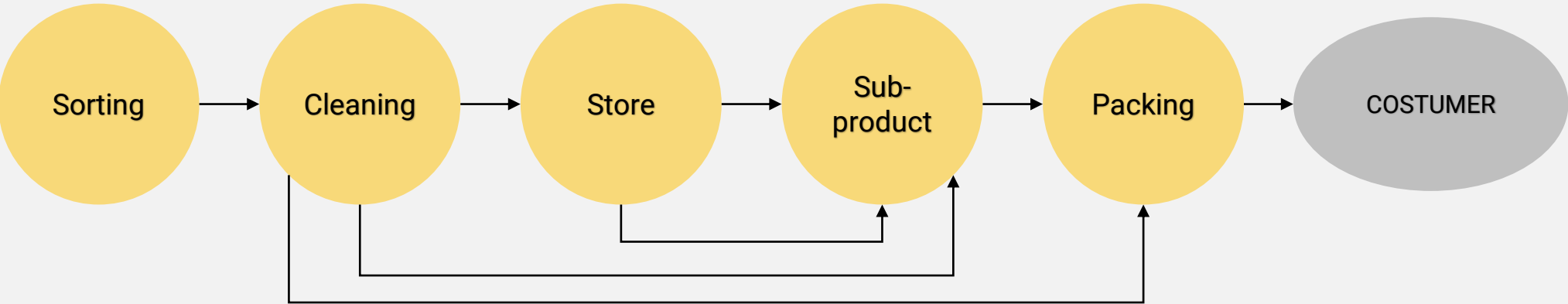


ADD NEW LAYER OF FUNCTION AS A NEW DISTRICT ALONG THE
FARMING PATH

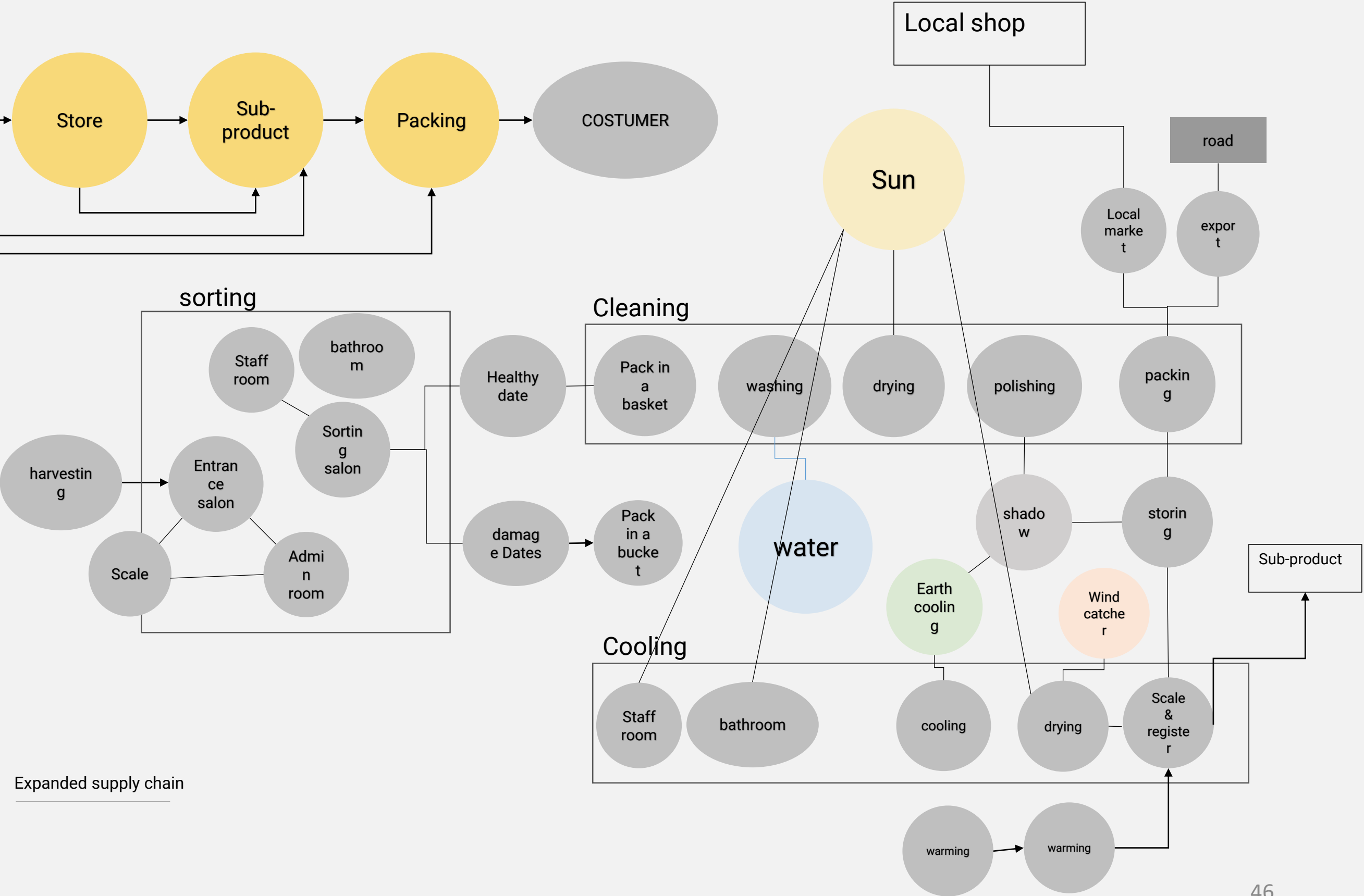


ADD NEW LAYER OF FUNCTION AS A NEW DISTRICT ALONG THE FARMING PATH

DESIGN
INITIAL PHYSICAL PROGRAM



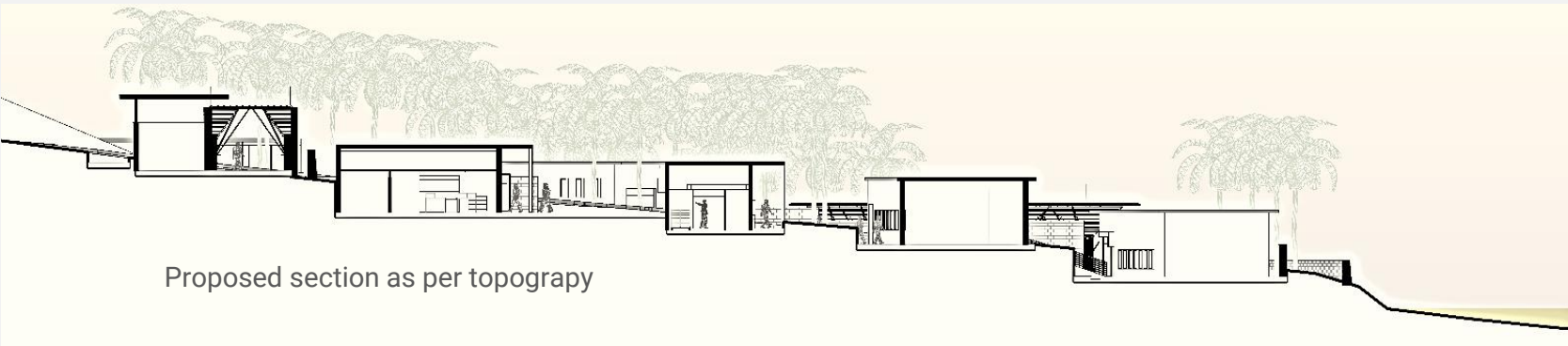
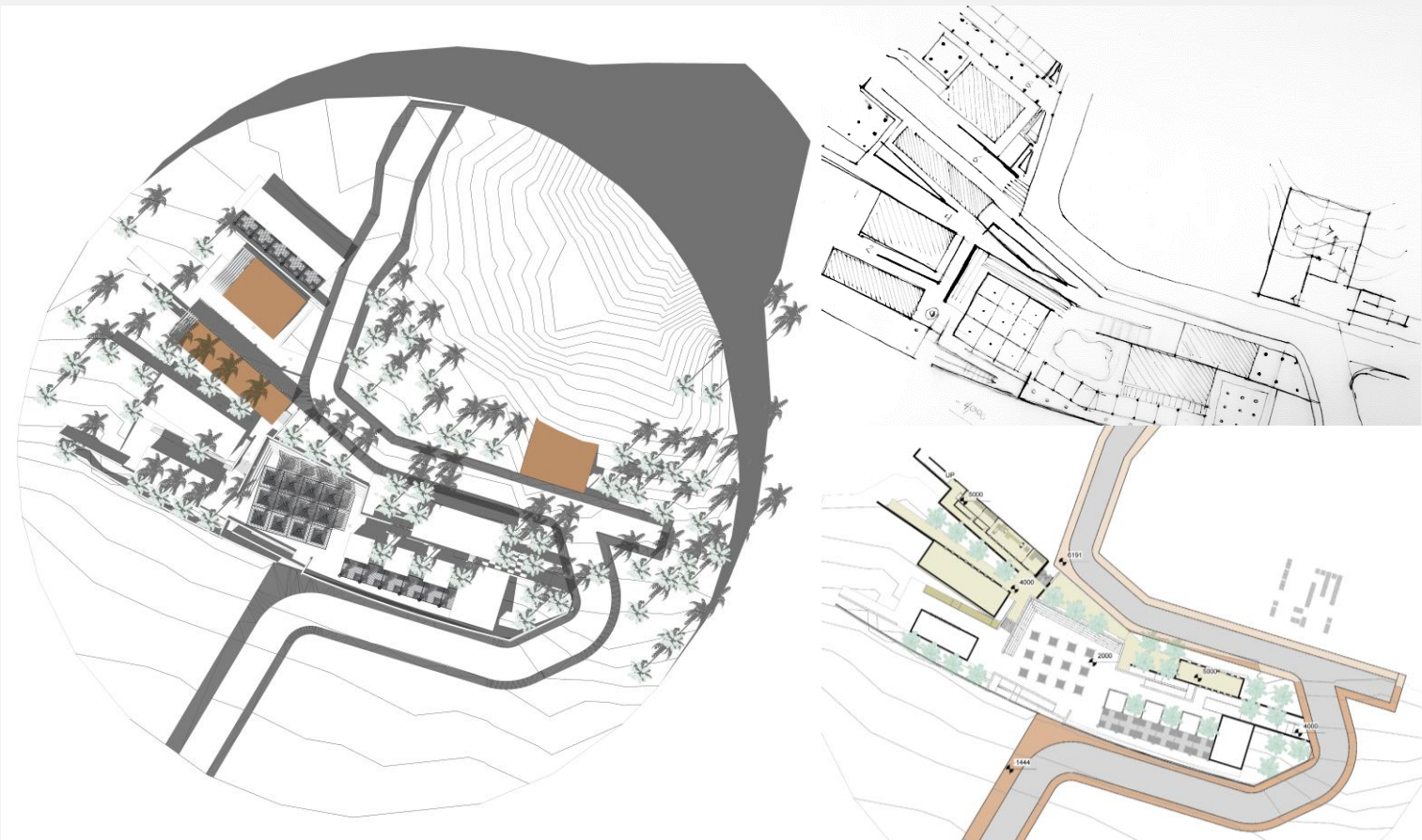
Main supply chain



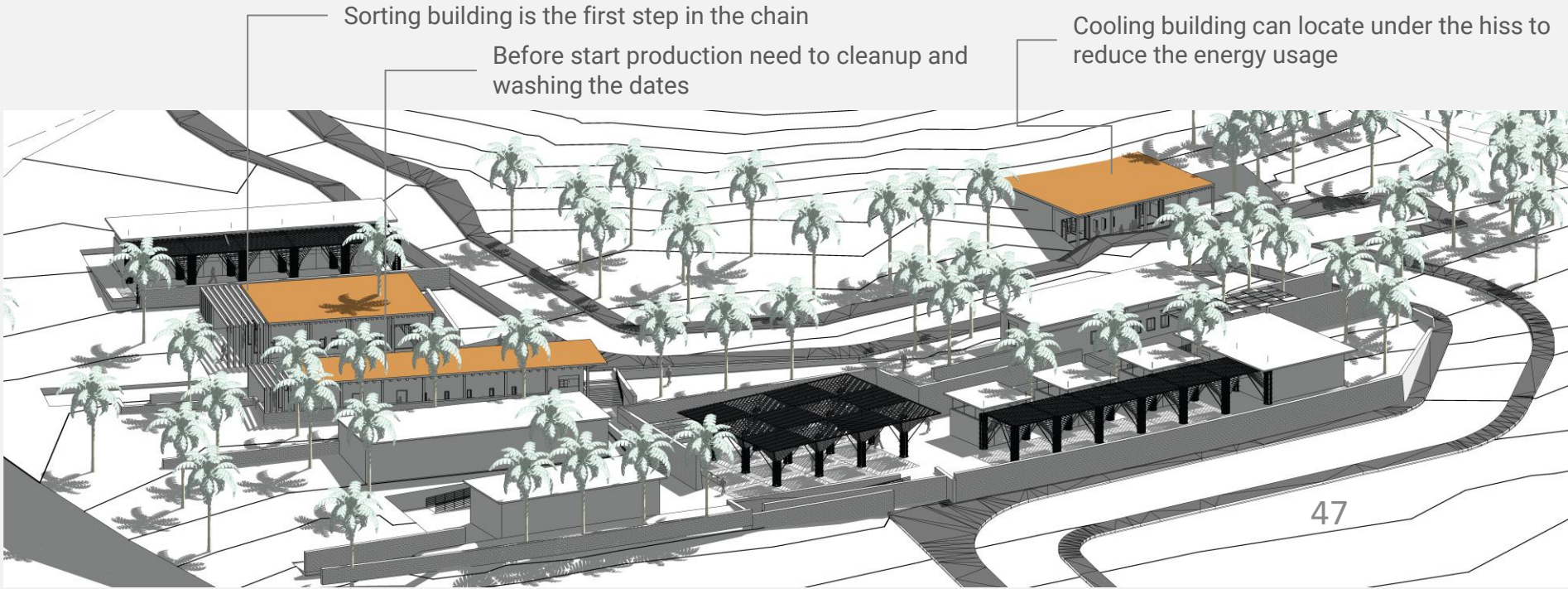
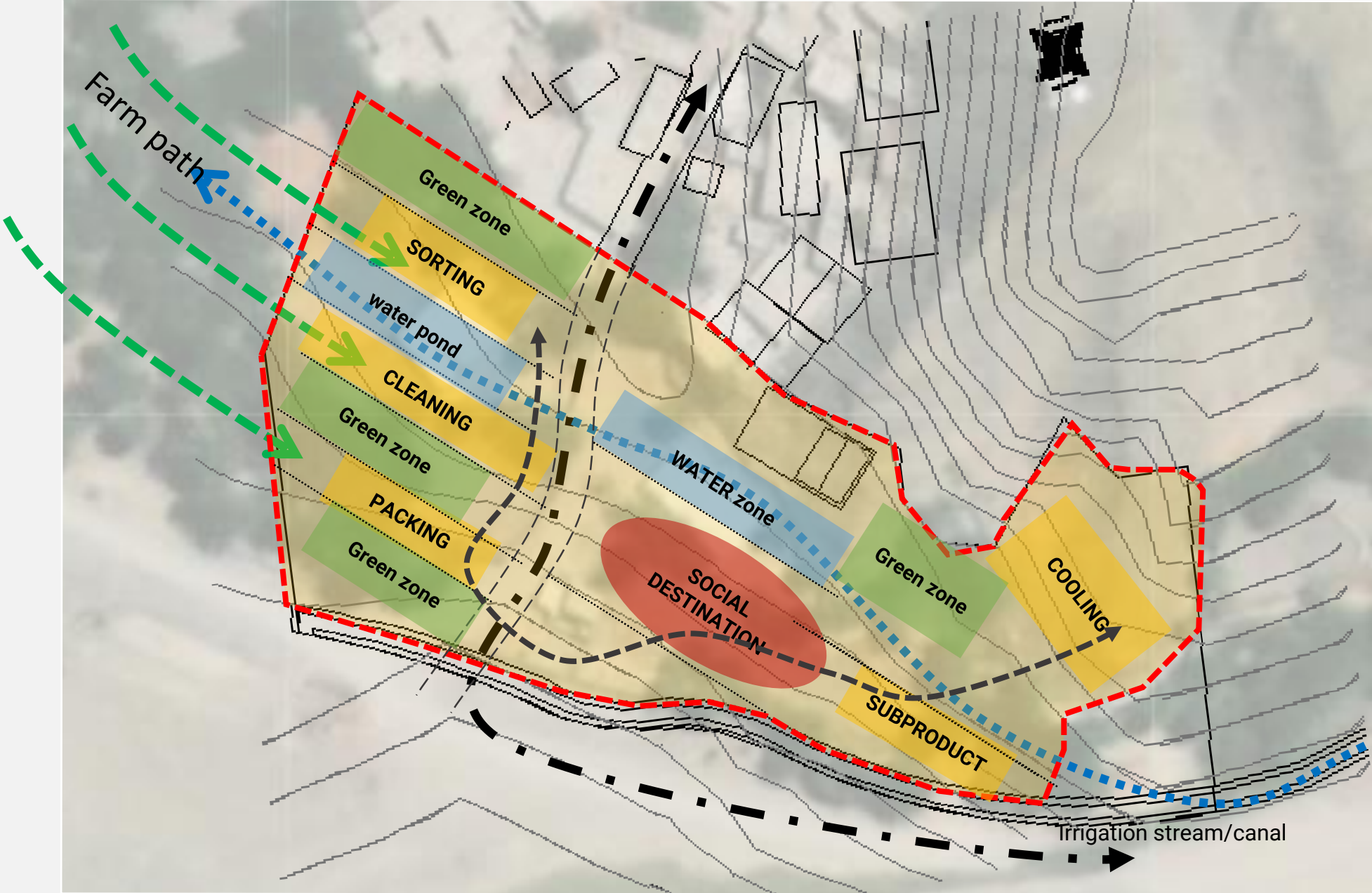
Expanded supply chain

PRE DESIGN
SCHEMATIC DESIGN

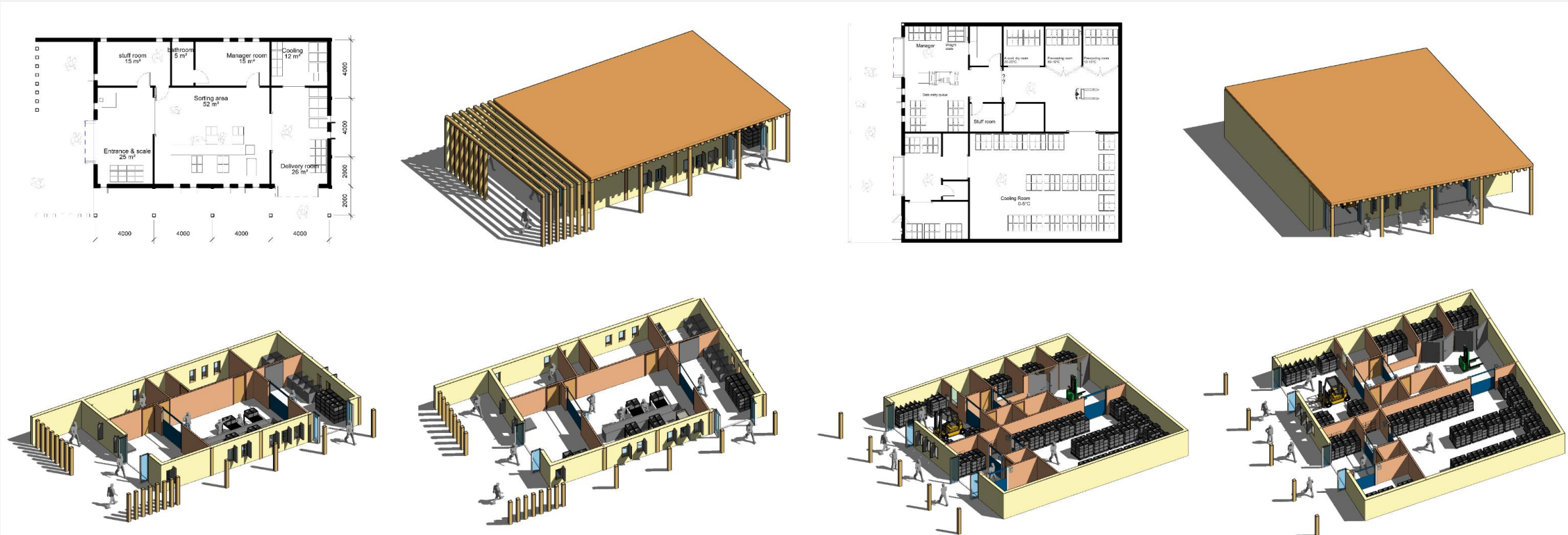
Upon thorough analysis, it has been determined that the schematic design must prioritize the product chain above all else. As a result, I had identified the essential buildings that will serve as the foundation for achieving this objective.



Proposed section as per topography



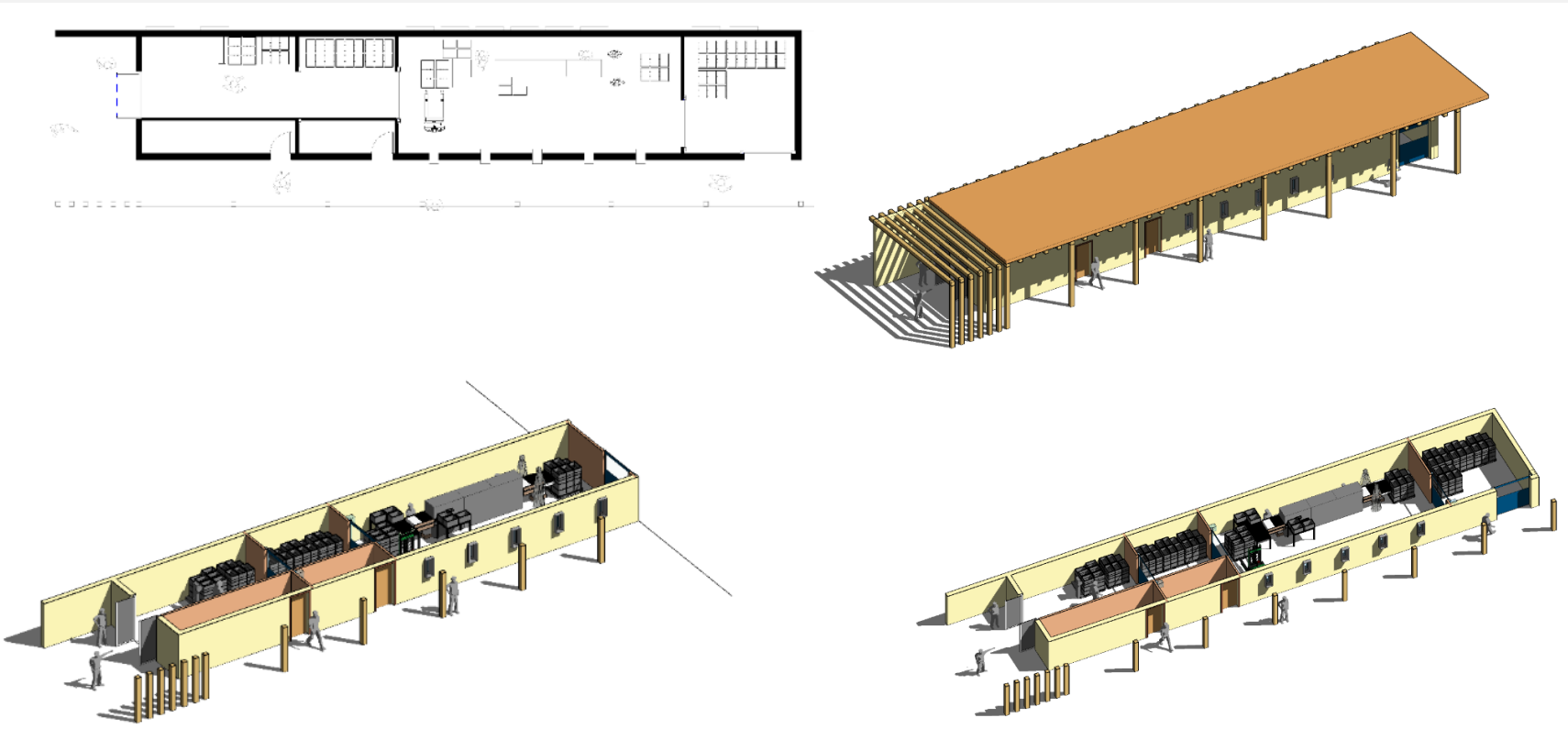
PRE-DESING
MAIN BUILDINGS TYPOLOGY



Typical sub-product factory

Typical storage/ cooling building

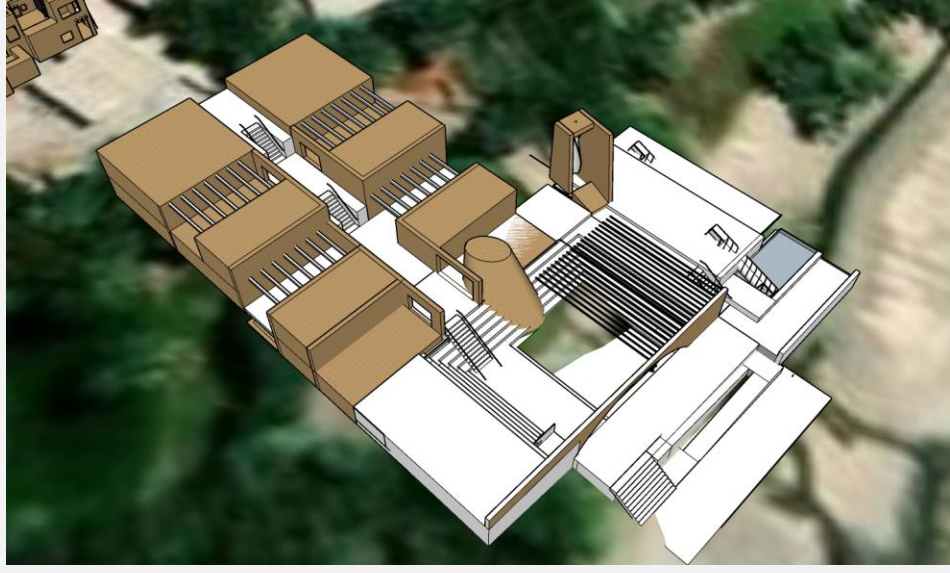
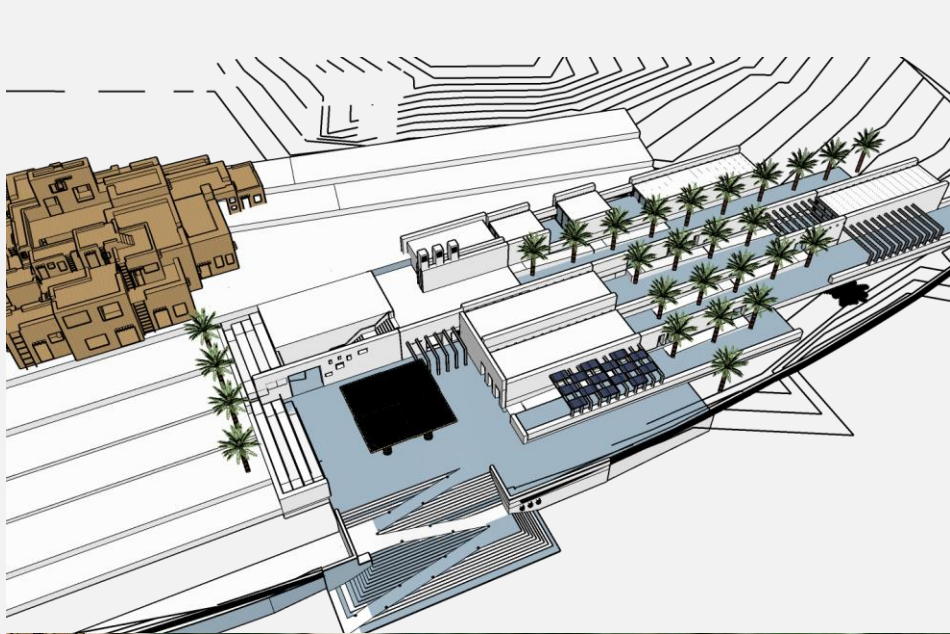
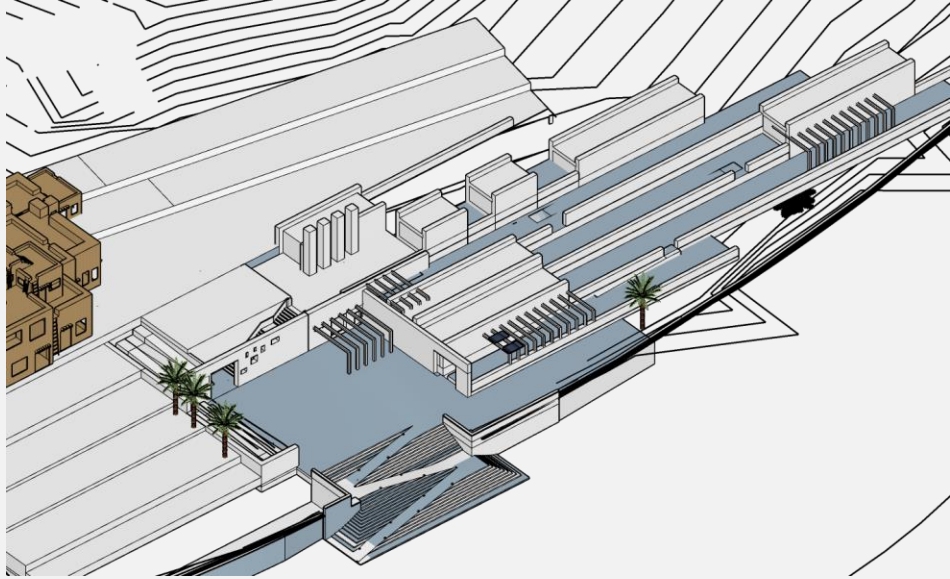
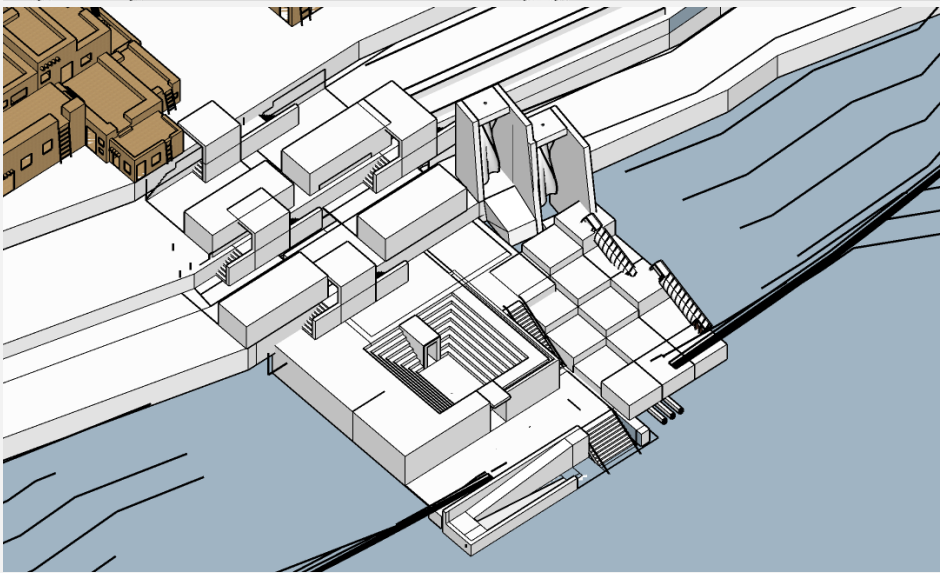
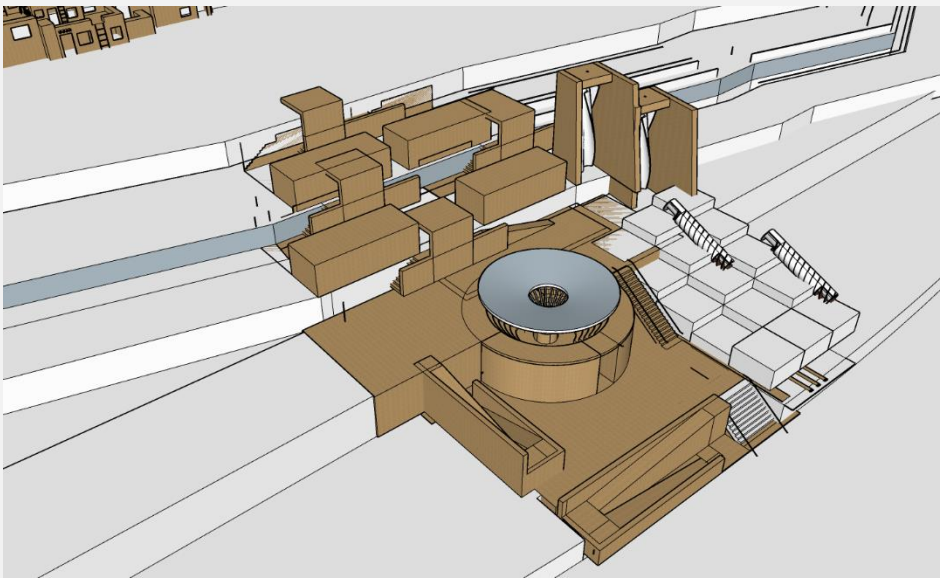
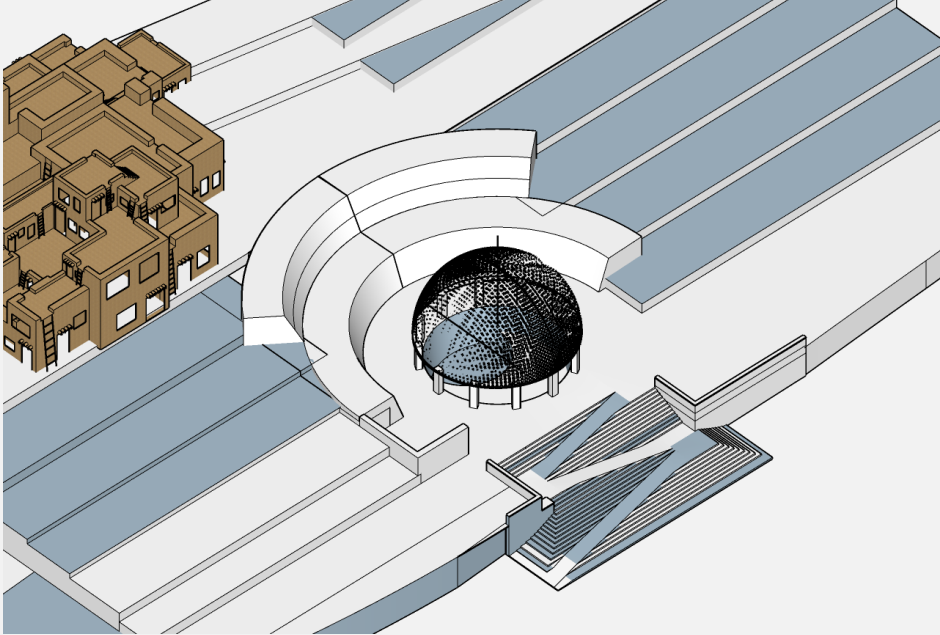
Marked up by Mentor and Tutors:
The initial proposal addressed region-specific needs, yet lacked integration with local architecture and vernacular design. By delving into historical building practices and embracing local materials and styles, the revised design authentically merged with the environment and cultural heritage. This approach not only fulfilled functional requirements but also embodied community identity.



Typical sorting and cleaning building

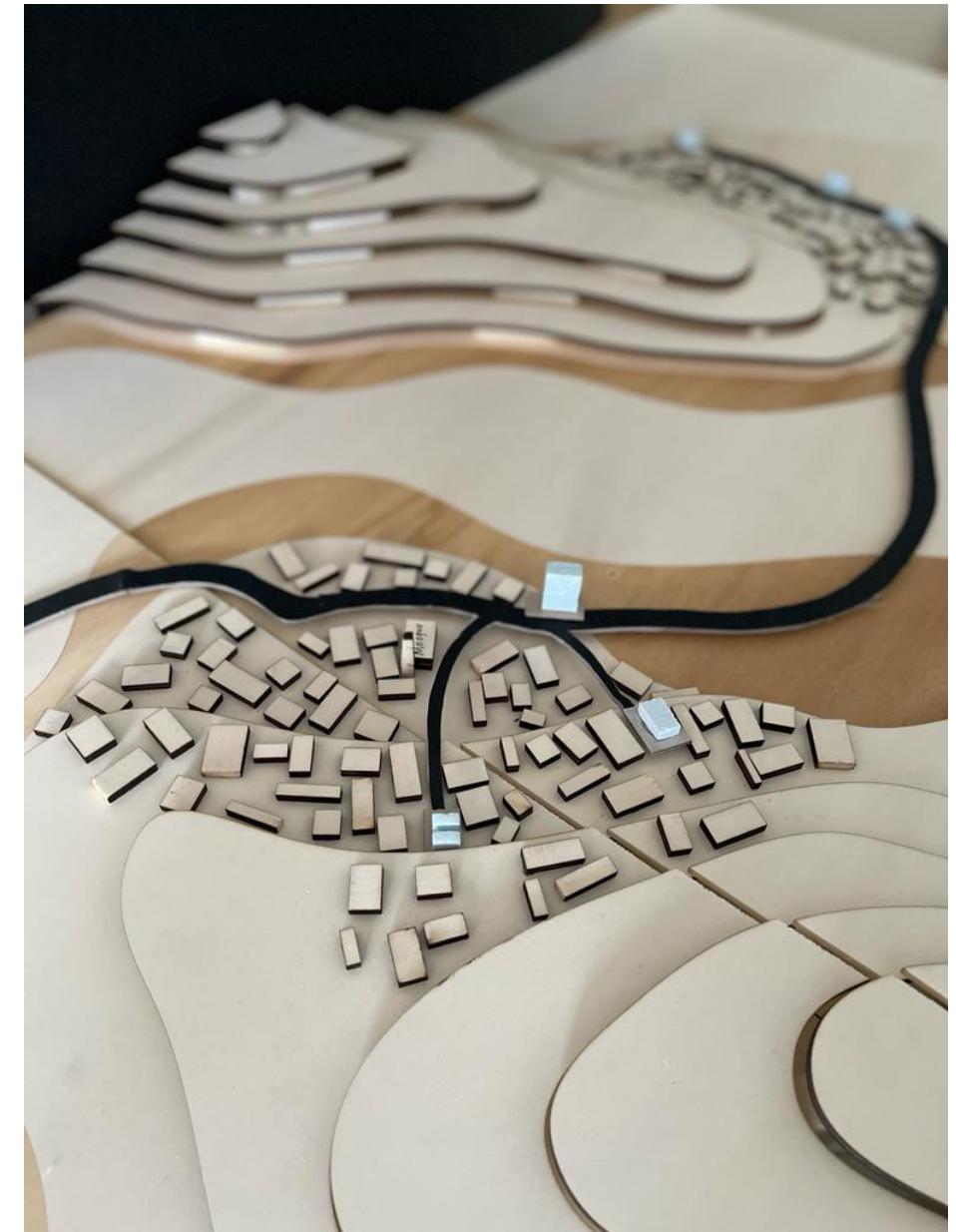
BRAIN STORM

Following the initial design scheme, I've been exploring unconventional options and alternative approaches to our project. It's crucial that could push boundaries and generate innovative ideas to come up with truly unique solutions. With an open mind and a willingness to experiment, I could develop a design that will have a significant impact on our project.



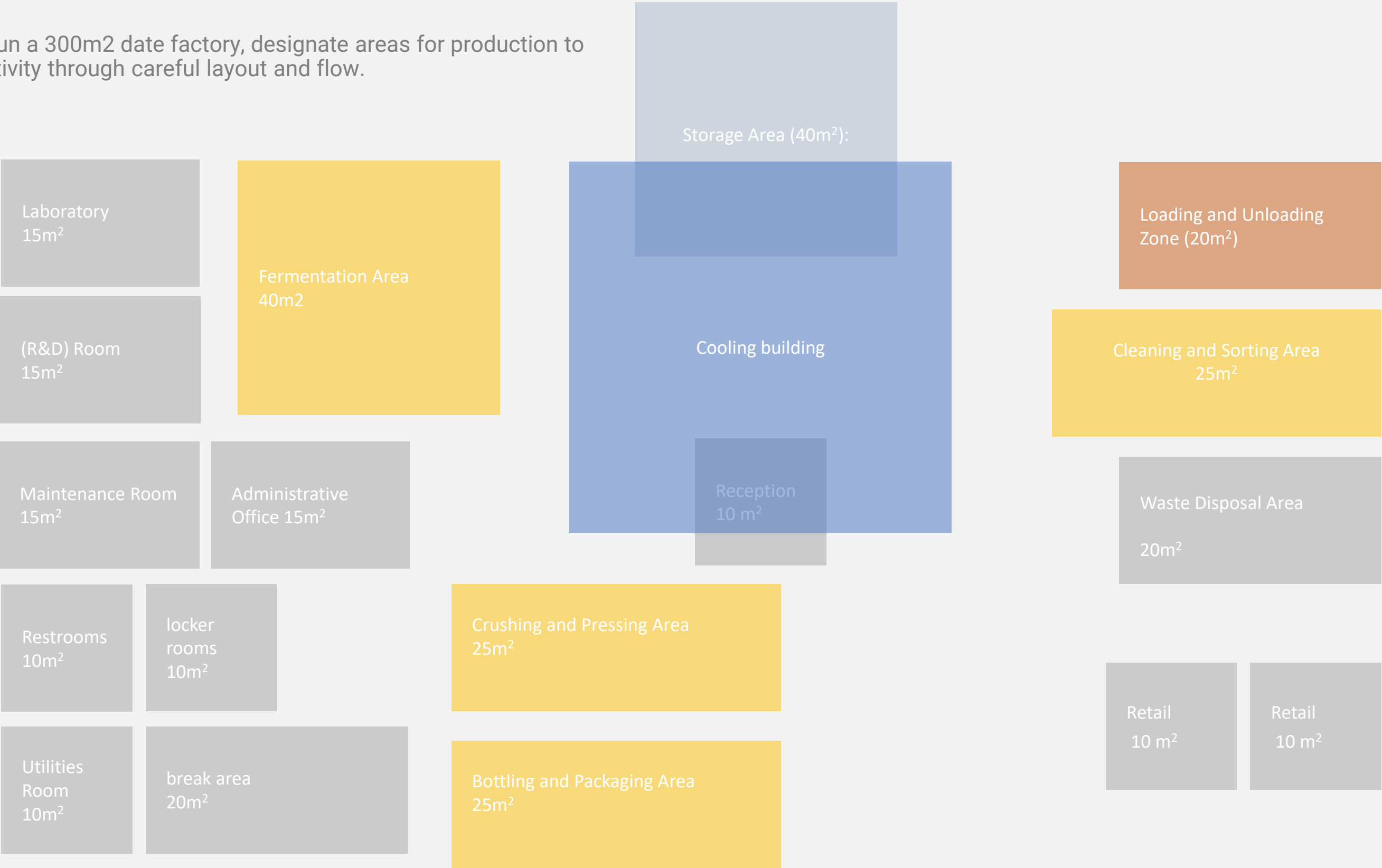
DESIGN

RETHINK ABOUT THE DESIGN AND PRODUCTIVE CHAIN

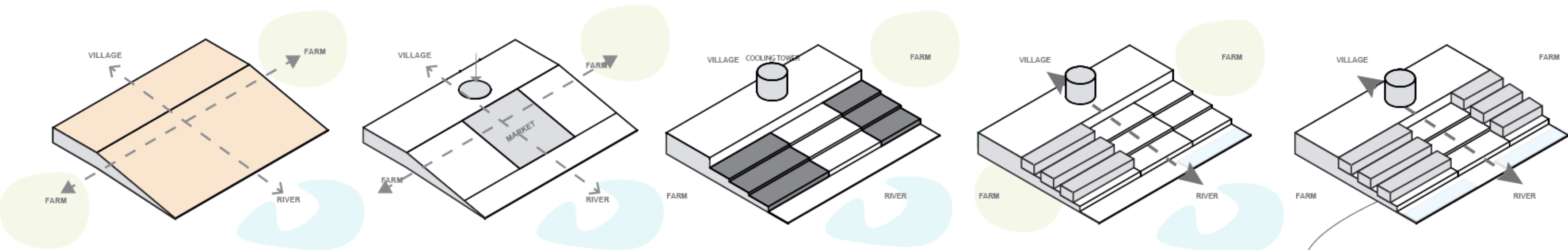


DESIGN
PHYSICAL PROGRAM

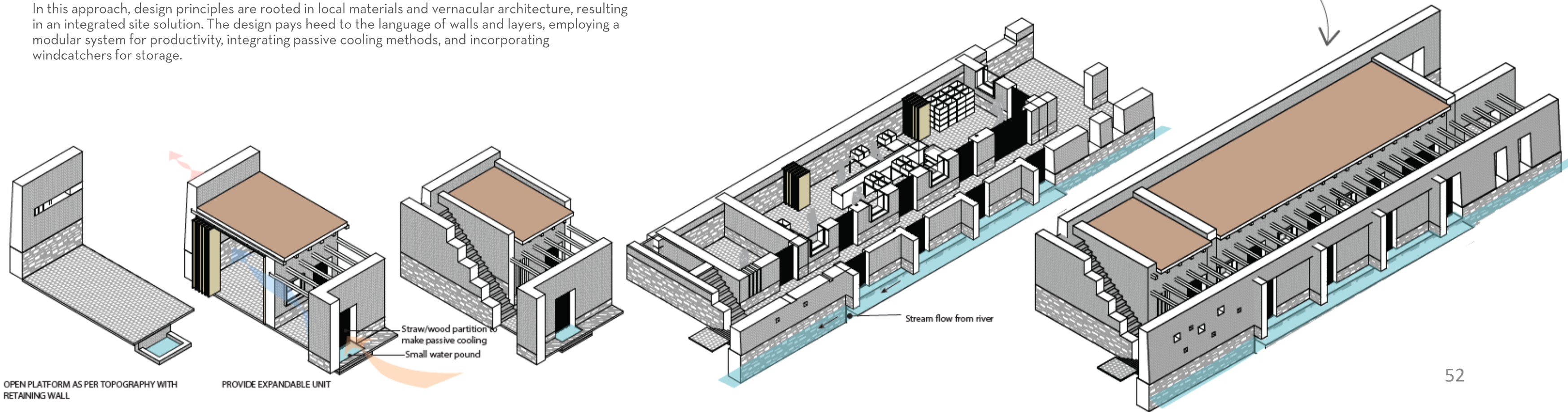
To efficiently run a 300m2 date factory, designate areas for production to realise productivity through careful layout and flow.



DESIGN
PRE-FINAL DESIGN

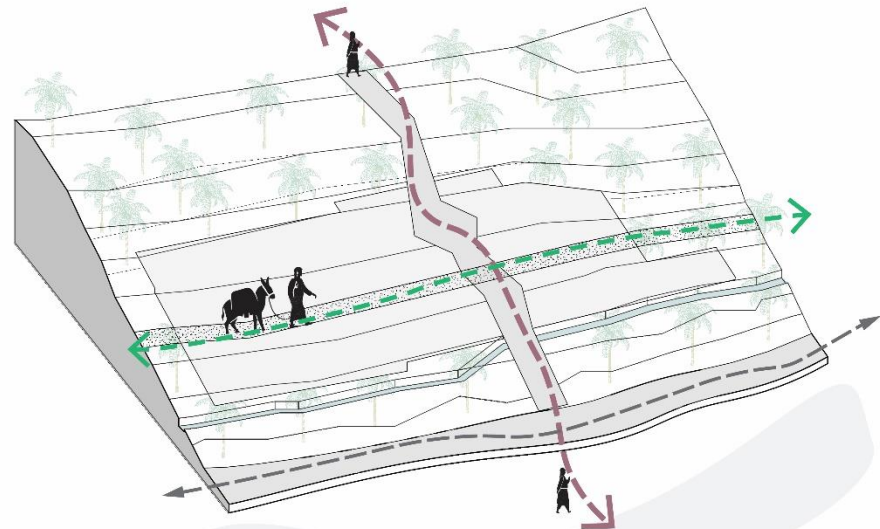


In this approach, design principles are rooted in local materials and vernacular architecture, resulting in an integrated site solution. The design pays heed to the language of walls and layers, employing a modular system for productivity, integrating passive cooling methods, and incorporating windcatchers for storage.

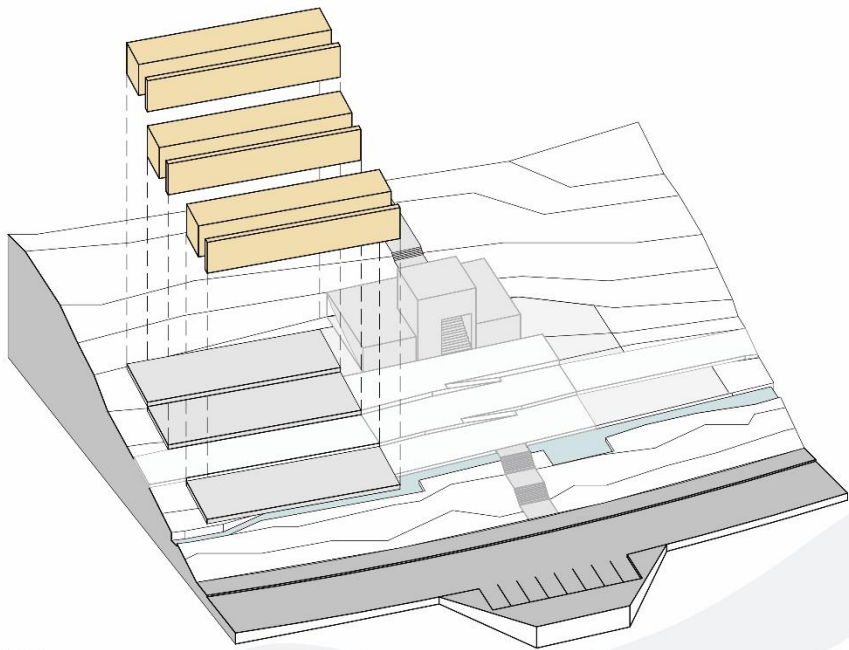


DESIGN
PRE-FINAL DESIGN

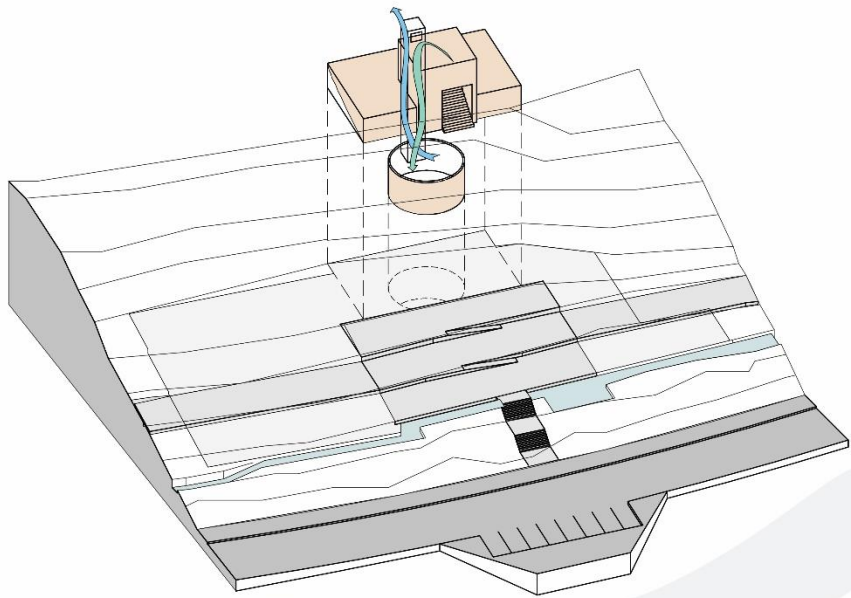
PHASES TO IMPLEMENT



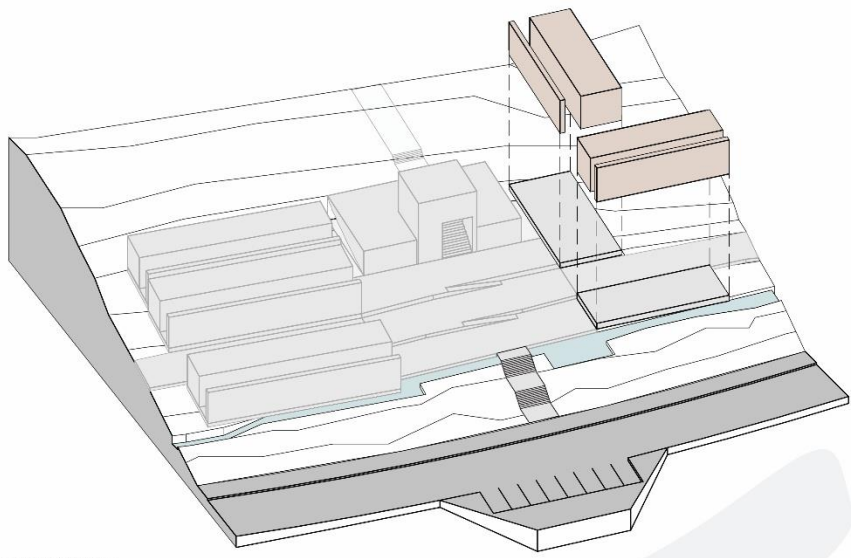
EXISTING LAND
SITE IS LOCATED IN A JUNCTION BETWEEN TWO MAIN VIL-
LAGE AND FARM PATH



PHASE II
THE DEVELOPMENT CONTINUE BY ADDING SUB-PRODUCT BUILDINGS TO
EXTEND THE PRODUCTIVE CHAIN



PHASE I
THE PRODUCTION PATH START BY INTRODUCING AN OPEN MARKET/
EVENT AREA AND COOLING BUILDING AS PROJECT INCUBATOR



PHASE III
AS PROJECT MUST BE SELF-SUFFICIENT IN THIS STAGE THE WORK-
SHOPS AND MARKETS WILL ADD TO ENABLE THE COMPLEX FOR
NEXT STEPS AND MORE DEVELOPMENT IN THE FUTURE

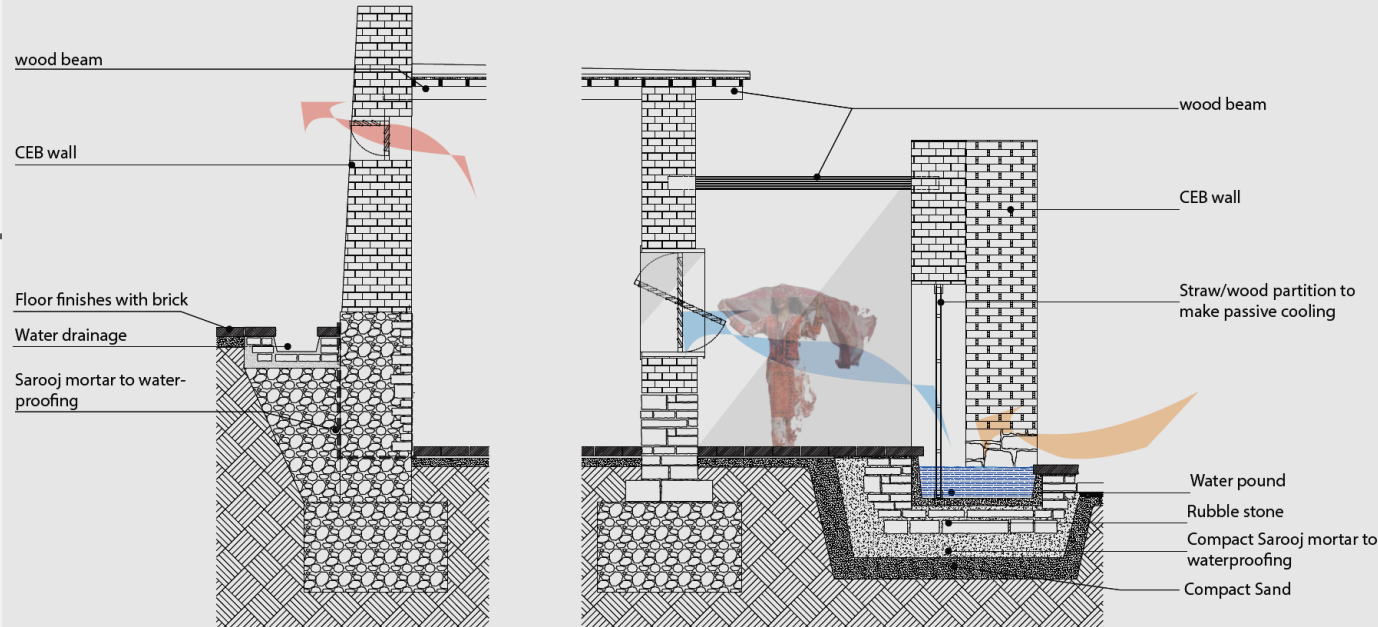


View to market and cooling building



View from market to pathway toward farms

DESIGN
PRE-FINAL



CONCLUSION :

While this design could be regarded as the final outcome, my satisfaction with the result was tempered by a crucial consideration: inclusivity. Although the design encompassed various elements, some structures and details did not harmonize with the village's scale. Contemplating a deeper integration approach, I sought to introduce a technique empowering residents to expand and rearrange according to local needs, ensuring their voices are heard and fostering a truly inclusive environment for the future.



DESIGN

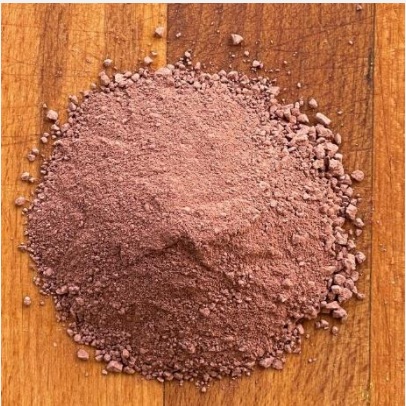
TEST MATERIAL



PALM LEAF



SAND



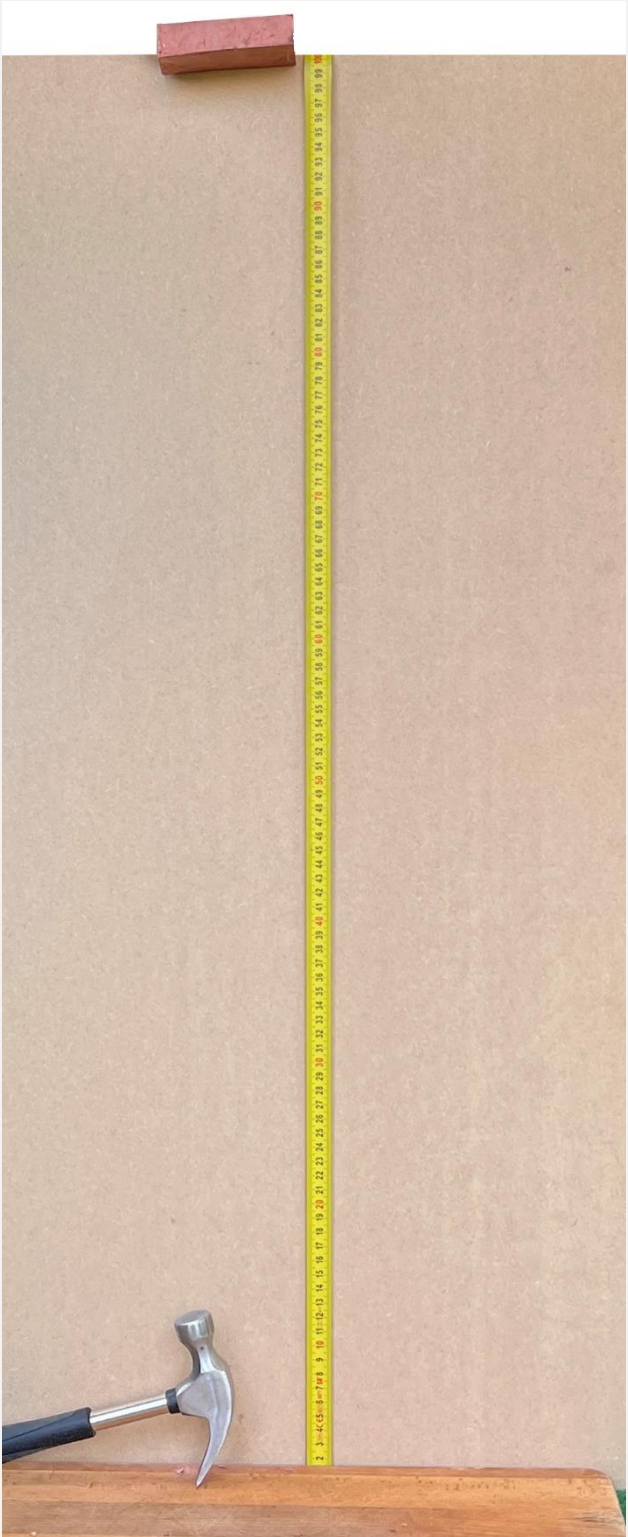
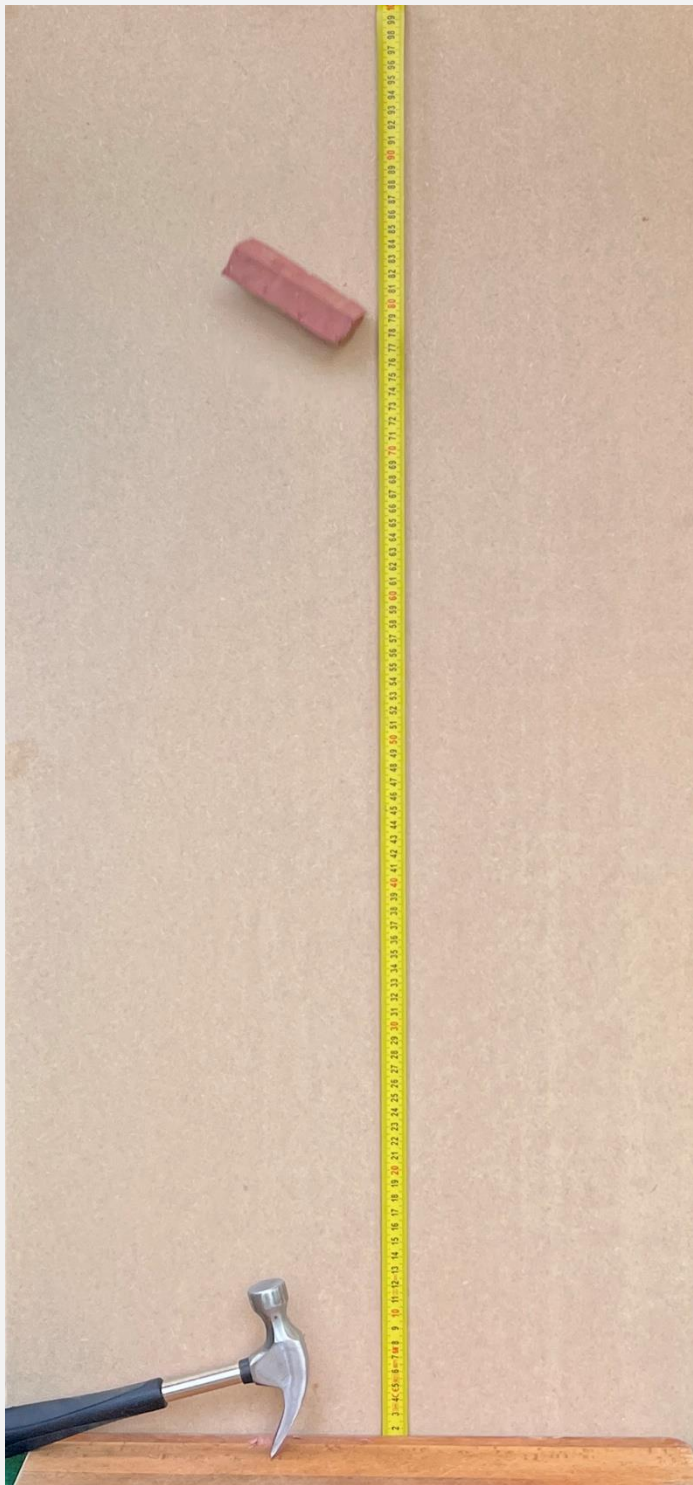
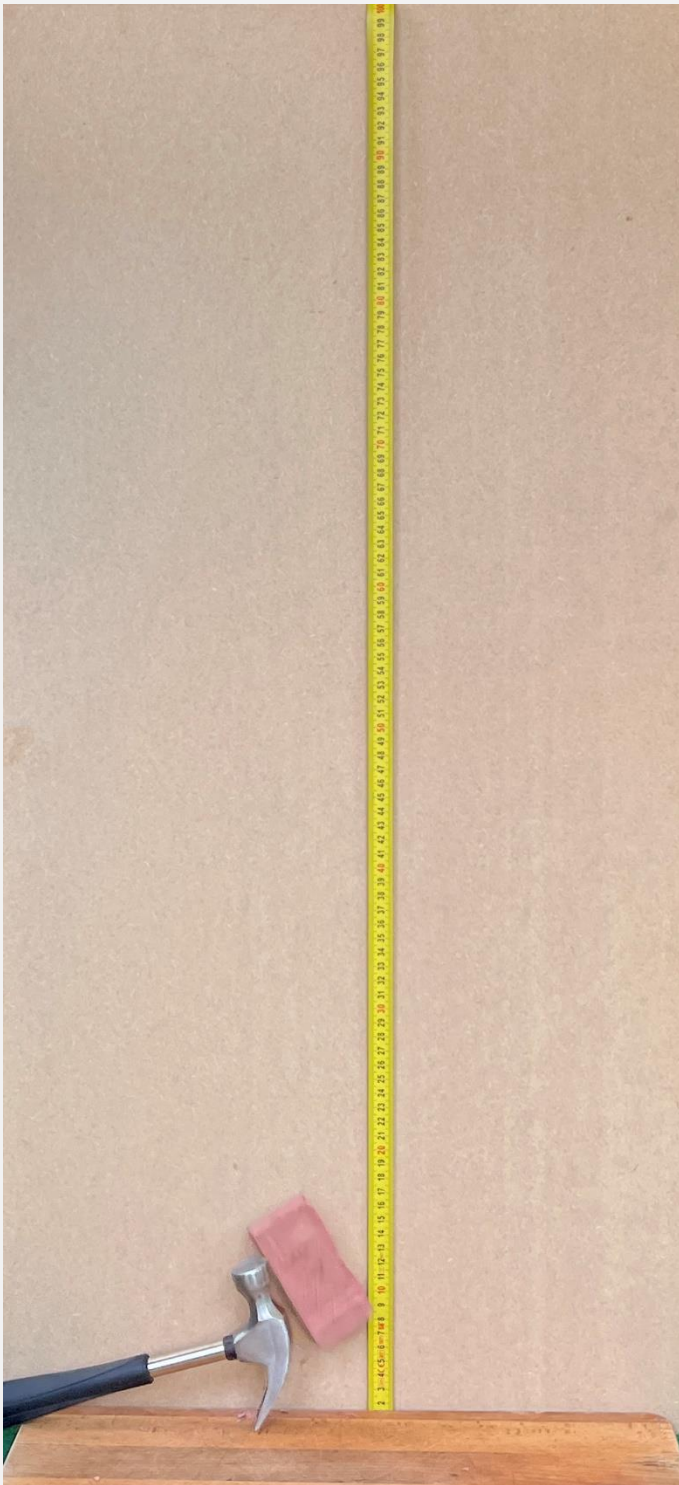
CLAY



CONCLUSION
During my experiment in a kitchen laboratory setting, I conducted a scratch test, dropped the blocks from a specific height, and even used a hammer to smash them. The purpose of this at-home test was to determine the strength of the blocks. As a result, it was observed that the type 4 block, which contained more sand and less clay, demonstrated the highest strength among all the blocks tested. Additionally, all the blocks were sun-dried for seven days before the experiment.

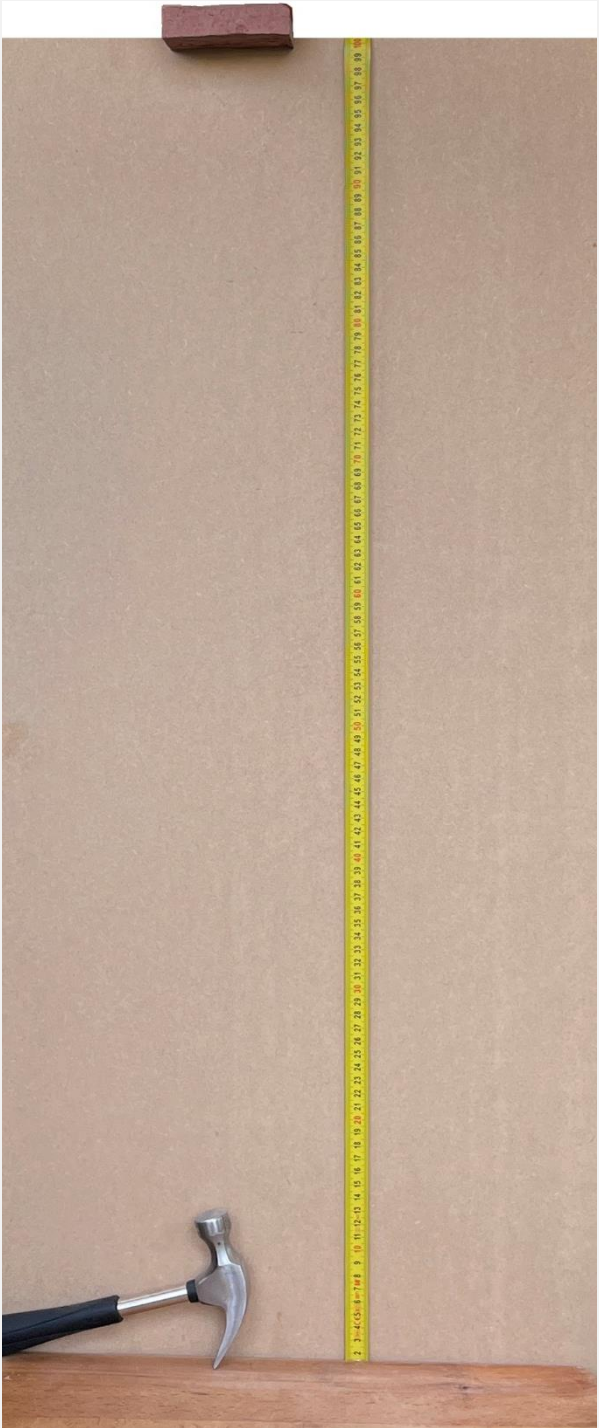
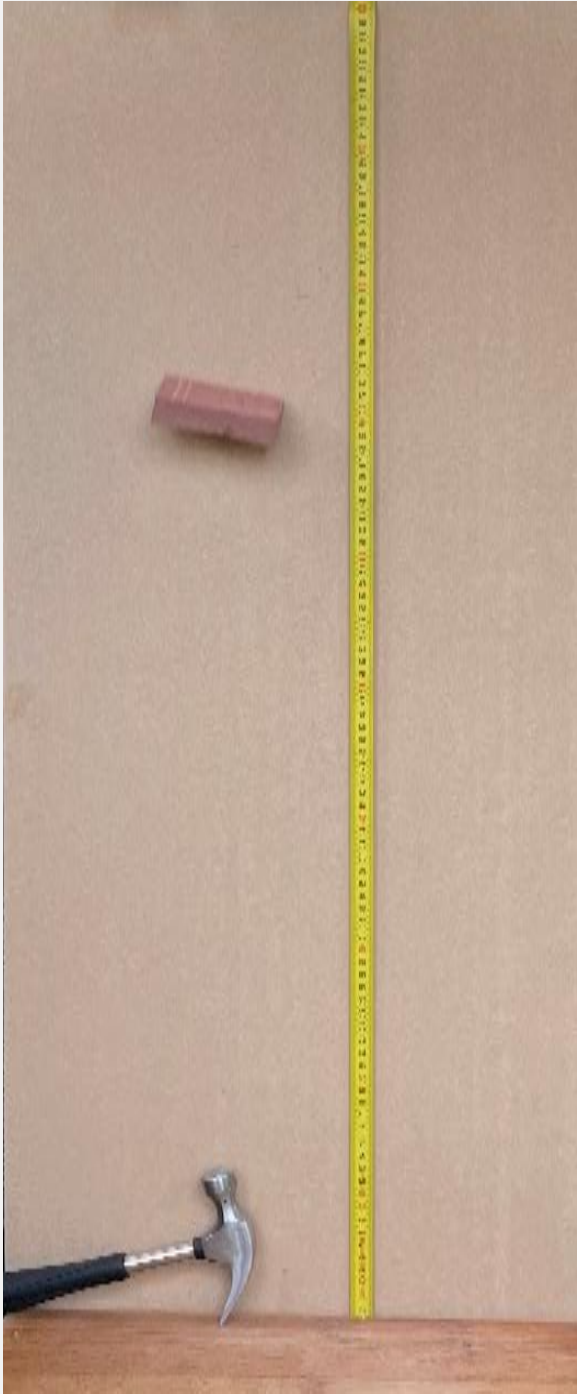
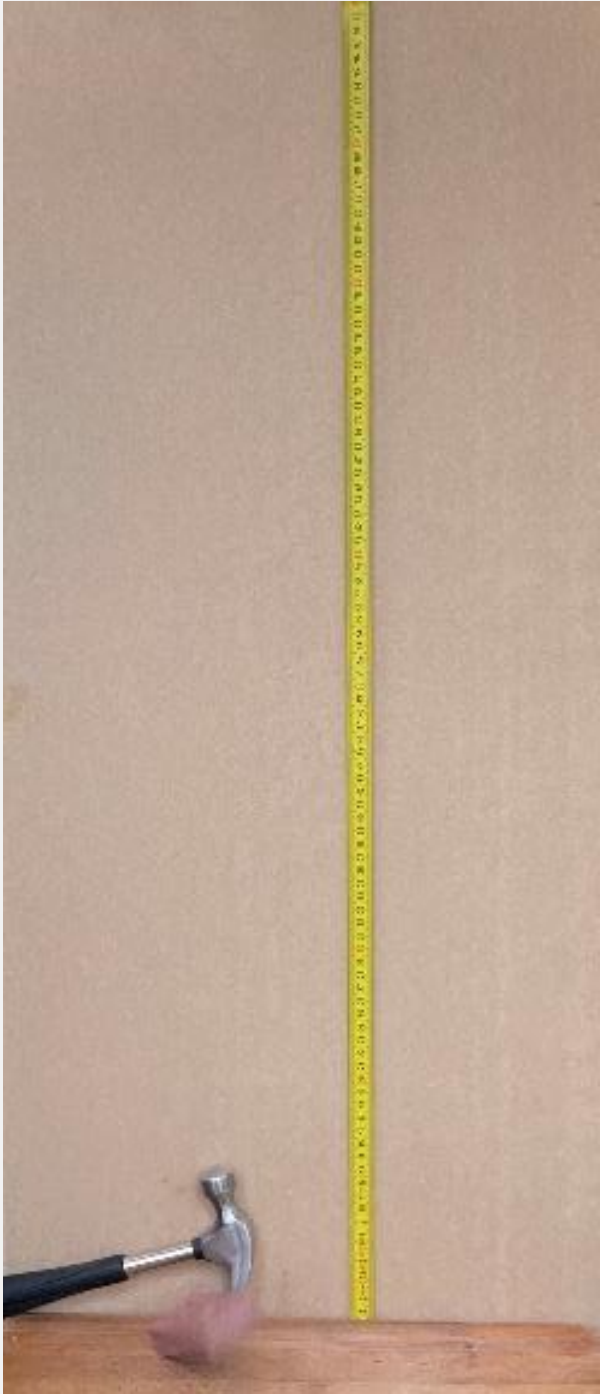
DESIGN

TEST MATERIAL- ADOBI TYPE 1- 100% CLAY



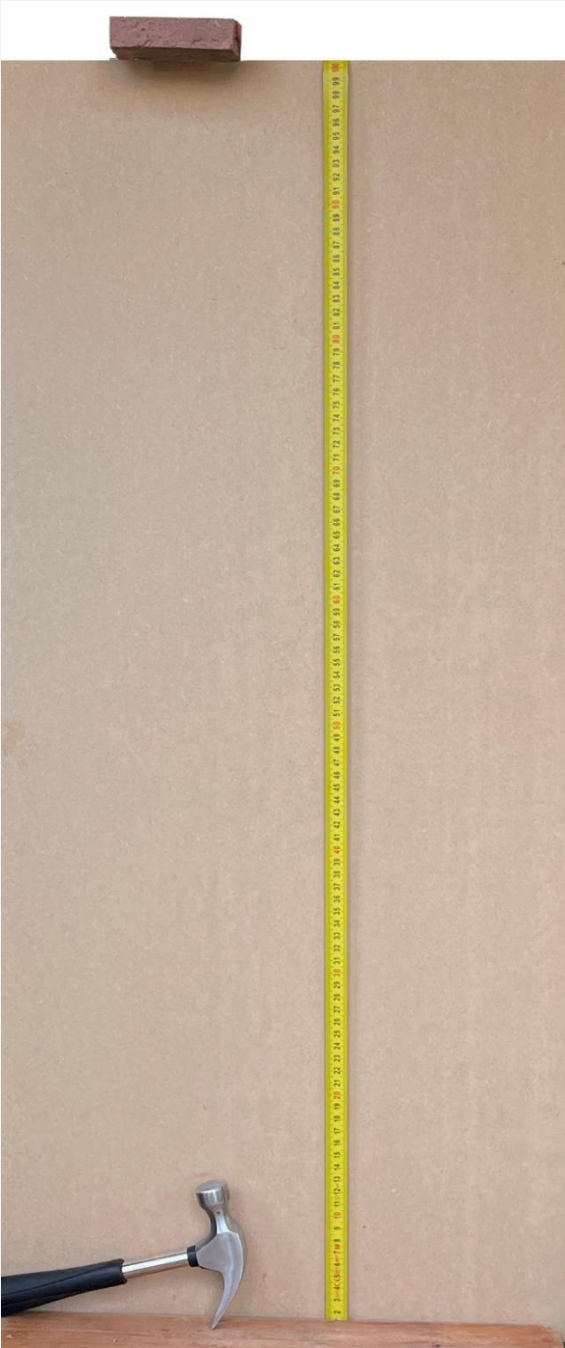
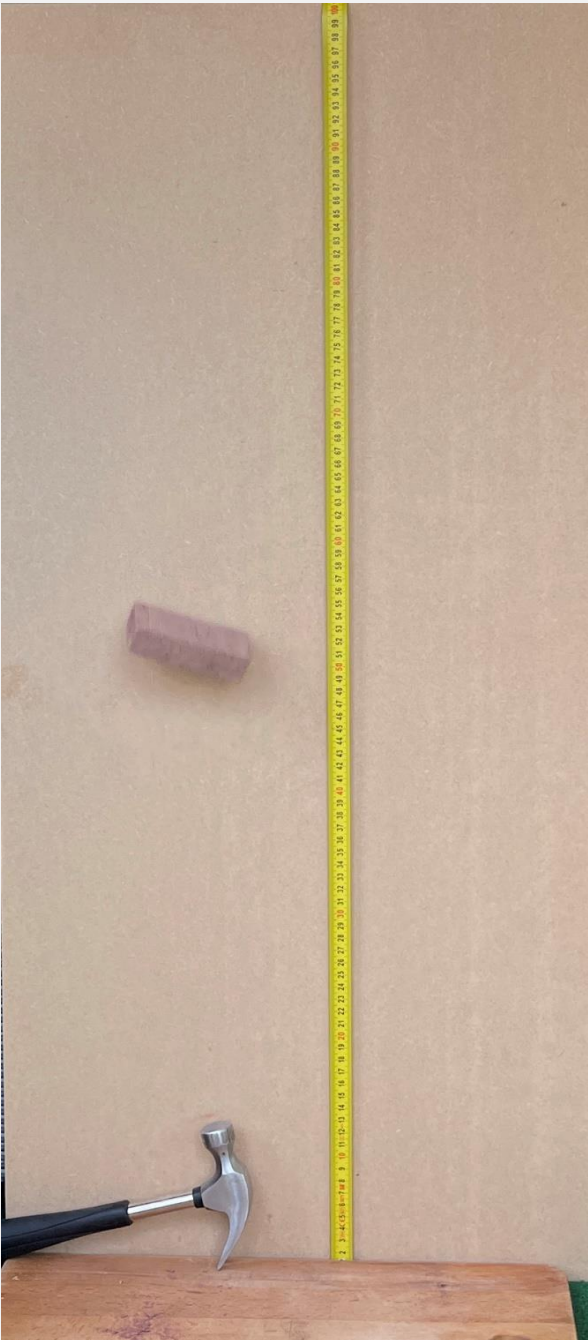
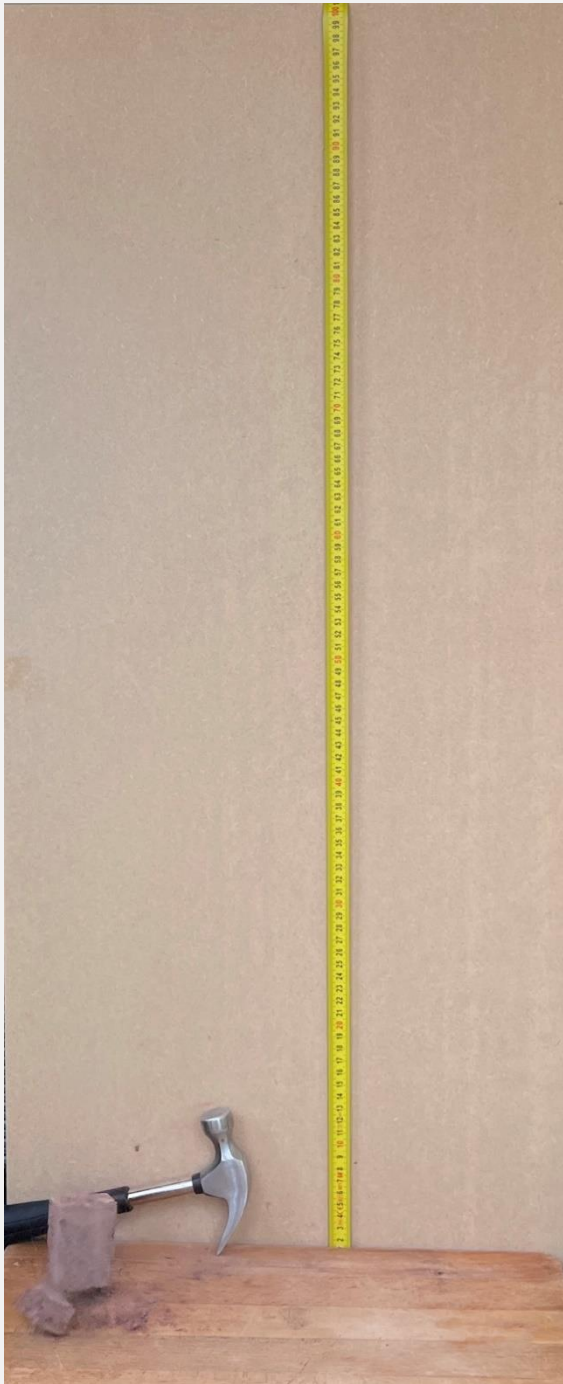
DESIGN

TEST MATERIAL- ADOBI TYPE 2- 50% CLAY + 50 % SAND



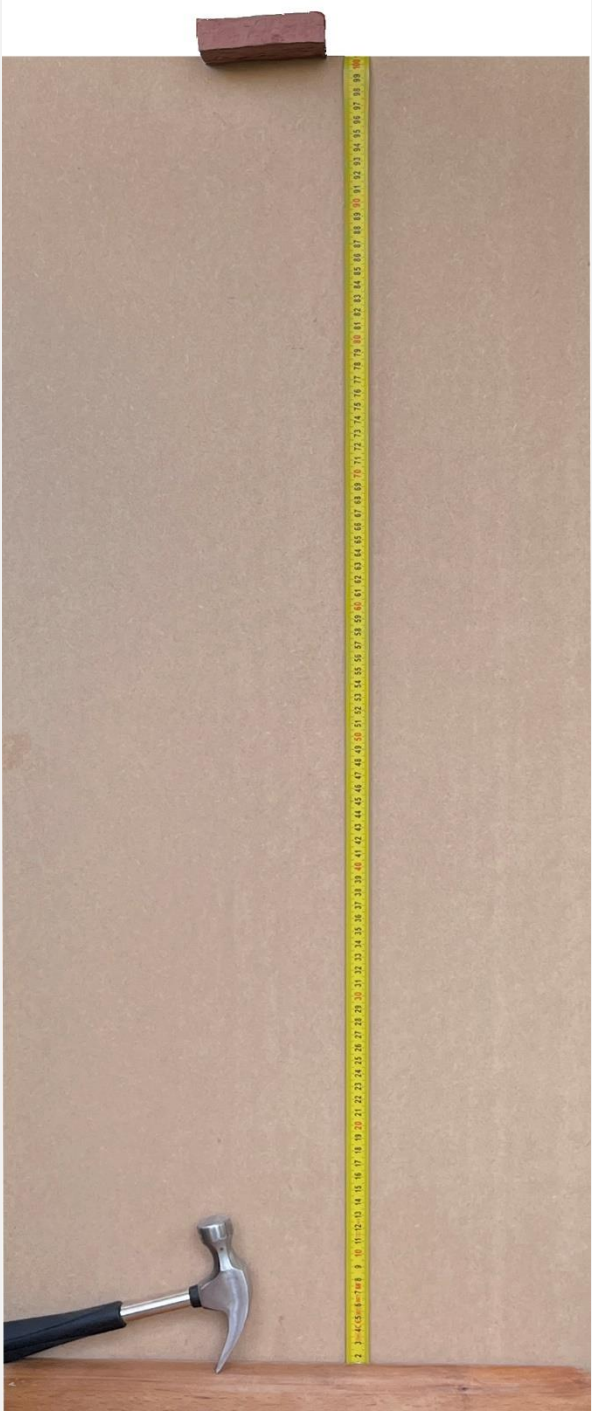
DESIGN

TEST MATERIAL- ADOBI TYPE 3- 60% CLAY + 30 % SAND + 10 PALM LEAF



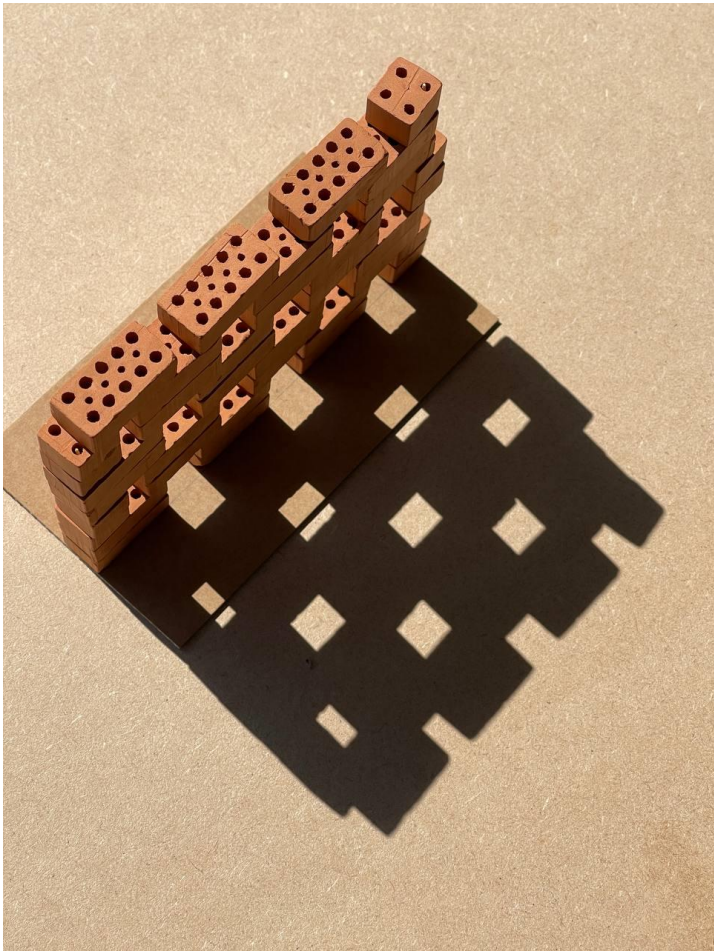
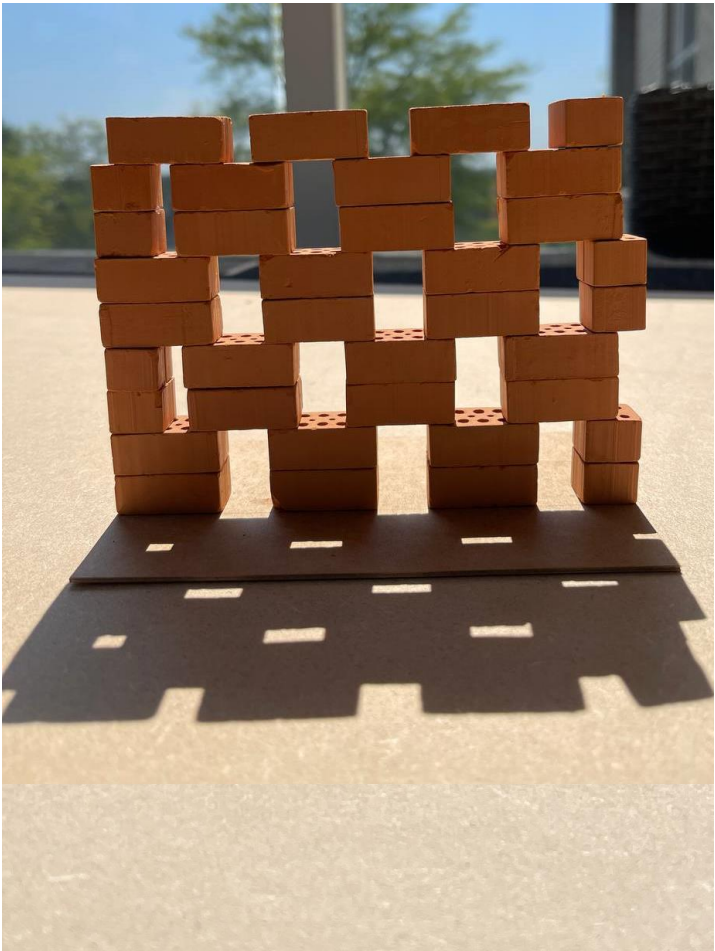
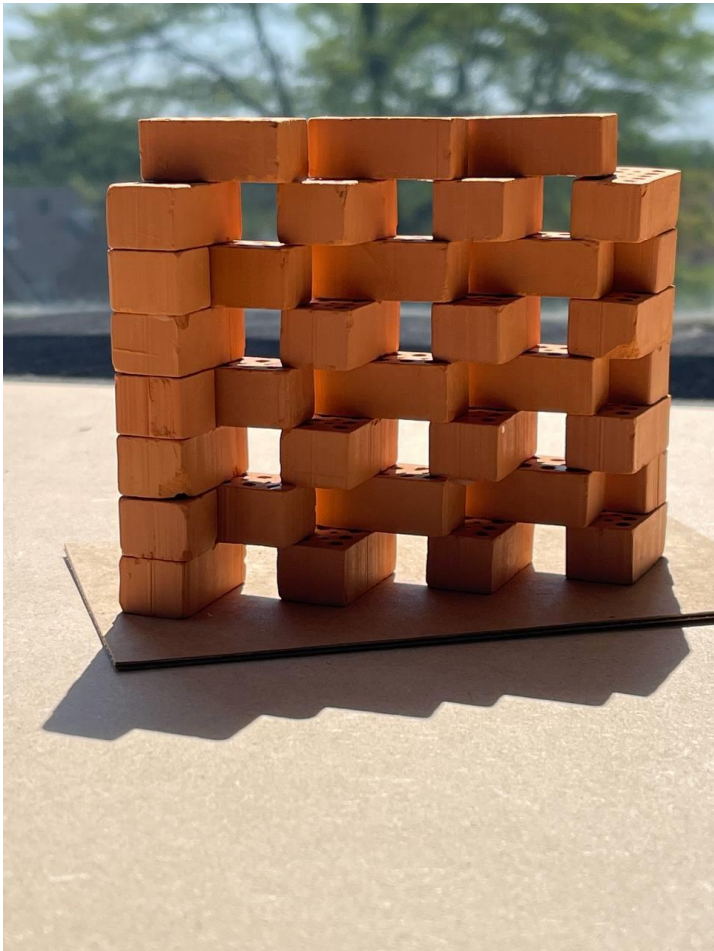
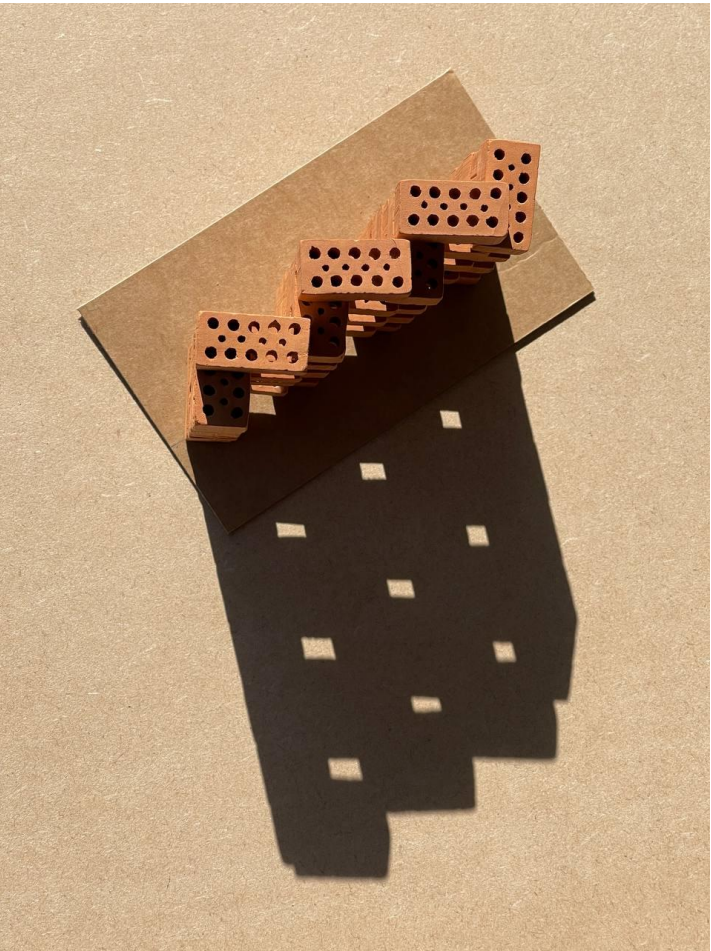
DESIGN

TEST MATERIAL- ADOBI TYPE 4- 70% CLAY + 20 % SAND + 10 PALM LEAF



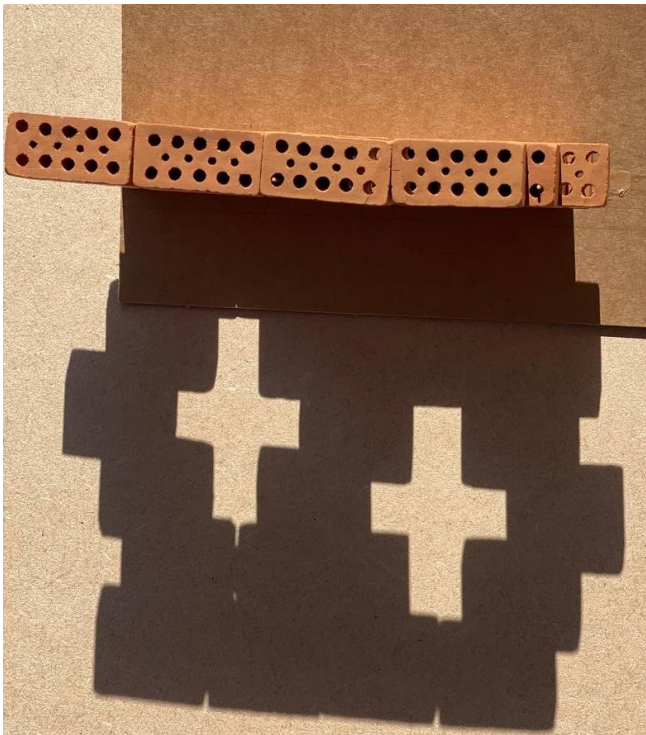
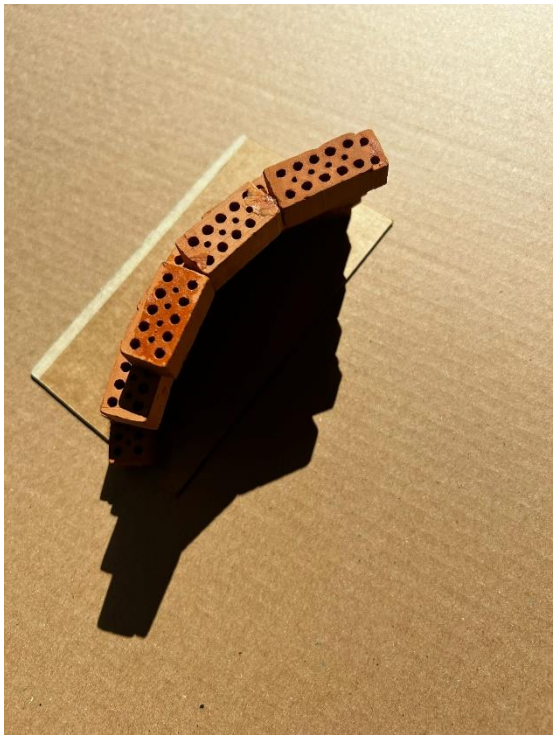
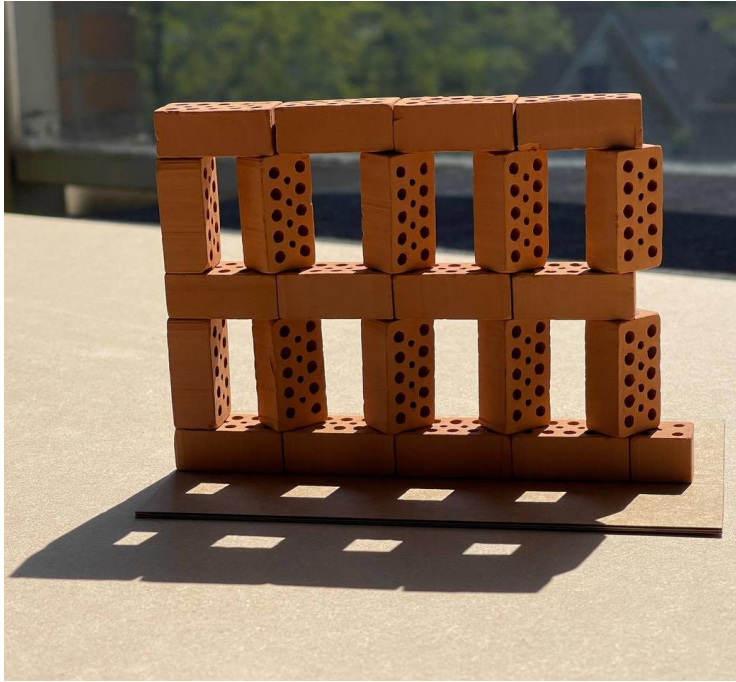
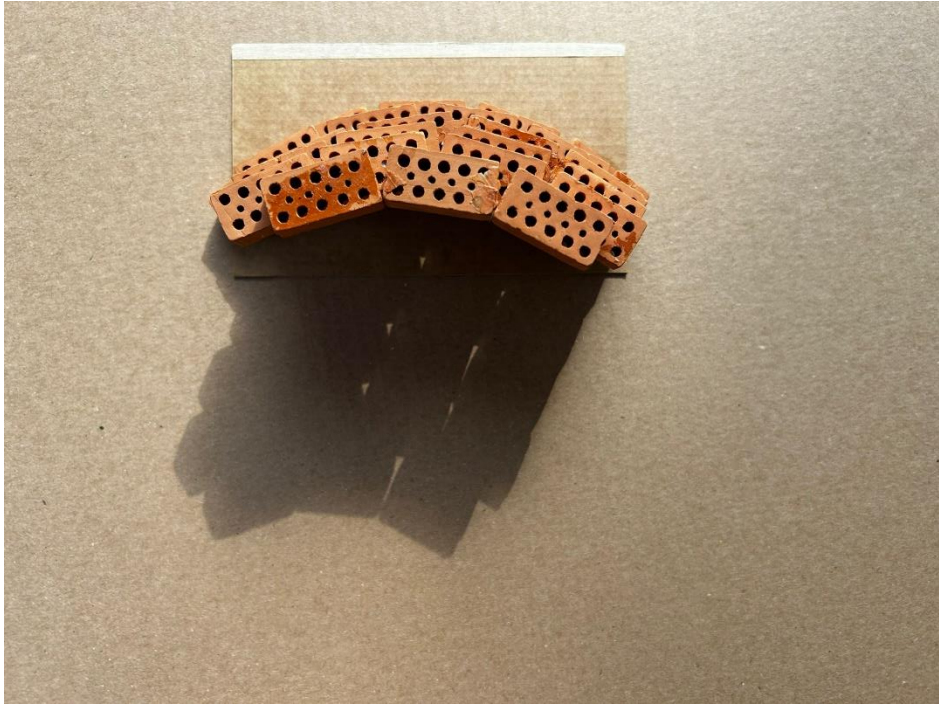
DESIGN

WALL PATTERN AND LIGHT STUDY



DESIGN

WALL PATTERN AND LIGHT STUDY



MATERIAL STUDY

COMPERING AVAILABLE WALL MATERIAL

Material	Cost (Baluchistan, Iran)	Sustainability	Compressive Strength (psi)	Advantages	Disadvantages	Vulnerability to Water Damage	Resistance to Earthquakes	Recommend d Mortar Type	Recommended Construction Method	Approximate Price (EUR)	Approximate Weight of Material per m ² (kg)	Approximate Area of Wall in 8 Hours (Builder) (m ²)	Approximate Area of Wall in 8 Hours (Builder and Coworker) (m ²)
Adobe Bricks	Low	Sustainable	480-960	Sustainable, low cost, good insulation	Low strength, vulnerable to water damage	Vulnerable	Vulnerable	Mud mortar	Stabilized adobe is recommended for added strength and durability	€0.017 - €0.033 per brick	21-24	4.6-5.5	9.2-11
Compressed Earth Bricks	Low	Sustainable	2068-6895	Sustainable, low cost, good insulation, less vulnerable to water damage	Lower strength than fired clay bricks and cement blocks	Less vulnerable	More resistant	Compressed earth mortar	Stabilized compressed earth blocks can improve strength and durability	€0.028 - €0.040 per brick	19-25	11-13	17-20
River Rubble Stone	Moderate	Sustainable	3432-10297	Aesthetically pleasing, abundant	Irregular shape can make construction challenging, can be expensive	Less vulnerable	More resistant	Lime mortar	Dry-stack construction can be used if the stones are well-shaped and fit together tightly	€0.028 - €0.083 per pound	30-60	4.4-6	7-8.3
Fired Clay Bricks	Moderate- High	Less Sustainable	13790- 34475	High strength, durable, widely available	High environmental impact, vulnerable to water damage and earthquakes	Vulnerable	Vulnerable	Cement mortar	Reinforced masonry construction can improve earthquake resistance	€0.033 - €0.050 per brick	48-60	13.3-16	17.8-21.3
Cement Blocks	High	Less Sustainable	10205- 23813	High strength, durable, widely available, less vulnerable to water damage and earthquakes	High environmental impact, can be more expensive than other options	Less vulnerable	More resistant	Cement mortar	Reinforced masonry construction can improve earthquake resistance	€0.067 - €0.100 per block	33-40	16.7-20	20.8-25
Mountain Rock	High	Sustainable	6800- 13600+	Highly durable, visually appealing	Challenging to work with, can be expensive	Less vulnerable	More resistant	Hydraulic lime or cement mortar	Expert masons with experience working with irregularly shaped stones should be used	€0.028 - €0.117 per pound	30-120	4.4-6	7-

MATERIAL STUDY

IMPROVE THE DURABILITY AND STRENGTH OF ADOBE AND CEBs

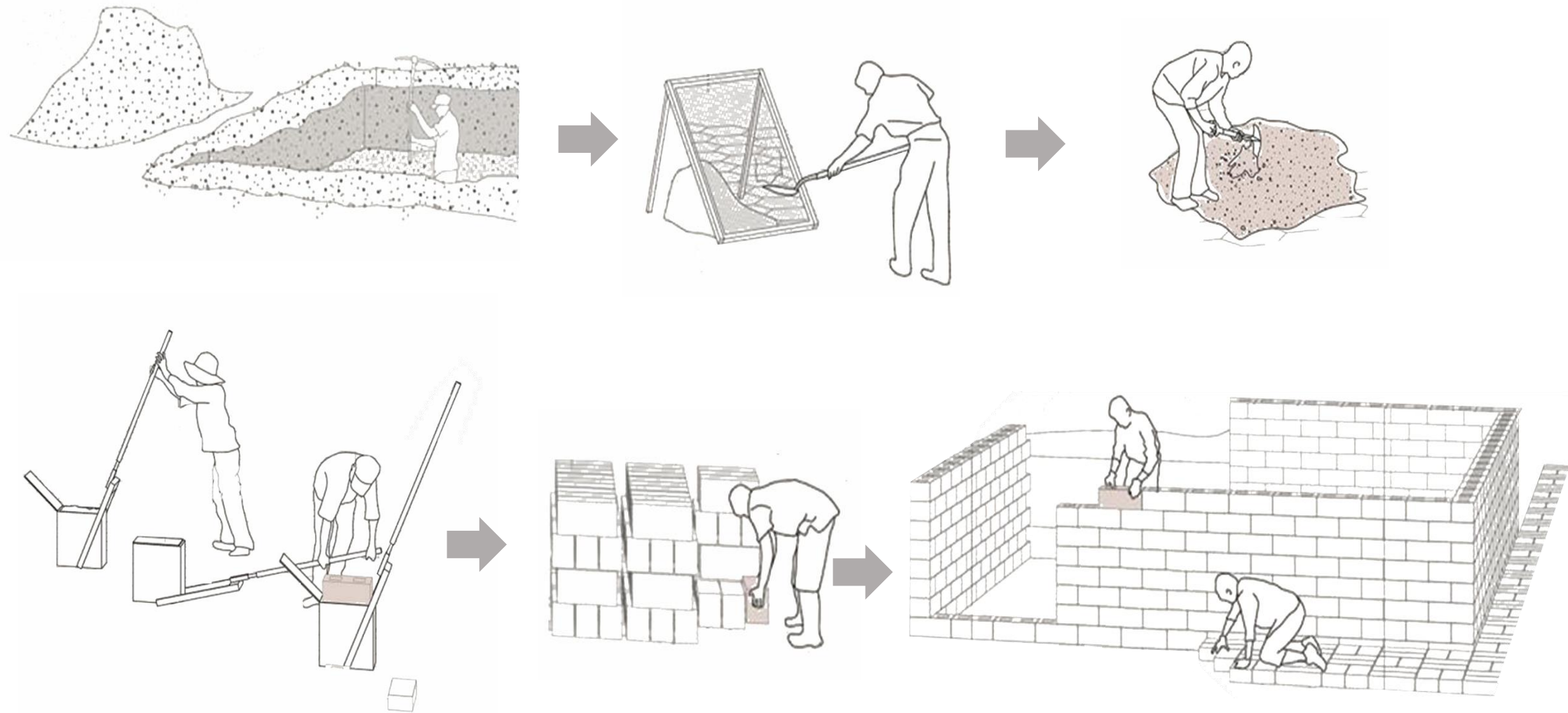
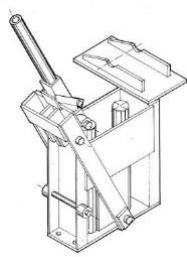
Building Material	Improvement	Advantages	Disadvantages
Adobe	Additives (e.g. straw, fiber, lime, cement)	-Increases structural strength and stability -Reduces cracking and water damage -Can improve fire resistance	-Additives may increase cost -May require specialized knowledge and skills
Compressed Earth Block	Stabilization (e.g. cement, lime, fly ash)	-Increases strength and durability -Reduces water absorption and erosion -Improves resistance to seismic activity	-May increase cost and energy use during production -May require specialized knowledge and equipment

Note: The specific type and amount of improvement will depend on various factors such as the quality and availability of materials, the expertise of builders, and the intended use of the building.
Some additional tips for improving the durability and strength of adobe and CEBs include:

Improvement	Advantages	Disadvantages
Stabilization (e.g. cement, lime, fly ash)	-Increases strength and durability -Reduces water absorption and erosion -Improves resistance to seismic activity	-May increase cost and energy use during production -May require specialized knowledge and equipment
Proper curing and drying techniques	-Prevents cracking and ensures adequate strength development -Improves resistance to water damage	-May require specialized knowledge and equipment
Moisture management (e.g. vapor barriers, proper drainage)	-Reduces risk of water damage and erosion -Improves indoor air quality	-May require additional costs for design and installation
Regular maintenance and repairs	-Addresses issues before they worsen -Can extend the lifespan of the structure	-May require ongoing costs for maintenance and repairs

MATERIAL STUDY

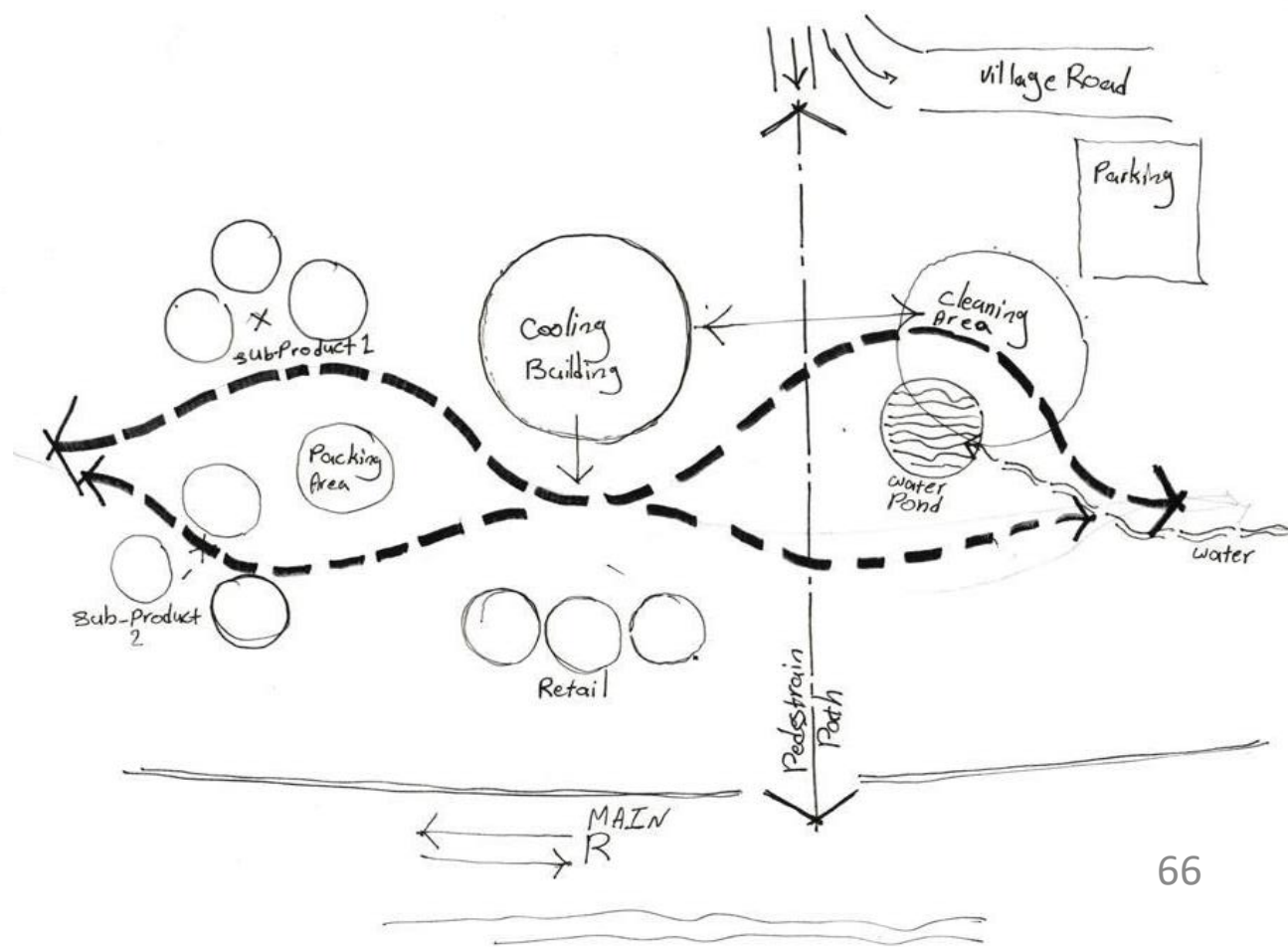
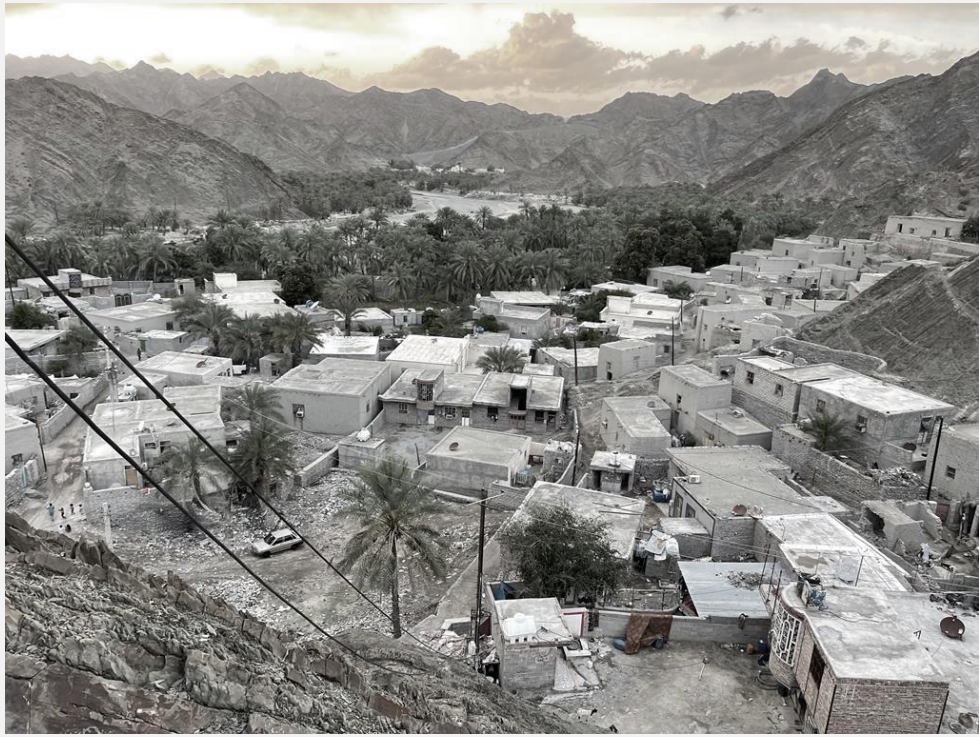
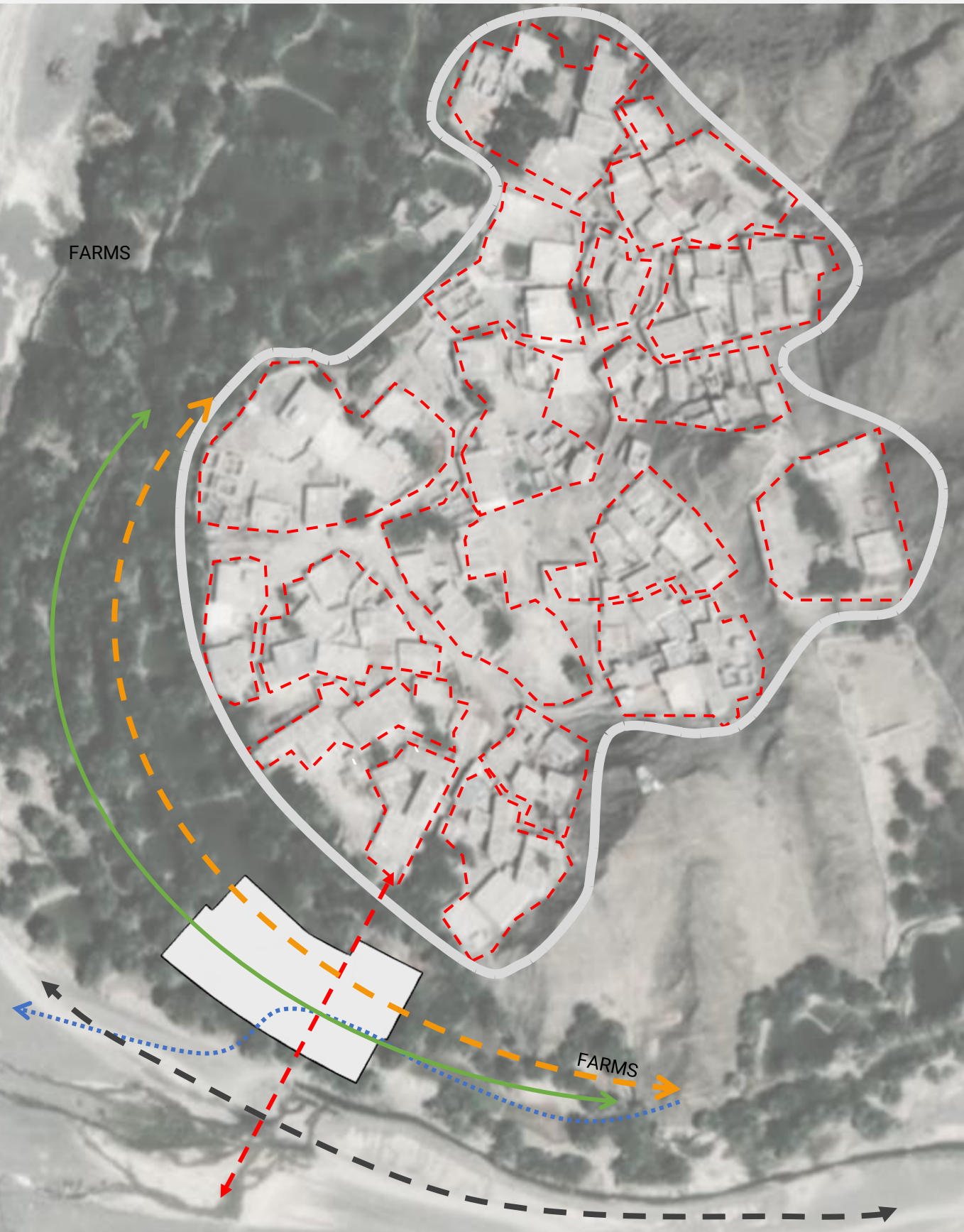
Compressed Earth Brick (CEB) making process on site



FINAL DESIGN
REARRANGEMENT CLUSTERS - DETAILS



LOCAL URBAN FABRIC
DEFINE VILLAGE CLUSTER FABRIC



DESIGN

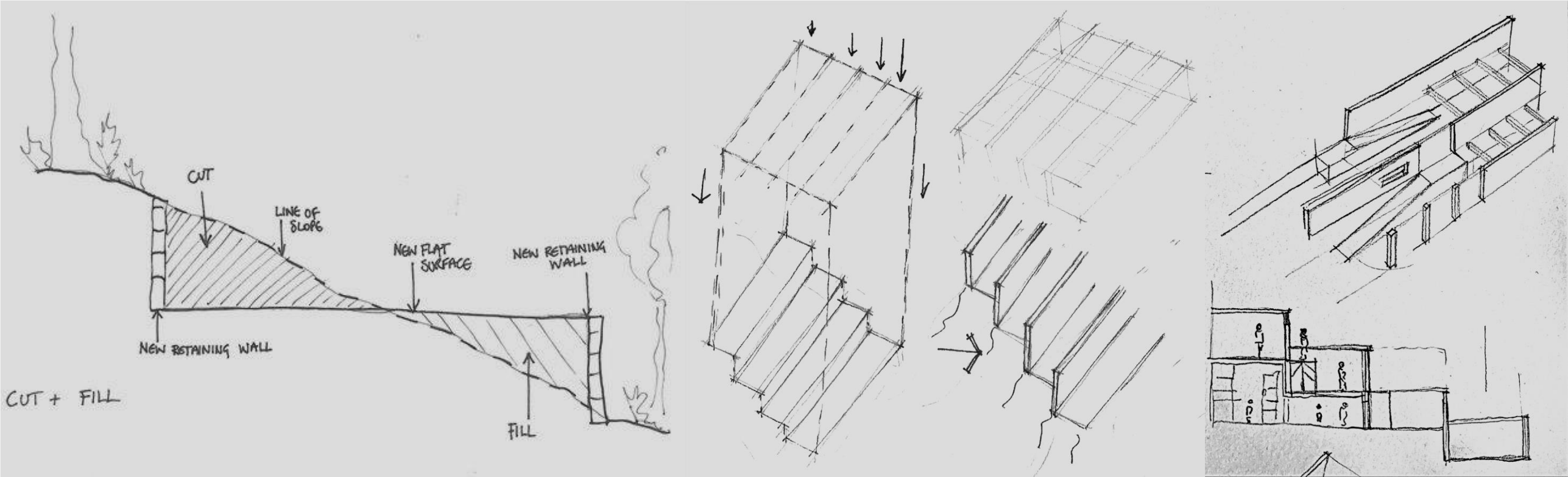
TERRAIN TRASSING

When designing a landscape-integrated structure, it is crucial to prioritise seamless integration with the surrounding terrain. The approach of terrain architecture allows for a harmonious collaboration with the existing topography and landscape features, resulting in contextually grounded designs. Instead of imposing modifications upon the land, terrain architecture adapts the structure's form to the land's undulations or fuses the land into the building's design.

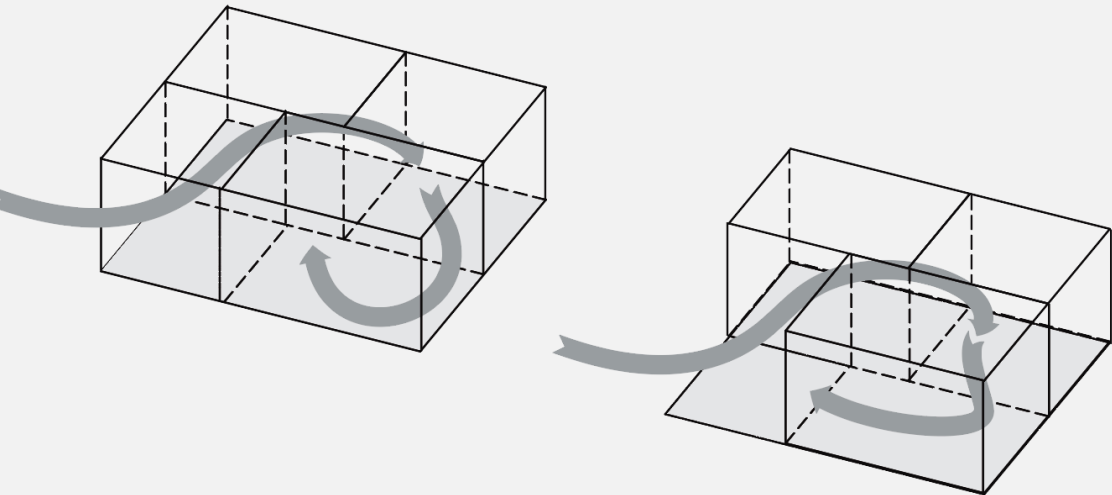
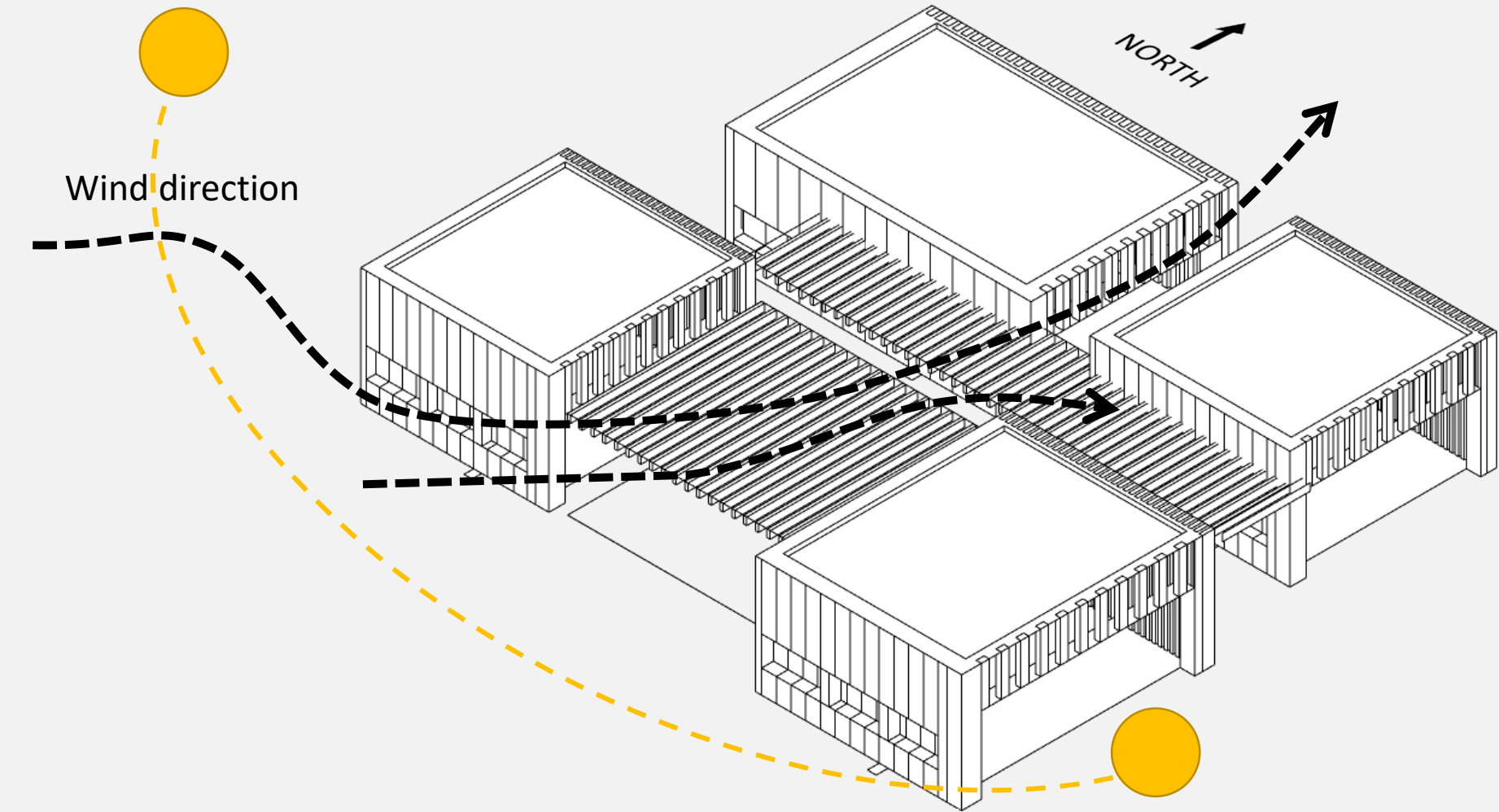
To achieve this, conducting a comprehensive site analysis is essential to understand the topographical attributes, including slopes, contours, and inherent features. This informs strategic decisions about building orientation, placement, and form. Delicate earthwork and excavation may also be necessary to create stable foundations while minimising environmental disruption.

Sustainability is intrinsic to terrain architecture, utilizing the land's attributes for energy efficiency, natural ventilation, and solar-based heating and cooling. Continuity between indoor and outdoor realms is pivotal, and utilizing natural terraces, courtyards, or platforms to mirror the terrain cultivates enriched user experiences and outdoor engagements.

Terrain architecture fosters the amalgamation of built and natural environments, amplifying the inherent allure and efficacy of the natural terrain. It encapsulates a sustainable, site-sensitive approach, extolling the distinctive attributes of each site and nurturing the user's connection with nature.

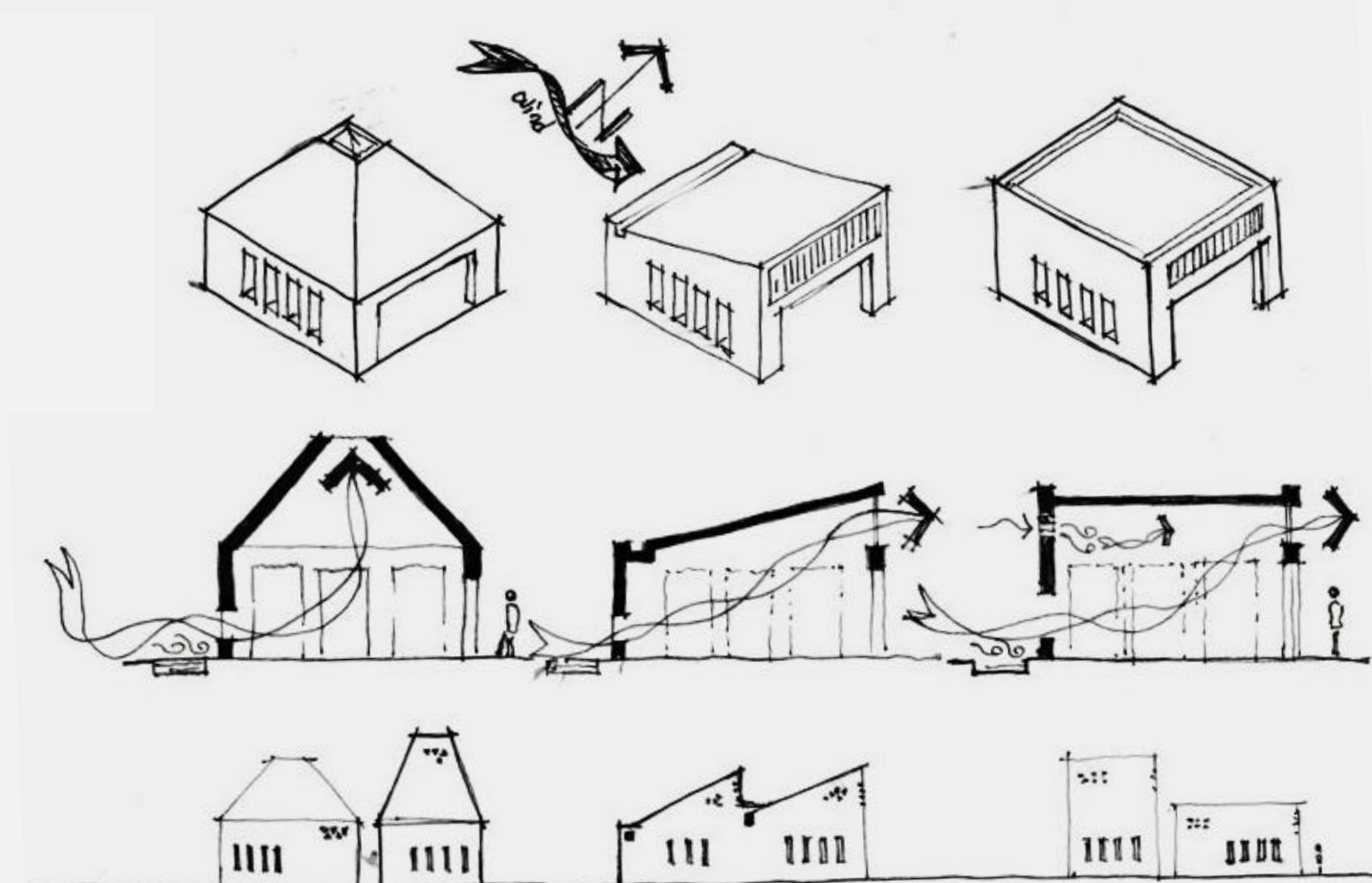


CLUSTER DESIGN

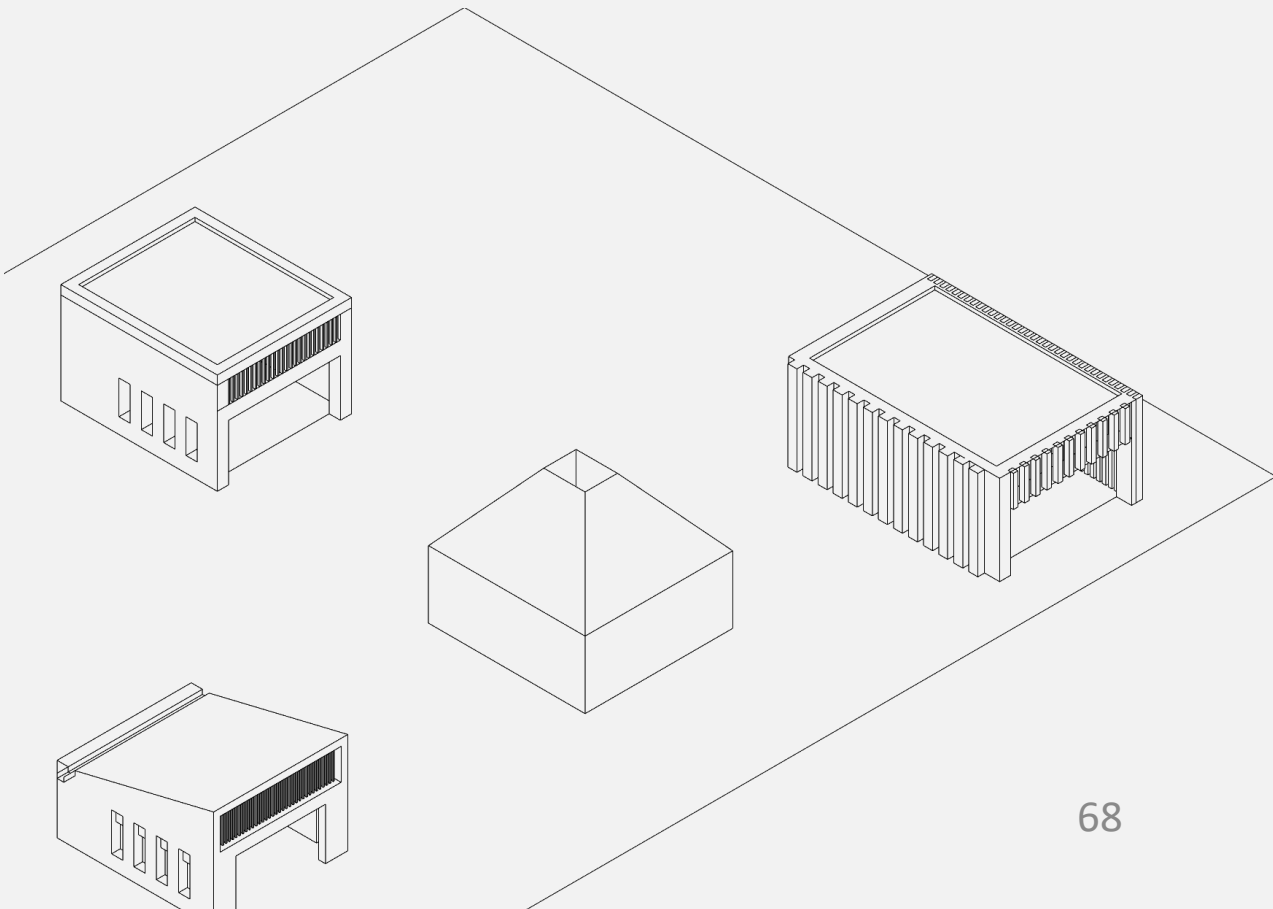


Proposed to natural ventilation in the clusters

The concept of clustering in the project was drawn from the pattern of the Parkan village. As a result, the initial physical layout involved breaking down the production chain into smaller separate sections. Furthermore, the imperative considerations of site requirements such as topography, access routes, water availability, and adequate airflow within buildings added more rationale to designing a complex characterized by distinct and flexible spaces.

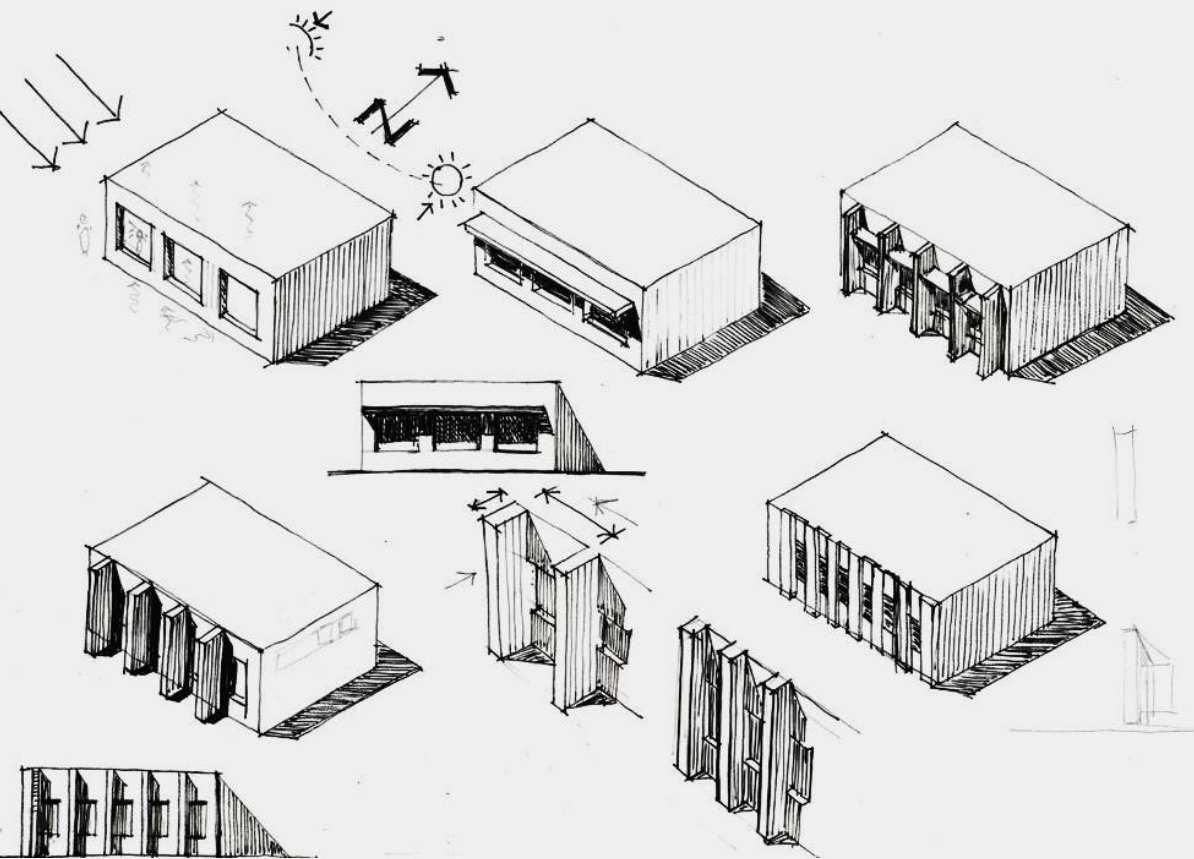


Study different type of ventilation



PROPOSED WALL PATTEN

In designing the walls, careful consideration was given to embracing local architectural principles. This approach had several benefits: the courtyards were created to be functional and practical, allowing sunlight to enter the units more softly and ensuring good airflow. Additionally, the project site includes carefully positioned ponds that effectively lower the temperature of warm winds as they pass through, enhancing the overall cooling effect. I noticed that the walls on the southern side could be thicker and more exposed to heat. To address this, it might be a good idea to consider incorporating some ponds on the western side of the project. These ponds could be aligned in a west-east direction to allow air to circulate from one direction to another through openings placed along the lower edge of the western side. The prevailing southwest-to-northeast wind direction also effectively promotes better ventilation and cooling throughout the space.

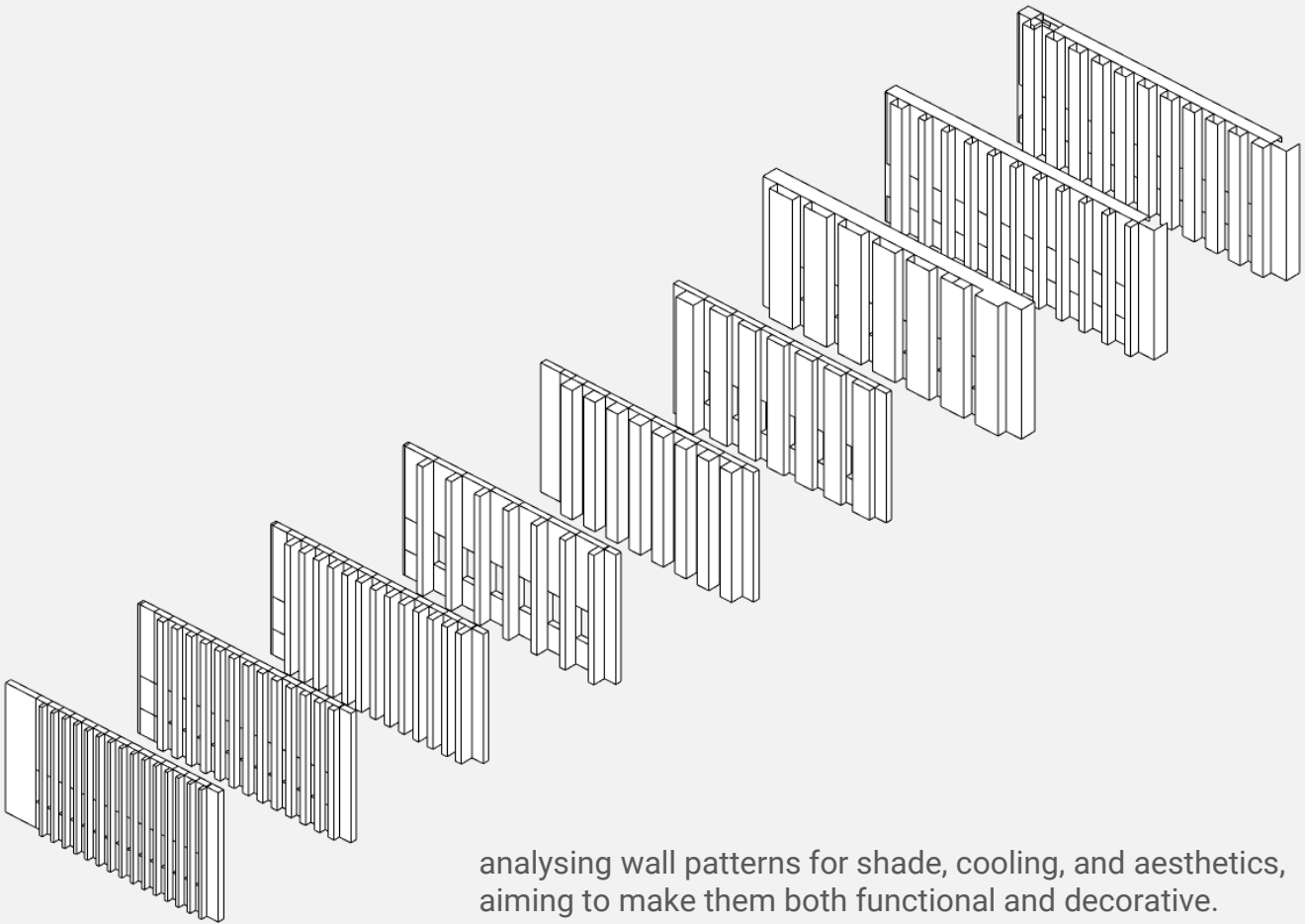


Wall features study to control sunlight



Perforated wall use in local building

Proposed wall pattern



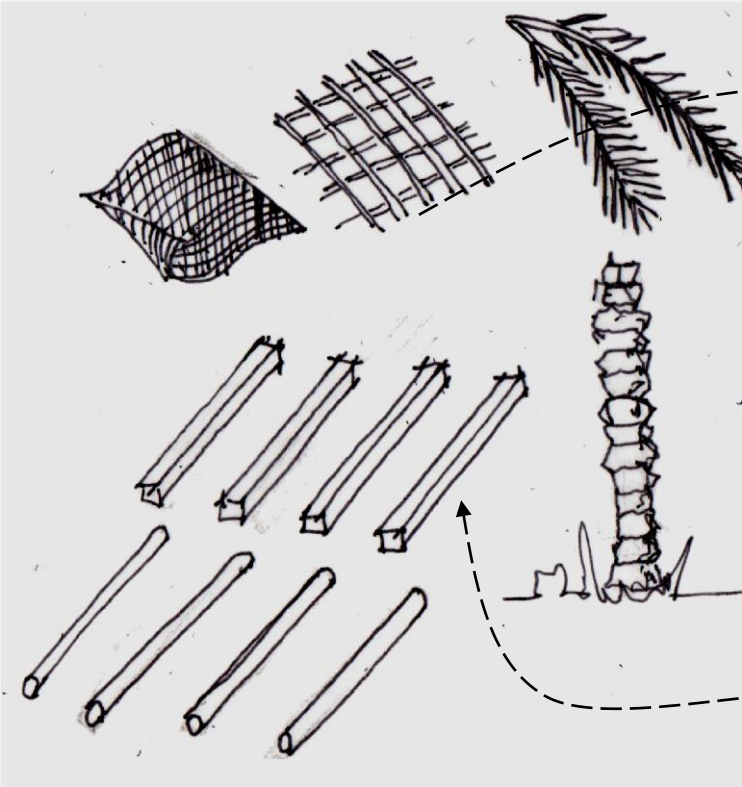
analysing wall patterns for shade, cooling, and aesthetics, aiming to make them both functional and decorative.



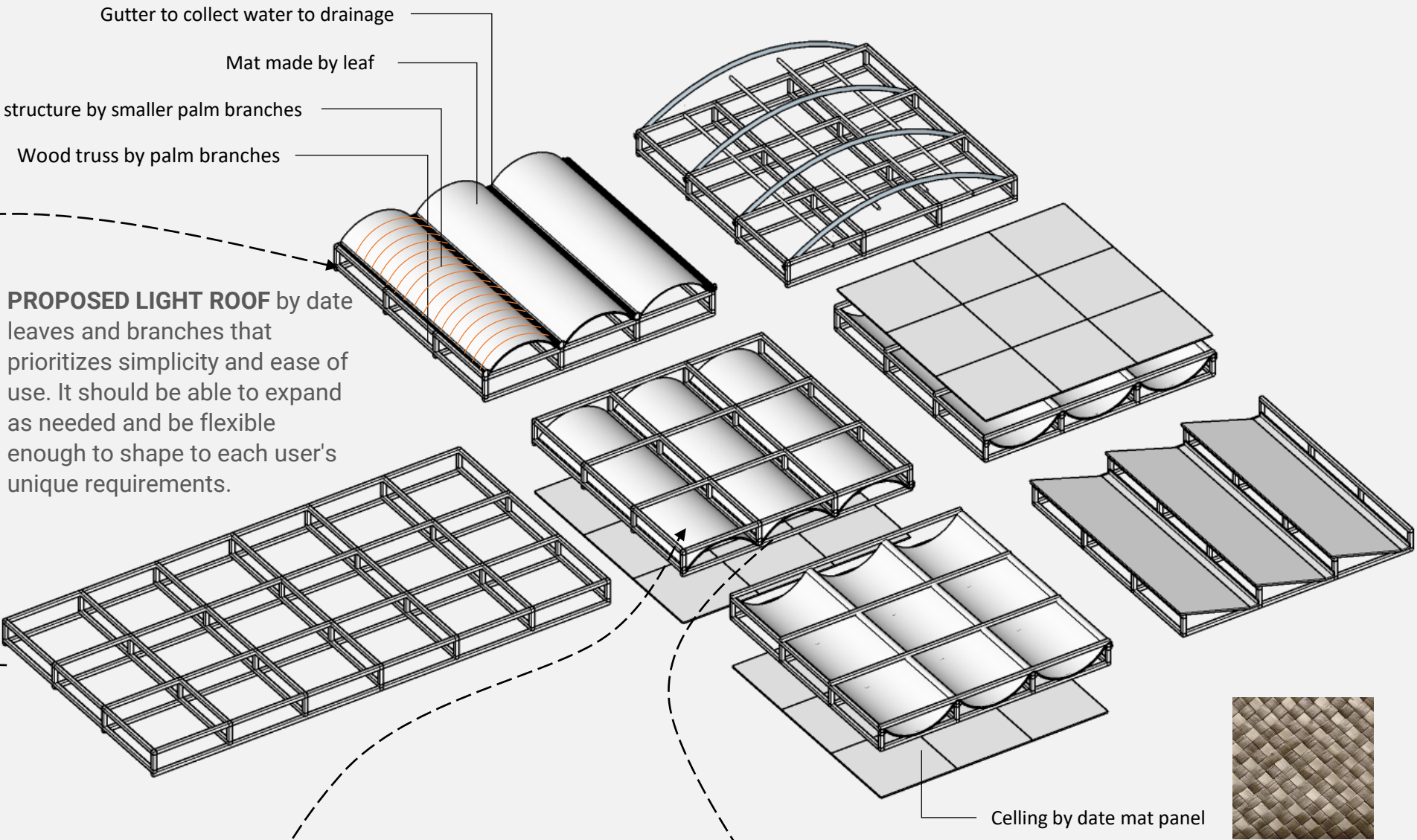
PROPOSED ROOF SYSTEM

It was also essential to consider the possibility of expanding, repairing, and reconstructing buildings according to local labours and materials' current and future needs.

In the execution phase, roofs were designed using wooden beams and roofing materials similar to the traditional thatched roofs of Baluchistan's mud houses, with sub-structures made from branches and covered with woven date palm leaves. Additionally, gutters were incorporated between the arches, despite the infrequent annual rainfall.



Any part of Date/Palm Can use for construction

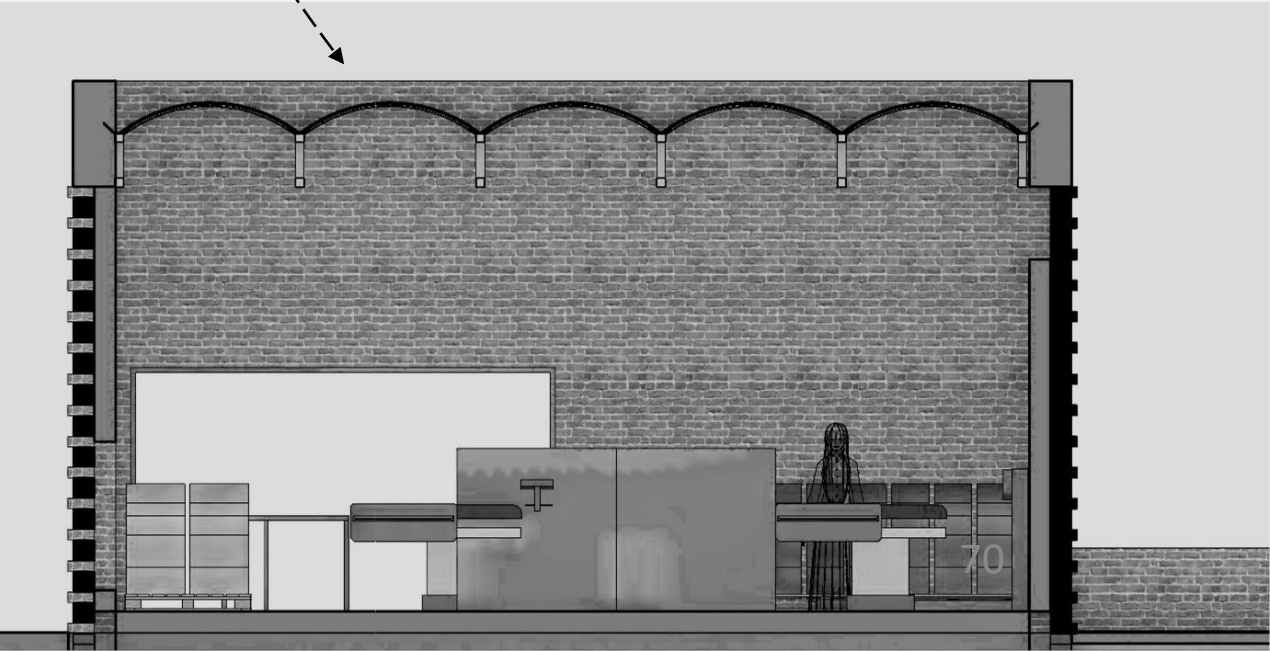


PROPOSED LIGHT ROOF by date leaves and branches that prioritizes simplicity and ease of use. It should be able to expand as needed and be flexible enough to shape to each user's unique requirements.

CAPAR is the traditional accommodation in Baluchistan fully made by Date timber

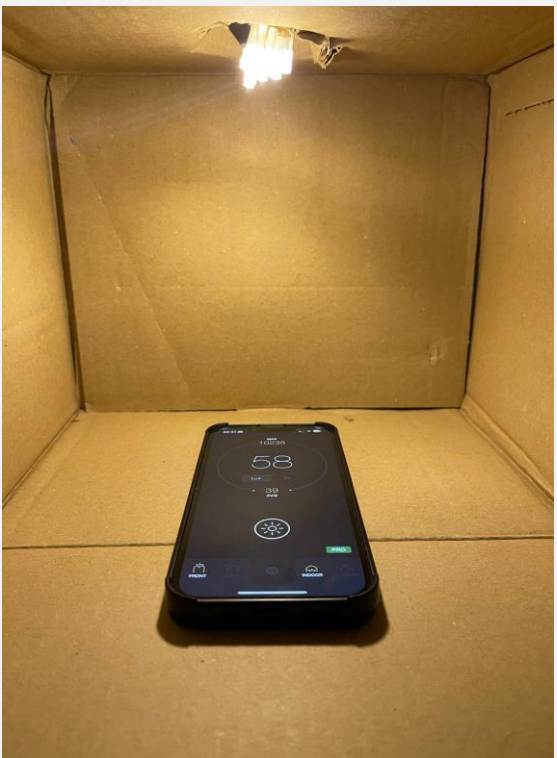
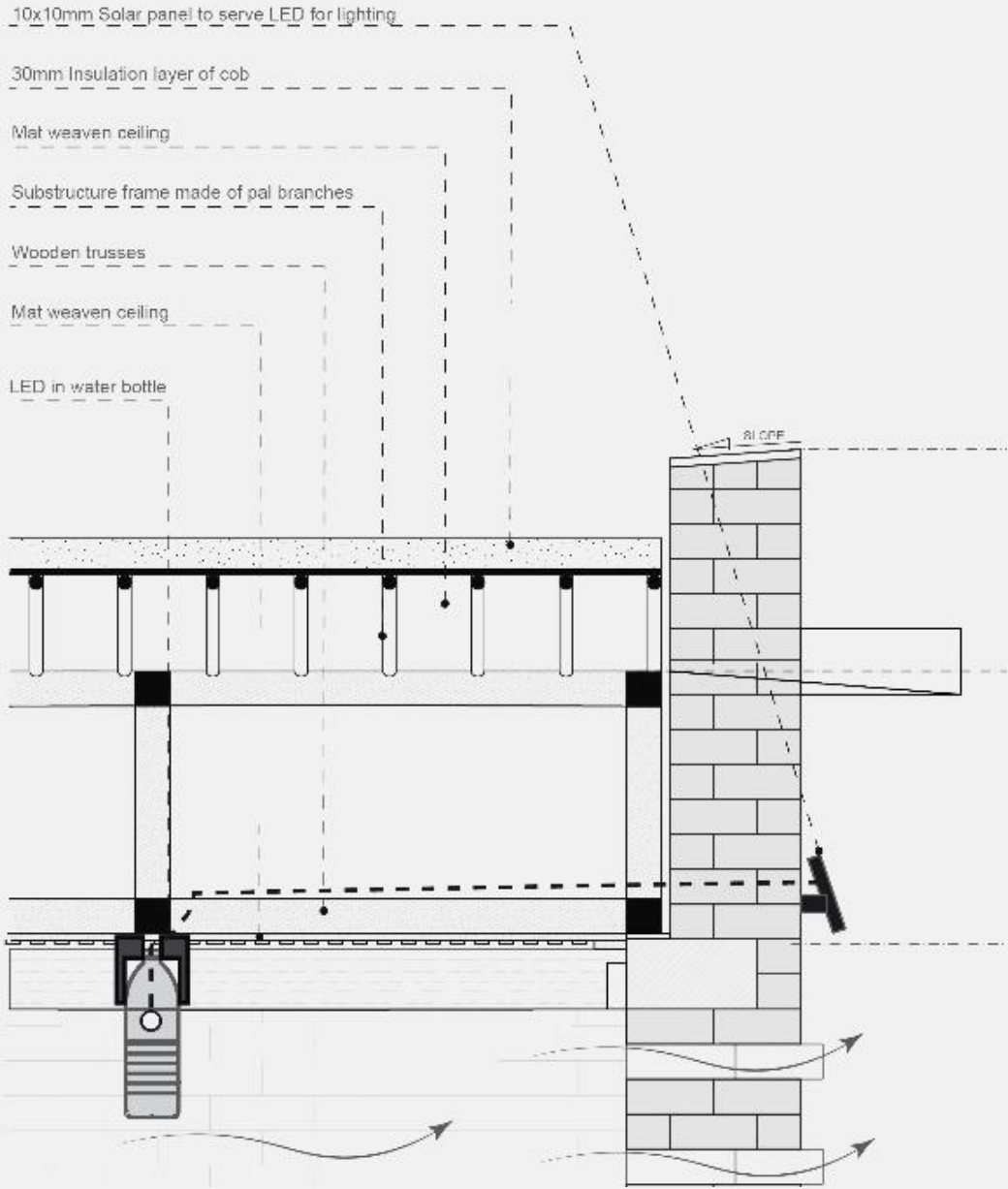


CAPAR roof by Date leaf mat



ONE LITTER LIGHT

I am impressed by the innovative and eco-friendly method of providing night-time lighting for the buildings. In this system, we can use tiny solar panels to charge LED lamps during the day and a bottle of water to make the LEDs much brighter at night. It's great to see that energy is conserved and resources are used wisely. The fact that artificial lighting is kept to a minimum during the day is also commendable. Overall, it's an excellent solution that benefits the environment and the people who use the buildings.



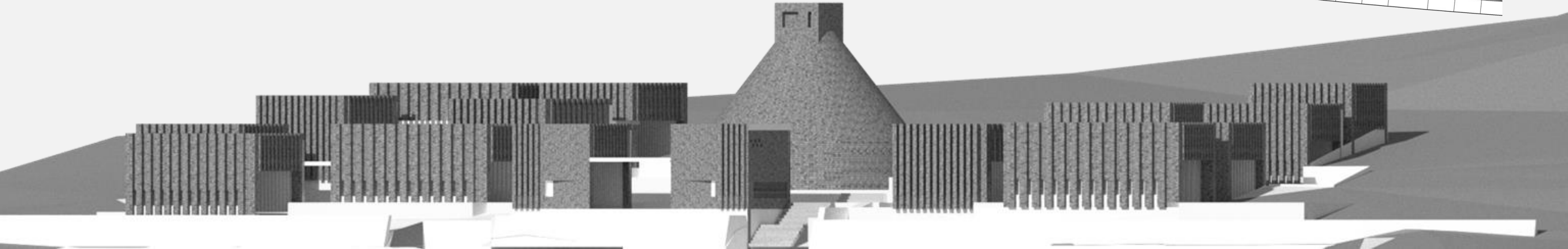
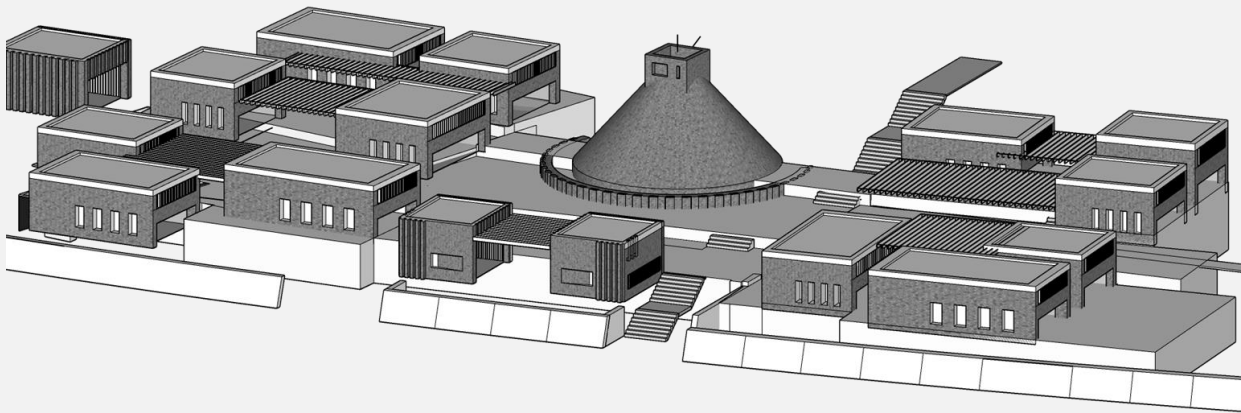
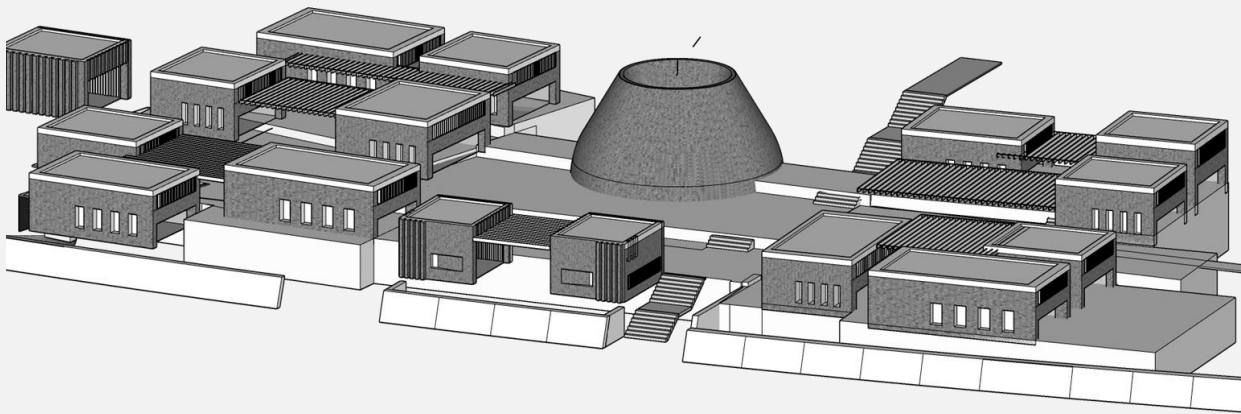
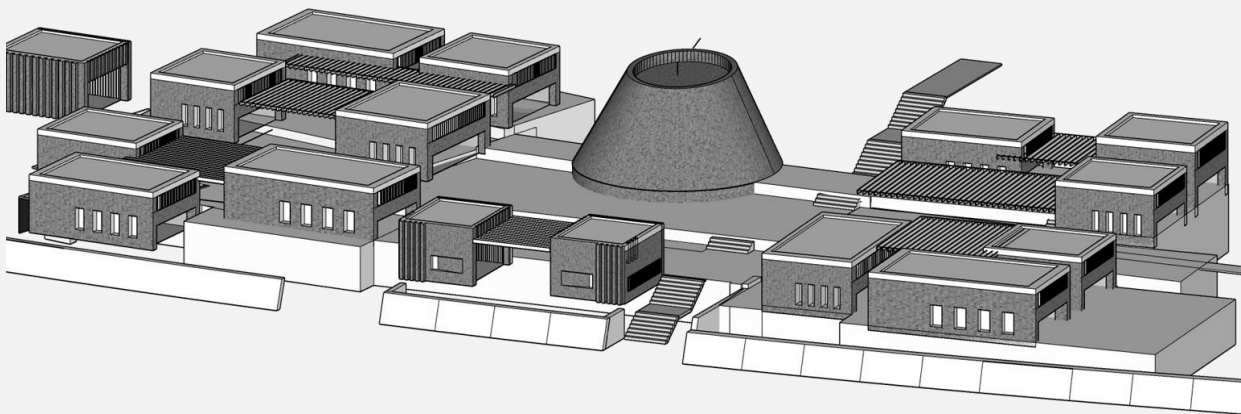
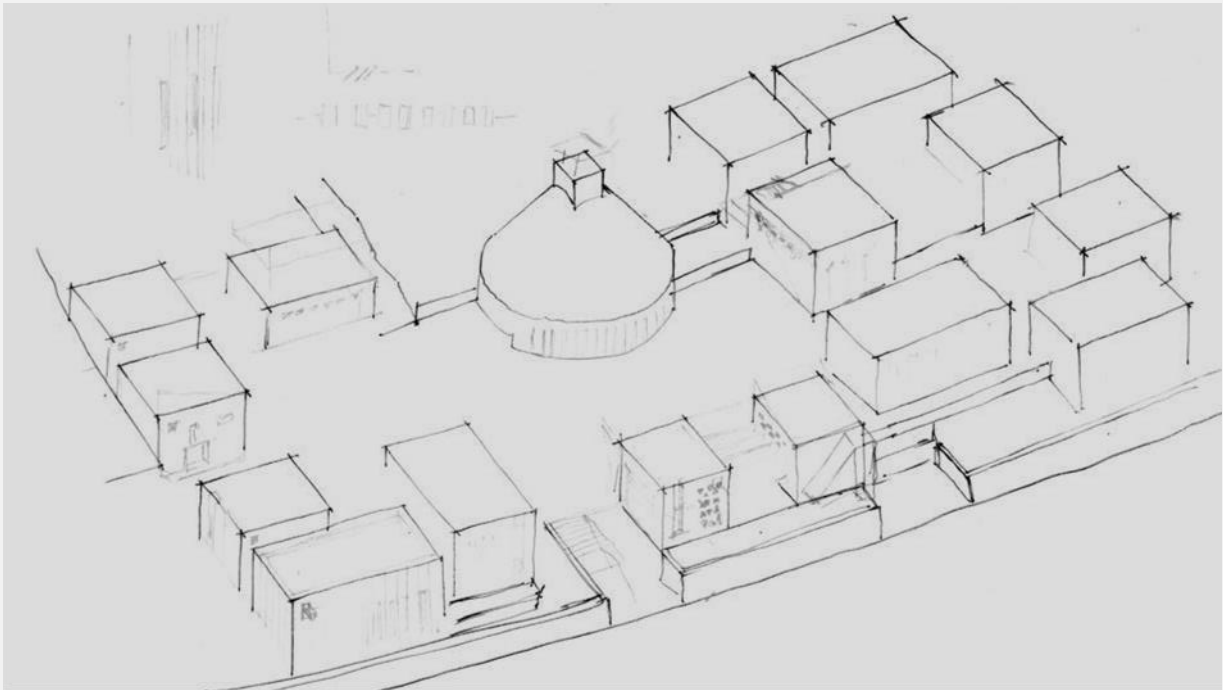
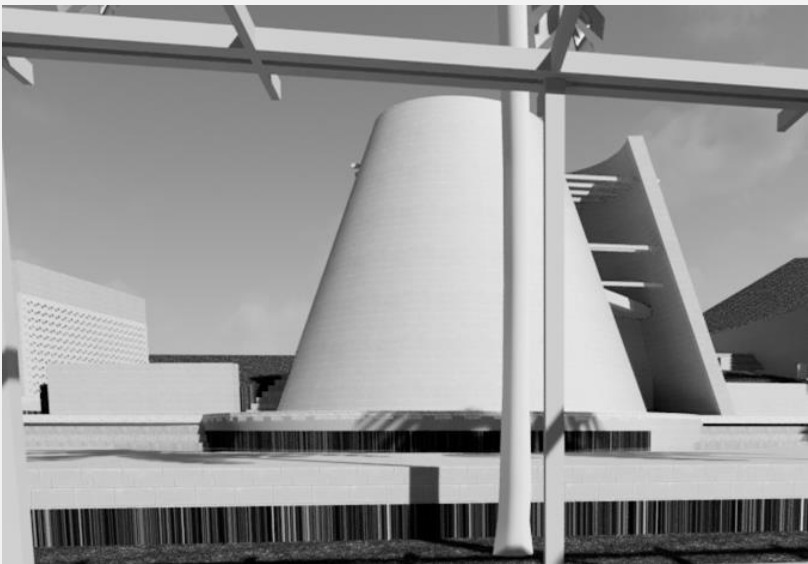
COOLING BUIDING EVOLUTION

The cold storage building design is inspired by ancient Iranian architecture and incorporates a traditional passive cooling system. Windcatchers play an integral structural role as the building's central column. The circular ground layout enables inclined walls to be constructed while also providing enhanced resistance against soil pressure at the underground level.

The design started from a typical cone form, but I received the spiral form during the design process as a functional result. The spiral form on the upper level guides the wind to the windcatcher's entry point.

The water pond surrounding the building on the ground level brings a sense of calm and humidifies the air, enhancing the market space in front of the building.

This building holds practical and symbolic significance as it is a connecting hub for the project's components. It is connected to the 'Sorting' and 'Cleaning' salons, located in front of the market area and in proximity to the production spaces.



MARKET AREA

I can imagine The market space in front of the cold storage building is a beautiful and vibrant space that truly captures the essence of village life. The sounds of chatter and laughter fill the air as traders and residents alike mingle and share stories. The smells of fresh produce and spices waft through the air, tantalising the senses and drawing visitors in. The cold storage building plays a crucial role in the market space and the village, providing a safe and secure place to store perishable goods. This is especially important for the farmers and traders who rely on the market for their livelihoods. Residents and traders have praised the new gathering place, noting how it has brought the community closer together and fostered stronger relationships. One resident states, "The market space has become the heart of our village. It's where we come together to share our stories, trade goods, and connect. They can store their products safely and efficiently, which means they can focus on selling and growing my business. Overall, the market space and cold storage building have positively impacted the entire community, creating a vibrant and thriving hub of activity in the heart of the village.



DOCUMENTARIES

Rose Lady documentary



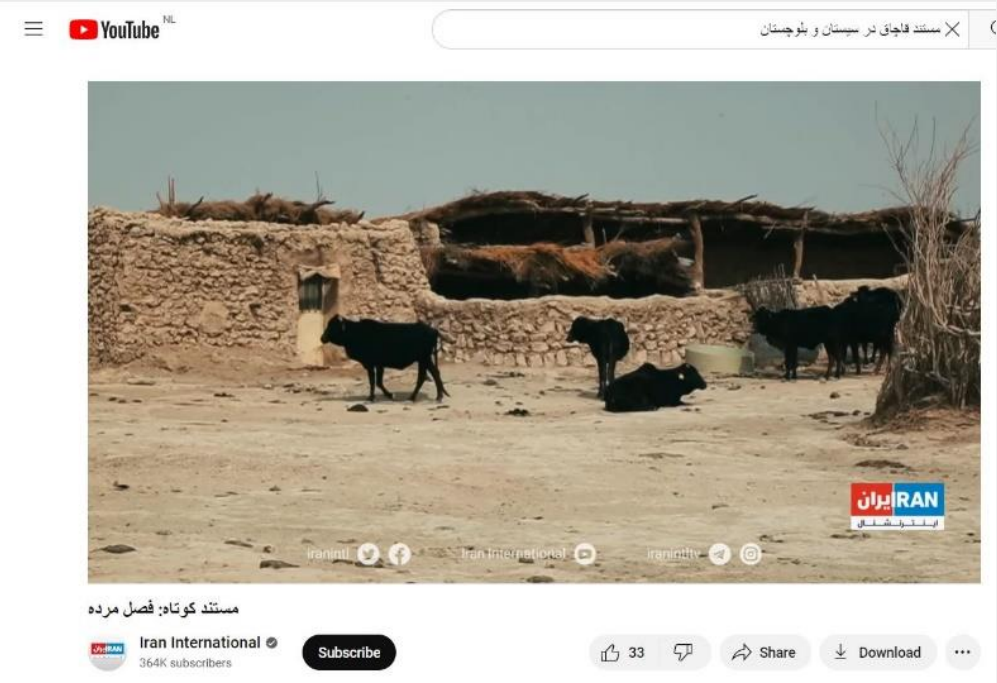
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About Baluchistan



<https://www.youtube.com/watch?v=nIB8Ha5jdNw&t=1714s>

Dead Season



<https://www.youtube.com/watch?v=3utiTAwn7GA>

EXPERTS



Hossein Ranji is a structural engineer based in Toronto



Soroush Salavatian is a social activist based in Sistan and Baluchistan



Arvand Pourabbasi is an artist, architect, educator, and maker based in Rotterdam



Khalil Baluchi, Baluchi social activist, Expert in Baluch culture and their needs

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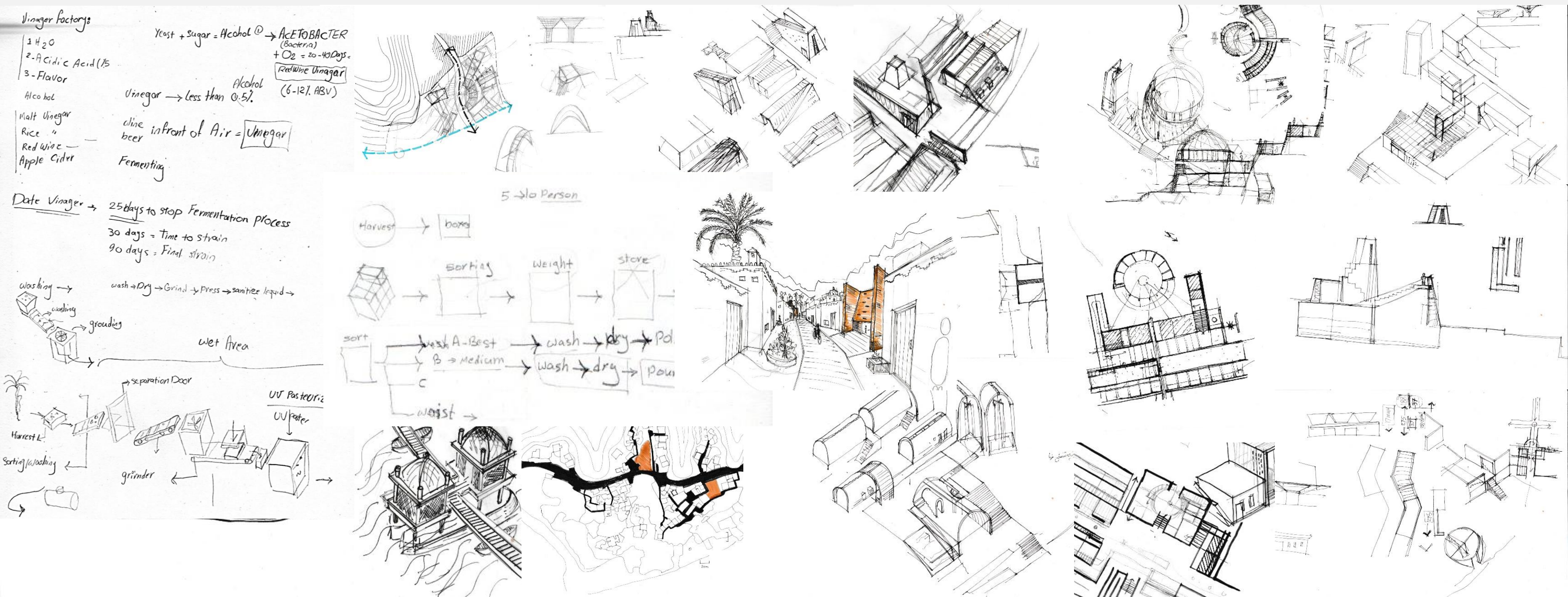
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DESIGN

PART OF MY THINKING, SKETCHES AND NOTES



THANK YOU