الجمهورية الجزائرية الديمقراطية الشعبية
People's Democratic Republic of Algeria
التعليم العالي و البحث العلمي
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N° ordre / ……. / Dept. Arch ……

Final Year Project Thesis for the Academic Master's Degree

Field: Architecture, Urban Planning and Urban Professions
Program: Architecture
Theme: Urban Architecture

Post-war Urban Architecture: Reviving a Fragment of the Beit Hanoun Neighborhood in Gaza

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Academic year 2024/2025

Dedication

“To GAZA……and to Palestinian people”

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Acknowledgements

First and foremost, I thank God Almighty for giving me the strength and courage to carry out this work. I would like to express my deep gratitude to my supervisor, Dr. Madjid CHACHOUR, for the richness of his experience, his availability, the quality of his guidance, as well as his critical and constructive insights, which greatly contributed to the writing of this thesis. I would also like to thank all those who supported me throughout this journey, especially all the professors of the Architecture Department at the University of Mostaganem, for their advice and supervision. Finally, I extend my heartfelt thanks to my family for their trust, constant support, and kindness throughout my studies.

الملخص

يأتي هذا المشروع كمبادرة إنسانية لإعادة إعمار حي البورة في مدينة بيت حانون، استجابةً للحاجة الملحّة إلى النهوض بالمناطق المتضررة وتعزيز جودة الحياة للسكان. يقوم المشروع على رؤية متكاملة تجمع بين الأصالة والمعاصرة، حيث يُسعى إلى دمج العناصر التراثية المحلية مع مفاهيم العمارة الحديثة، بما يعكس الهوية الثقافية للمكان ويمنحه طابعًا عمرانيًا فريدًا.

كما يُولي المشروع أهمية كبرى لمبادئ الاستدامة البيئية، من خلال استخدام مواد بناء طبيعية وآمنة، تقلل من الأضرار المحتملة في ظل الظروف غير المستقرة. ويُراعى في التصميم تحقيق توازن مدروس بين الطبيعة والتكنولوجيا، بما يعزز كفاءة الاستخدام ويحدّ من الأثر البيئي السلبي.

ويمثل إشراك المجتمع المحلي ركيزة أساسية في هذا المشروع، حيث يُمنح سكان غزة الدور القيادي في عملية الإعمار، بما يعزز روح الانتماء والمشاركة، ويؤدي إلى نتائج أكثر واقعية وملاءمة للاحتياجات الفعلية. من خلال هذه المقاربة الشاملة، نطمح إلى إحداث تحوّل نوعي في المشهد العمراني والإنساني للمنطقة.

الكلمات المفتاحية: بيت حانون، الهوية الثقافية، العمارة، التراث، غزة.

Résumé

Ce projet est une initiative humanitaire visant à reconstruire le quartier d'Al-Bura dans la ville de Beit Hanoun, en réponse à la nécessité urgente de réhabiliter les zones touchées et d'améliorer la qualité de vie des habitants. Il repose sur une vision intégrée qui allie authenticité et modernité, en cherchant à fusionner les éléments du patrimoine local avec les concepts architecturaux contemporains. L'objectif est de refléter l'identité culturelle du lieu et d'établir un caractère urbain distinctif.

Le projet accorde une grande importance à la durabilité environnementale, en encourageant l'utilisation de matériaux naturels et sûrs, afin de réduire les dommages potentiels dans un contexte instable. La conception vise à établir un équilibre harmonieux entre la nature et la technologie, afin d'améliorer l'efficacité et de limiter l'impact environnemental négatif.

L'implication active de la communauté locale constitue un pilier fondamental de cette initiative. Les habitants de Gaza joueront un rôle central dans le processus de reconstruction, ce qui renforcera leur sentiment d'appartenance et garantira des résultats réalistes et adaptés aux besoins réels. À travers cette approche globale, le projet aspire à provoquer une transformation qualitative du paysage urbain et humain de la région.

Mots clés : Beit Hanoun, identité Culturelle, architecture, patrimoine, Gaza.

Abstract

This project is a humanitarian initiative aimed at the reconstruction of the Al-Bura neighborhood in the city of Beit Hanoun, responding to the urgent need to rehabilitate affected areas and enhance the quality of life for residents. It is based on an integrated vision that combines authenticity with modernity, seeking to merge local heritage elements with contemporary architectural concepts. The goal is to reflect the cultural identity of the area and establish a distinctive urban character.

The project places significant emphasis on environmental sustainability by promoting the use of natural, safe building materials that help minimize potential damage under unstable conditions. The design carefully balances nature and technology to improve efficiency and reduce negative environmental impact.

A core pillar of this initiative is the active involvement of the local community, giving the people of Gaza a leading role in the reconstruction process. This participatory approach strengthens a sense of ownership and ensures results that are realistic and responsive to actual needs. Through this comprehensive strategy, the project aspires to bring about a qualitative transformation in both the urban and humanitarian landscape of the region.

Keywords: Beit Hanoun, cultural identity, architecture, heritage, Gaza.

General Introduction

Introduction

The Gaza Strip has been subjected to numerous wars, forced displacement methods, and acts of genocide. Despite these challenges, the people of Gaza have always risen again, rebuilding after each war. Among the most significant efforts following such conflicts has been the reconstruction process.

Reconstruction for the people of Gaza has become a routine endeavor. As mentioned earlier, they have previously undertaken and achieved it. However, this war differs from previous ones in terms of its duration, impact, and other factors. Consequently, the reconstruction process in this particular instance will be unlike previous efforts, and the challenges we face this time will be distinct.

In this project, we will delve into many urban and architectural details that will adopt a somewhat different approach. At the same time, we will strive to preserve the unique identity of the locations being reconstructed and uphold the humanitarian purpose of this effort.

Our goal is to achieve genuine, human-centric architecture—architecture that has suffered many distortions over time. It must be made clear how architecture has deviated from serving humanity and strayed from its true purpose.

This work comes as an effort to focus on all the aspects that architects must consider, by developing innovative and updated concepts of sustainable architecture that support the human being in their essence. This widespread destruction should be seen as an opportunity to implement such ideas—an opportunity to create a new urban reality that could serve as a global model.

No humane or architectural idea that contributes to this process will be spared. Moreover, the reconstruction process is not the sole responsibility of the architect; rather, it is a collective effort that involves all segments of society. It requires collaboration and integration to achieve a comprehensive rebuilding that restores dignity and re-establishes the human presence within the urban environment.

Reconstruction is an integrated, participatory, and comprehensive process. It involves rebuilding everything related to both the material and spiritual aspects connected to the human being. It is a process that aims to rebuild what once existed in a better form, while preserving all aspects and considering every perspective.

For reconstruction to be truly humane and genuinely serve people in word and action, it must provide genuine sustainability and align with nature in every possible way, while incorporating the human touch—his products, innovations, and inventions—in the right manner. It can be described as a balance between nature and human-made industry.

As for its participatory nature, reconstruction must involve all segments of society, regardless of their roles. The entire community should take part in rebuilding the nation, as this participation fosters a sense of responsibility. No one is more capable of rebuilding a country than its own people, who are emotionally connected to their land. They alone can give their best in the reconstruction process.

Regarding its comprehensiveness, reconstruction should be approached from all dimensions—economic, cultural, health, scientific, and heritage-related—addressing every aspect of human life. Reconstruction is the process of rebuilding both the human being and the physical environment.

1. Problem statement

The challenges and obstacles we face in this process and project are numerous and significant. These can be outlined in several key points:

1.1. Removal of Debris and War Ruins

This is one of the most critical and primary challenges. It requires thorough coordination and planning. There are also questions about where to relocate this debris and how to handle it effectively, given the difficulty of managing such waste. Furthermore, the available equipment for debris removal is inadequate and falls short of global standards for addressing such issues.

1.2. Shortage of Construction Materials

The Gaza Strip faces numerous restrictions in the construction sector, primarily related to the availability of building materials. The region suffers from a severe lack of modern construction materials, largely due to political reasons and fears that these materials could be used for military purposes by local political factions.

1.3. Economic Constraint

In previous reconstruction efforts, Gaza has repeatedly faced economic difficulties and a lack of funding to support rebuilding projects. External aid from various countries has often been necessary to address this issue. Therefore, economic challenges must be carefully considered during the planning phase of reconstruction.

1.4. Time Constraints and Project Execution

This is one of the most significant challenges that must be addressed accurately and efficiently. The vast number of displaced individuals who have lost their homes need to return to safe and secure shelters as soon as the war ends. Additionally, the extensive damage requires considerable time to address comprehensively across all levels.

1.5. Strict Restrictions Imposed by the Jewish occupation

Jewish enforces stringent restrictions on construction, including limitations on building methods, heights, equipment, and proximity to borders, among other constraints.

1.6. High Population Density in the Gaza Strip

The Gaza Strip is one of the most densely populated areas in the world. This density complicates reconstruction efforts as the percentage of affected individuals is exceptionally high.

2. Objectives

This project aims to address multiple dimensions, both at the architectural level and for humanity as a whole. Broadly speaking, its primary goal is to ensure that architecture serves humanity at its core—a principle often overlooked by architects who have strayed from the true purpose of architecture.

The project also seeks to achieve cultural, educational, and intellectual objectives that we hope to realize through this humanitarian endeavor. Furthermore, we aspire for this project to give Gaza a renewed presence in the modern world, positioning it as an architectural reference for a novel approach to contemporary design. We aim for it to create architectural change, similar to the intellectual and humanitarian shifts it represents today.

This architecture will draw upon the traditional urban character of the Middle East, particularly the Levant, to revive what has been overshadowed since the Industrial Revolution and European modernism, which erased much of the cultural diversity and uniqueness that once existed.

The primary and well-known objective of this project is to contribute to and support the reconstruction of Gaza, ensuring that people return to their homes and essential facilities as quickly and efficiently as possible. The goal is to provide quality housing and infrastructure that, in some measure, compensates for what they have lost and been deprived of for over a year.

3. Hypotheses

In this work, we propose several hypotheses and details that will serve as foundational elements and key pillars of the project. Among these hypotheses is the concept of reassembling the traditional city of the Levant in particular, and the Arab-Islamic city in general, within the area designated for reconstruction. This approach will be adapted to align with the present time, prevailing conditions, and historical and developmental differences. This hypothesis is broad in scope and encompasses various sub-hypotheses.

One such sub-hypothesis involves heavily relying on natural building materials in this project. Gaza and Palestine, in general, provide abundant access to natural resources that can be utilized as building materials. Specifically, the primary material proposed is “natural stone”, with “clay” serving as a secondary material. Gaza's predominant sandy terrain complements this choice, while natural stone is a cornerstone of architecture in Palestine and the Levant, characterized by its high quality and refined details. These qualities contribute to efficient construction and time management.

Using natural materials ensures true sustainability for the buildings themselves. Sustainability is a vital hypothesis underpinning this work, as it aligns seamlessly with the emphasis on utilizing natural building materials.

Another hypothesis centers on the controlled and appropriate incorporation of industrial building materials. Modern architecture has become predominantly reliant on industrial materials, but this work seeks to achieve a genuine balance between human innovation and nature’s resources.

Finally, a further hypothesis revolves around blending modernity and heritage while maintaining the same principle of balance applied to nature and industry. This fusion aims to create a harmony between the architectural traditions of the past and the contemporary needs of the present.

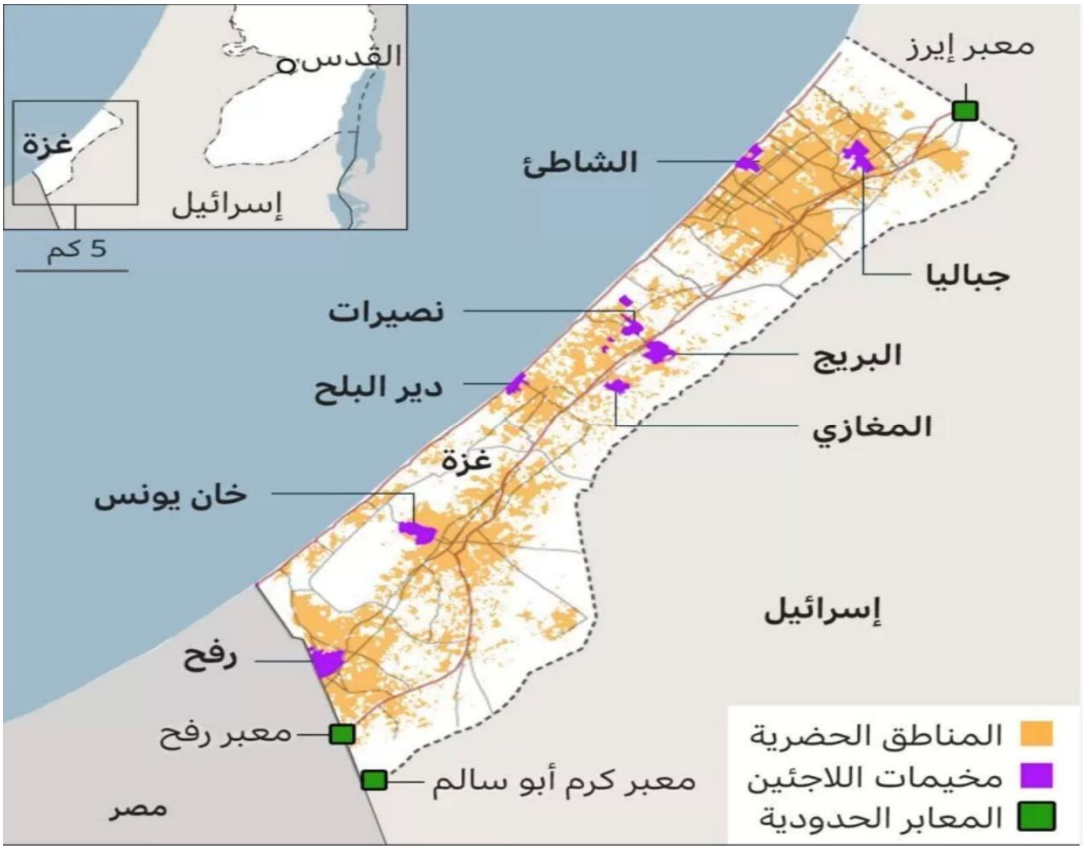
Section II: Site Analysis (Gaza Strip, Beit Hanoun)

2.1. Gaza Strip

The Gaza Strip is a narrow stretch of land extending from the southwest toward the north, with an open coastline on the Mediterranean Sea to the west. It is surrounded by the occupied Palestinian territories to the north and east, while its southwestern border connects with Egypt and northern Sinai. The Gaza Strip is a coastal plain with an average length of 40 kilometers, a maximum width of approximately 12 kilometers, and a minimum width of about 8.5 kilometers at its narrowest point.

The Gaza Strip was established following the forced displacement of Palestinians in 1948. It remained under Egyptian administration until it fell under Israeli occupation in 1967. The Israeli occupation quickly sought to Judaize the area and erase its identity by establishing numerous settlements within it. Seventeen Israeli settlements fragmented the Gaza Strip, despite its small size and high population density, making it one of the most densely populated areas in the world.

Attempts to Judaize the area continued alongside the rise of popular resistance movements against the Israeli occupation in the West Bank, Jerusalem, and the Gaza Strip. These popular uprisings and resistance movements culminated in the First Intifada (the Intifada of Stones) in



1987. This was followed by the entry of the Palestinian National Authority into the Gaza Strip and the West Bank after the Oslo Accords in 1994.

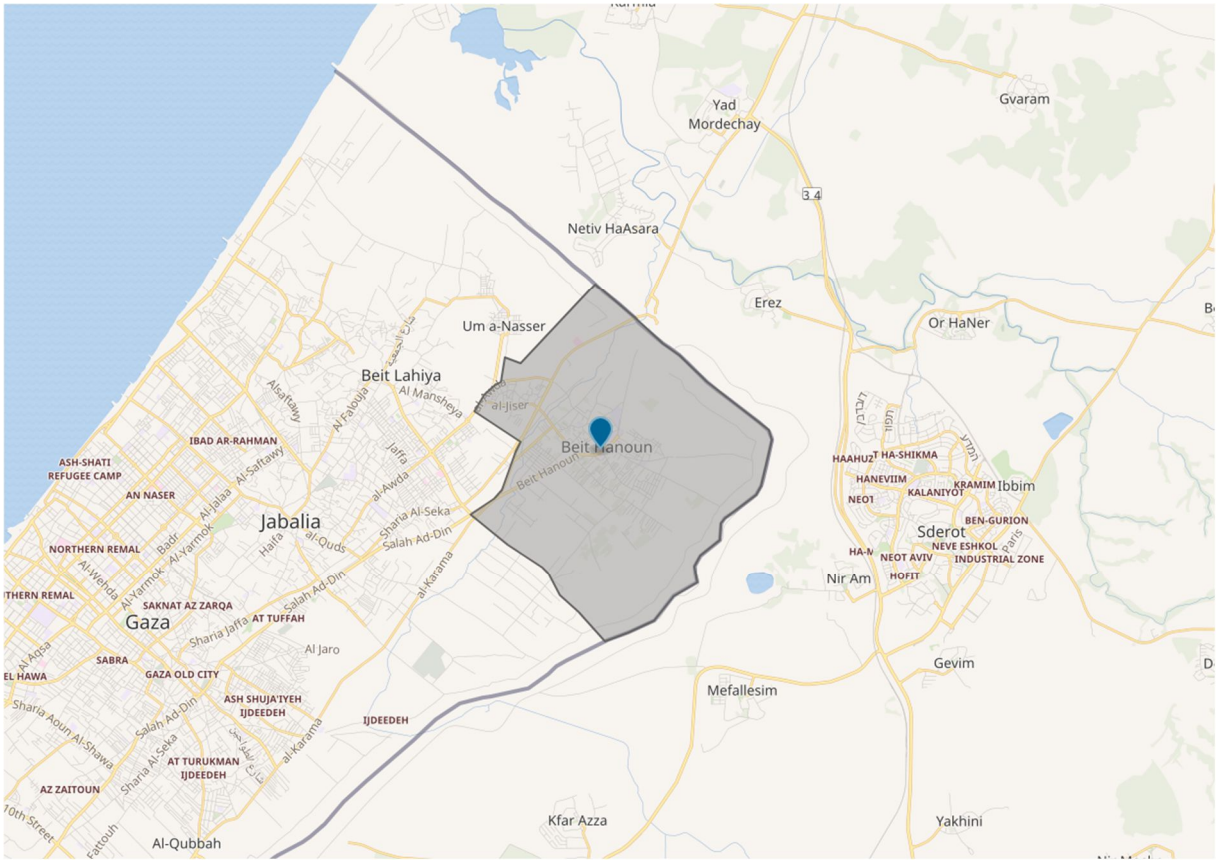
2.2. Beit Hanoun

Beit Hanoun is one of the cities in the Gaza Strip, located in the northeastern part of the region, on the border with the occupied Palestinian territories. This city holds significant strategic importance due to its geographic location, making it the most sensitive city in the Gaza Strip. As is well-known, it is also the city most affected by wars, primarily due to its location.

Beit Hanoun is characterized by its flat, plain terrain and is largely considered a residential city. However, today, Beit Hanoun is almost entirely uninhabitable, as it has been nearly completely destroyed. The city requires extensive and unprecedented efforts at the regional level to rebuild and restore livability.

The city of Beit Hanoun is located directly on the border with the Jewish occupation. It is one of the most important cities connecting us to occupied Palestine, specifically concerning the Gaza Strip. Due to its highly sensitive location, it is often one of the first cities to face destruction in Gaza.

During the ongoing war, the occupation implemented numerous strategies aimed at exterminating and displacing the residents of Beit Hanoun, ultimately succeeding in completely destroying the city.



2.3. Partition Wall

As mentioned earlier, the separation wall between the site and occupied Palestine is a symbol of the political boundaries at the site.

2.4. Political Separation Wall

The city of Beit Hanoun has a crossing point into the occupied Palestinian territories, and this crossing is considered one of the main crossings for the Gaza Strip.

2.5. The total area of the site to be reconstructed

The area of the site is 43803 m2

Site Entrances :

2.6. Reasons for choosing the location...

Our choice of the specific site, known as the Al-Bura area in Beit Hanoun, is based on several reasons:

1. **Proximity to the political border**: This area is the closest to the political boundary of Beit Hanoun with occupied Palestine.
2. **Extent of destruction**: Al-Bura is the most devastated area within the neighborhoods of Beit Hanoun.
3. **Residential nature**: The area is entirely residential, which aligns with the fundamental concept of our project, as previously mentioned.
4. **Moderate population density**: Al-Bura has a moderate level of population density compared to the rest of the Gaza Strip.
5. **Existing building heights**: The pre-existing structures in Al-Bura typically do not exceed four stories.

6. **Symbolic significance**: Rebuilding in this area sends a strong message to the occupier from one of the closest points of contact, demonstrating the ability to rebuild and return stronger and better.

2.6.1. The previous uses of the homes before the war

Most of the buildings' uses before the war were residential.

- The buildings marked in gray represent residential buildings.

-

2.6.2. Building Distribution

As for the distribution of buildings, it occurs in a sequential manner and is based on the individual planning decisions of the landowners. Over time, this process gives rise to the urban structure we see today.

Building planning carried out by the local residents is subject to regulations issued by the governing authority. Among these regulations are setback rules between houses. At the same time, residents often come to mutual agreements on smaller details that can be adjusted in ways that reflect their culture and meet their specific needs.

The resulting urban layout can be described as semi-informal or semi-random due to a number of factors. However, this type of planning remains acceptable and functional for the local residents who live there.

The spaces highlighted in purple represent the setbacks and open areas between houses. These setbacks come with both advantages and disadvantages. In this project, our goal is to make effective architectural and urban use of these spaces—maximizing their potential while significantly minimizing the negative aspects associated with them.

2.6.3. Population density and building distribution

The site intended for reconstruction is characterized by moderate population density, as mentioned earlier. We can leverage this point positively in the project's ideas and reconstruction process, as this concept aligns with what we aim to implement. We will elaborate on this during the planning phase for reconstruction.

As for the distribution of buildings, it occurs in a sequential manner and relies on the planning of individuals who own the land there. This results in the formation of the current urban structure

2.6.4. Public spaces

In fact, there are no public spaces in the Al-Bura area, as the land is privately owned and not under government jurisdiction. However, we have ideas to create public spaces for the residents there, taking all circumstances into consideration .See Figure 2.

2.6.5. Infrastructure

-Road networks.

-Public buildings.

Martyrs of Return Street

2.7. Challenges We May Face in Rebuilding the Al-Bura Area in Beit Hanoun

Reconstructing the Al-Bura area is not just about bricks and mortar—it's a complex process with multiple layers of difficulty. Here are some of the key challenges we're likely to encounter:

2.7.1. Severely Damaged Infrastructure

Much of the area's basic infrastructure—water, electricity, sewage, and roads—has been heavily damaged. Rebuilding these systems will require not just resources, but careful coordination across various sectors.

2.7.2. Limited Access to Materials and Funding

With the long-standing blockade on Gaza, bringing in essential construction materials is a struggle in itself. On top of that, financial aid often arrives slowly or in insufficient amounts, leaving critical projects in limbo.

2.7.3. Political and Security Constraints

Strict control over movement and access, especially by Zionist authorities, poses major logistical and administrative obstacles. These conditions delay construction, complicate planning, and limit access to expertise and equipment.

2.7.4. Loss of Legal and Planning Documents

During the destruction, many property deeds and official papers may have been lost. This creates serious complications in verifying land ownership and can stall the planning process for months.

2.7.5. Psychological and Social Impact

This isn't just physical reconstruction—we're rebuilding lives. People are traumatized, displaced, and grieving. Any meaningful rebuilding effort must consider the human toll and work in tandem with social and psychological recovery.

2.7.6. Preserving Social and Urban Identity

Al-Bura isn't just another neighborhood—it carries a unique social and architectural character. We must find a way to integrate modern, sustainable design without erasing the cultural and communal fabric that defines the area.

2.7.7. A History of Unplanned Urban Growth

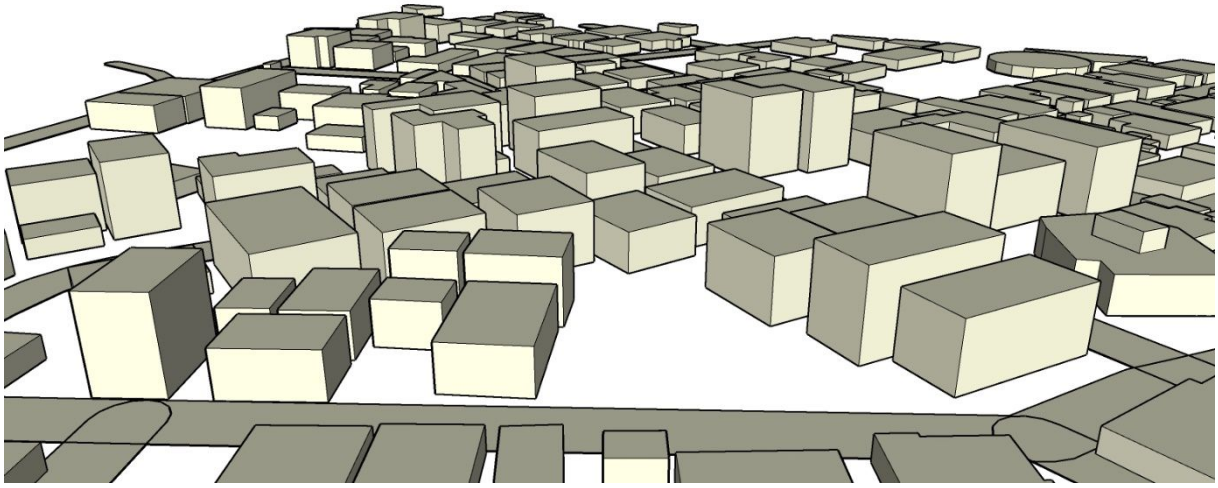
Like many areas in Gaza, Al-Bura developed organically under pressure and conflict, with little opportunity for structured planning. This leaves us with the challenge of reorganizing urban space in a way that's both functional and respectful of existing patterns.

2.7.8. Fragmented Implementation and Poor Coordination

With multiple players involved—local, governmental, and international—there's a risk of overlap, miscommunication, or even neglect of key needs. Streamlined coordination will be essential to make real progress.

2.8. The building heights before the war

The building heights in the site before the war ranged between two to three floors, with the maximum height being four floors including the ground floor.



The concept of building to these heights stems from a cultural tradition in Palestinian society, where extended families often live within the same building. Typically, the father resides on the ground floor, while the sons build and live above him—each in separate, private units. This approach allows for vertical family expansion while preserving privacy and maintaining the cultural and social fabric of the community.


> R+1
≤ R+1


3/

2.9. The building materials used before the war

The Gaza Strip adopts the use of modern building materials such as concrete and steel, and the same applies to the Al-Bura area, which we intend to rebuild. Concrete blocks are also widely used, especially for ceilings. Natural stone is present but serves as a secondary building material due to significant changes in its usage. Aluminum and steel are used for doors and windows.

2.10. The architectural style used in the Al-Bura area

The modern architectural style is the prevailing style in the Al-Bura area. This is evident in many details, most notably the overall uniformity of the exterior appearance and the specific details on the façades.

2.10.1. Building Regulations in the Al-Bura Area

Building regulations in the Al-Bura area are a fundamental part of the urban system that governs how buildings are constructed and distributed within the region. These regulations aim to strike a balance between functional, aesthetic, and livability aspects while also taking into account the social and cultural characteristics of the local community.

1. Official Regulations Issued by Municipalities and Government Authorities

These regulations represent the legal and institutional framework for organizing construction, and they consist of binding instructions and guidelines that all residents must adhere to. Key aspects include:

- Permitted building heights, depending on the zoning (residential, commercial, mixed-use).
- Building ratios (the built-up area relative to the land area), ensuring density control and open space preservation.
- Infrastructure requirements, such as providing parking spaces, sewage systems, and connections to water and electricity networks.
- Safety standards, including emergency exits, earthquake resistance, and fire protection measures.
- Facade regulations, which govern the appearance and materials used to maintain the visual identity of the area.

These rules are often based on national laws or municipal policies designed to ensure residents' safety and support balanced urban development.

2. Customary or Traditional Regulations

These are not usually written into formal laws, but they carry significant weight and respect within the community. They typically arise from deep-rooted cultural, religious, and social values. Examples include:

- Avoiding the direct alignment of doors between neighboring houses, to maintain privacy.
- Refraining from placing large windows facing neighboring homes, to prevent visual intrusion and ensure psychological comfort.

- Designing boundary walls in a way that preserves social harmony, such as including openings that allow communication without violating privacy.
- Balancing public and private spaces to facilitate gatherings among family and neighbors, especially in closely-knit communities.

These customary rules act as a social and ethical extension of official regulations and are essential for maintaining harmony within the community—even if they are not legally binding. Agriculture is one of the main pillars of the local economy in the Al-Bura area, as the city of Beit Hanoun has long been known for its rich agricultural heritage, fertile land, and high-quality produce. Agriculture has been, and continues to be, a primary source of income for many families and forms an essential part of the region's identity and livelihood.

Following the recent war, which struck Beit Hanoun with devastating force, the damage extended far beyond homes and infrastructure. Farms and agricultural lands were also severely affected—bombing, bulldozing, and pollution disrupted crop production and left many families without their primary means of income.

This is why agriculture must be treated as a priority within any reconstruction plan. Reviving this sector is no less important than rebuilding homes or schools, as it plays a vital role in community stability and economic self-reliance.

Key areas of focus should include:

- Restoring damaged agricultural land and clearing debris and remnants of war.
- Rehabilitating irrigation systems and ensuring sufficient water supply for farming.
- Providing farmers with tools, seeds, and essential equipment.
- Launching modern training programs to help farmers adopt sustainable and efficient techniques.
- Protecting agricultural land from unplanned urban expansion by integrating it into a comprehensive urban development strategy that balances housing and farming needs.

Reviving agriculture in Al-Bura is not only about economic recovery—it is also about restoring environmental and social balance, and preserving the unique character of a region long known for its greenery and agricultural generosity.

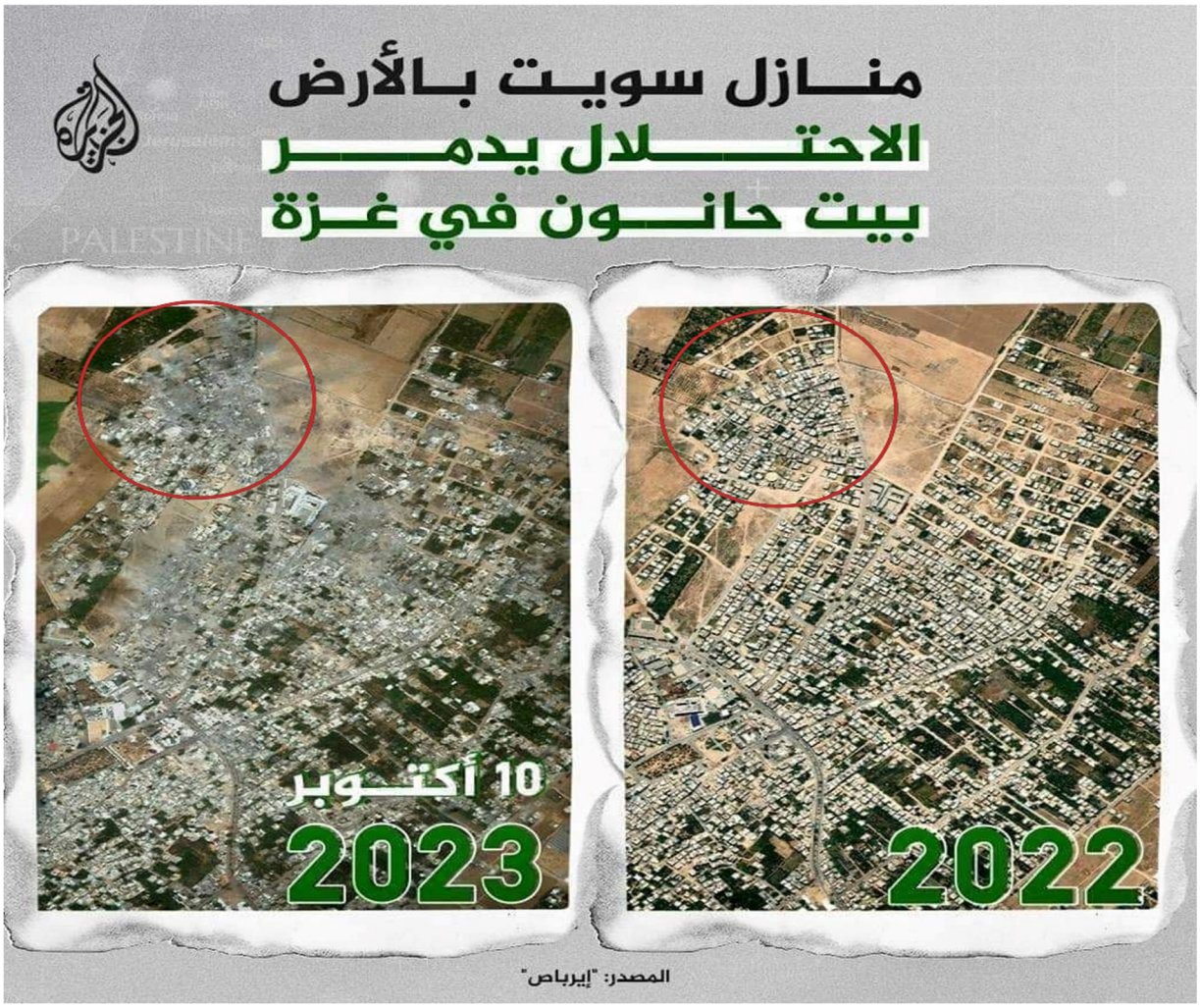
Source : https://arabic.rt.com/middle_east/1347851 arabic.rt

2.10.2. The destruction in the Al-Bura area

The Al-Bura area was among the first regions to suffer widespread destruction at the onset of the current war. As previously noted, this is largely attributed to the strategic and sensitive location of the area in relation to the occupied Palestinian territories. Within merely three days of the war's outbreak, Al-Bura experienced near-total devastation.

It is important to note that this is not the first instance of such destruction in the area. Al-Bura had previously been subjected to similar levels of damage, although the current destruction exceeds previous incidents in both scale and severity.

The devastation encompassed all aspects of the region, including critical infrastructure, which was entirely demolished. Moreover, the agricultural lands—considered the primary source of income and sustenance for the local population—were extensively damaged. The following images provide a visual representation of the magnitude of destruction in the area.


منـــازل سويـــت بـــالأرض
الاحتـــــــلال يدمـــــــر
بيت حانـــــون في غـــزة
10 أكتـــوبر
2023
2022
المصدر: "إيرباص"


مدرسه هائل عبد الحميد
منطقة البورة
ملتقى بيت حانون
عيادة الوكالة

Conclusion

The political sensitivity of the site must be taken into account, and efforts should be made to implement techniques that help mitigate the impacts of war, including the use of resilient building materials.

The scale of destruction is immense, and the reconstruction process must be approached from all perspectives economic, political, cultural, and social.

The site possesses a unique characteristic in that it combines both residential and agricultural functions, and this feature should be further developed and enhanced.

The site's infrastructure requires complete reconstruction due to the extent of the damage it has sustained.

After studying the site, it is considered a good model to work on and a strong starting point for the reconstruction of the region.

The site requires the reorganization of residential and agricultural spaces in a balanced and sustainable manner.

Section III: Thematic analysis

3.1.A model of the traditional Arab-Islamic city

3.1.1. The Old City in Jerusalem

Jerusalem, as an Arab and Islamic city, has long endured a series of colonial challenges and ongoing geopolitical pressures that persist to this day. Among the most significant of these is the systematic process of Judaization carried out by the Israeli occupation, which aims to alter the historical and cultural identity of the city.

Despite these persistent threats, Jerusalem remains a symbol of resilience and continuity. It stands as one of the most historically rooted cities in the region, where successive civilizations have left their mark. The city is distinguished by its unparalleled diversity, embodying a unique intersection of cultures, beliefs, and historical narratives. In Jerusalem, one observes a rare coexistence of strength and serenity—a city where contrast does not divide but defines its enduring character.

Jerusalem represents an exemplary model of the traditional Arab-Islamic city. Similarly, all historic Palestinian cities serve as additional models that embody and reinforce the essence of Arab and Islamic culture within the built environment. These cities reflect a deep-rooted architectural identity shaped by heritage, community, and spiritual values.

We hope that through the study we have conducted, we have done justice to the city of Jerusalem and highlighted its significance within the broader context of Arab and Islamic urbanism.

3.1.2. Reasons for Choosing the Old City of Jerusalem as a Model of the Traditional Arab-Islamic City

One of the key reasons for selecting the Old City of Jerusalem as a model of the Arab-Islamic city lies in the complex political context it shares with other Palestinian regions—most notably the Gaza Strip. Both regions face ongoing colonial pressures, displacement policies, and restrictions on urban growth and spatial development. These shared political challenges have resulted in a unique and constrained urban reality that directly impacts the morphology, planning, and social structure of the built environment.

In Jerusalem, as in Gaza, the urban fabric has been shaped not only by historical and cultural legacies but also by the urgent need to adapt to political instability, territorial fragmentation, and occupation-related constraints. These circumstances necessitate a deeper understanding of how traditional Arab-Islamic urban principles—such as compactness, mixed-use development, and strong community cohesion—are preserved, adapted, or transformed in response to external pressures. Therefore, studying the Old City provides valuable insights into the resilience and continuity of Arab-Islamic urban identity in the face of political adversity.

A. Jerusalem is one of the most important Islamic and Arab cities

Jerusalem holds a central place in the Arab and Islamic world, making it one of the most significant cities both historically and spiritually. Its importance transcends mere geography, as it has been a focal point of religious, cultural, and political identity for centuries. As one of the three holiest cities in Islam, alongside Mecca and Medina, Jerusalem is home to some of the most revered religious sites, including the Al-Aqsa Mosque and the Dome of the Rock. These landmarks are not only symbols of Islamic heritage but also embody the broader cultural and historical narrative of the Arab world.

B. The great cultural and social similarities with the Gaza Strip

Jerusalem and the Gaza Strip share profound cultural and social similarities, stemming from their common historical, religious, and societal foundations. Both regions are deeply rooted in Arab and Islamic traditions, with a rich cultural heritage that shapes the daily lives of their inhabitants. This shared cultural identity is evident in the language, customs, traditions, and religious practices that permeate both Jerusalem and Gaza, creating a sense of solidarity and connection despite their geographical separation.

C. The balance between heritage and modernity in the Old City of Jerusalem.

The balance between heritage and modernity in the Old City of Jerusalem refers to how traditional and historical elements of the city are integrated with modern advancements and developments. The Old City of Jerusalem is a significant cultural and religious heritage site, home to many historical landmarks such as the Al-Aqsa Mosque and the Church of the Holy Sepulchre.

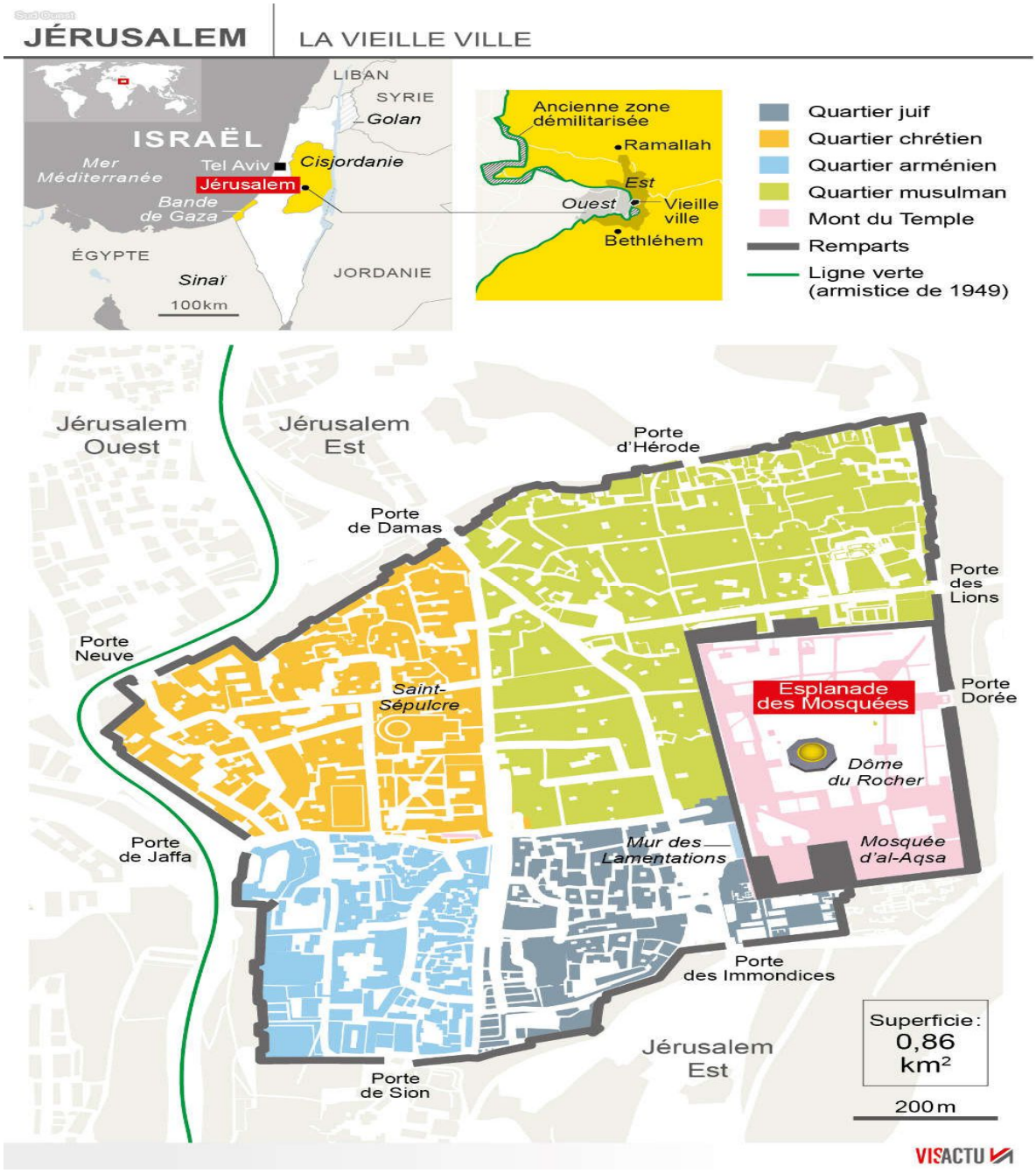
D. The convergence of building capabilities, especially in materials

The idea refers to the shared challenges in construction between the Old City of Jerusalem and the Gaza Strip, as both face the need to use local building materials that align with their historical and cultural identity. In Jerusalem, materials like stone and wood are used to maintain the traditional architectural style, while in Gaza, due to economic restrictions, available materials such as stone, clay, and recycled concrete are reused. In both places, a blend of traditional and modern techniques is employed to meet construction needs under difficult circumstances.

3.1.3. The urban planning of the Old City.

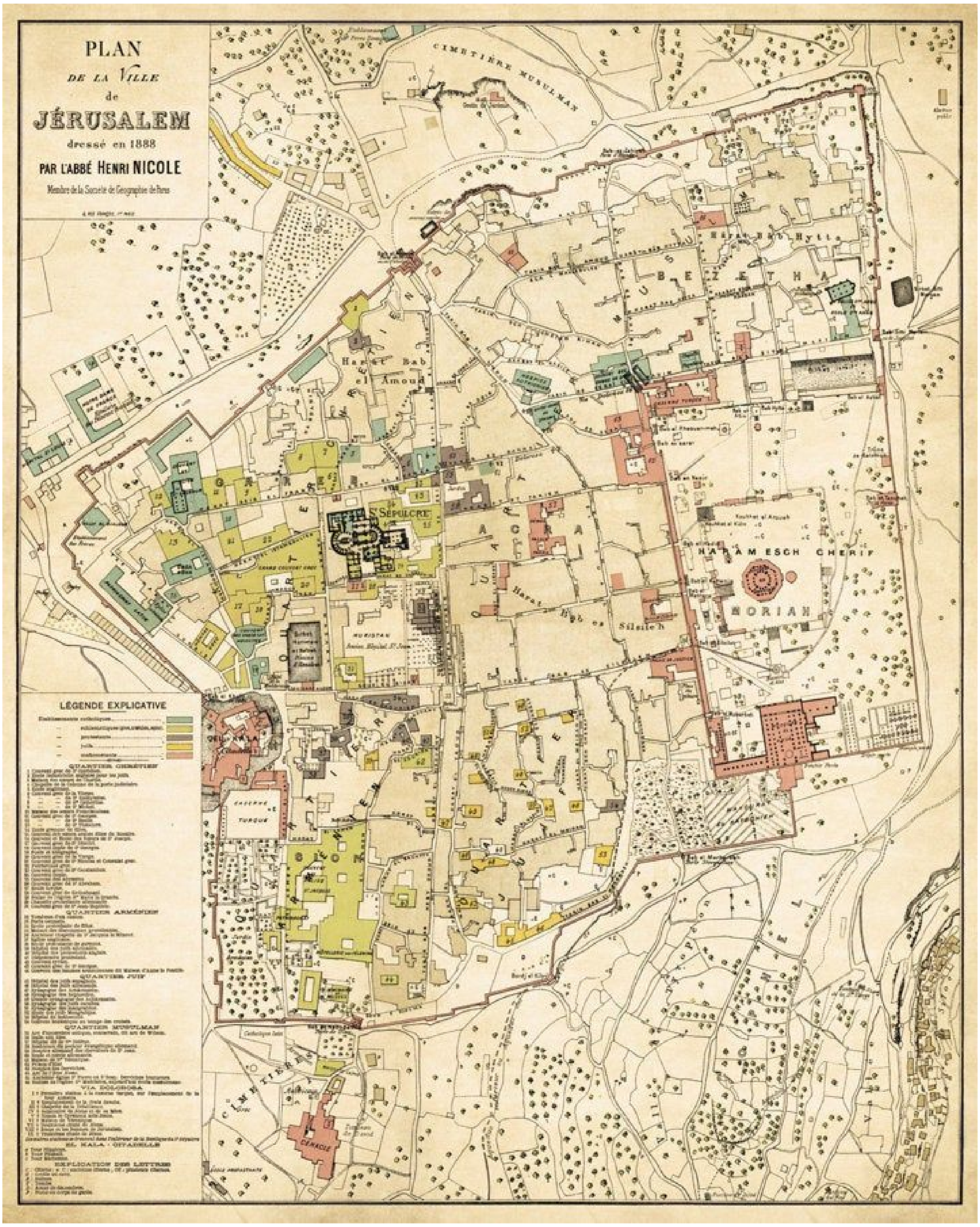
1. **Spatial Division**:
   The Old City is divided into four main quarters:
   - **The Muslim Quarter**: Contains many markets, mosques, and cultural facilities.
   - **The Christian Quarter**: Home to the Church of the Holy Sepulchre and various Christian monasteries and religious sites.
   - **The Jewish Quarter**: Contains the Western Wall and several synagogues and Jewish religious sites.
   - **The Armenian Quarter**: Features residential spaces and monasteries reflecting Armenian heritage.
2. **Narrow and Winding Streets**:
   The streets of the Old City are narrow and irregular, reflecting the traditional urban planning of ancient cities, developed to adapt to the hilly terrain and natural challenges.

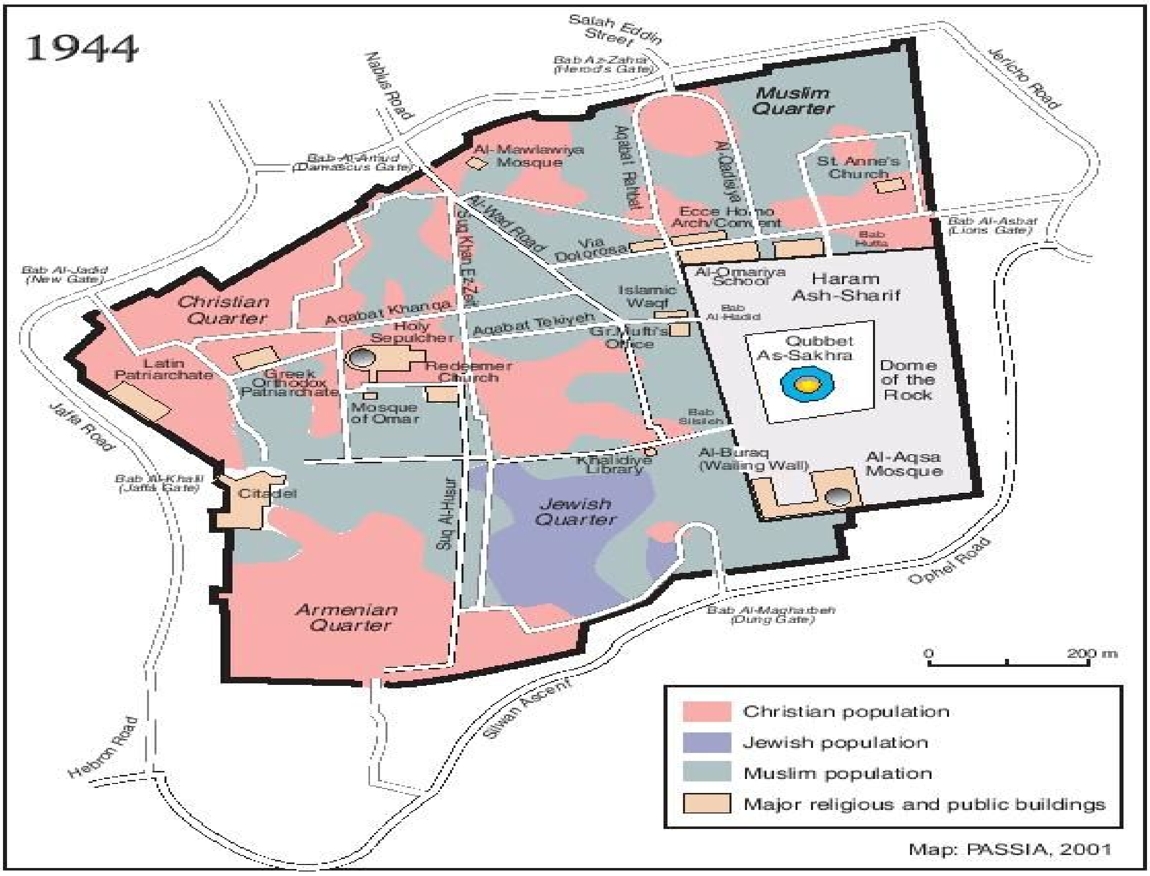
3. **Markets**:
   The Old City contains vibrant historical markets like the Souq al-Attarine and Souq al-Qattanin, which are integral to the daily life of the city.
4. **A Religious Hub**:
   The Old City is home to key religious sites, such as the **Al-Aqsa Mosque**, **Dome of the Rock**, and **Church of the Holy Sepulchre**, reflecting its importance as a spiritual and political center.
5. **Walls and Fortifications**:
   The Old City is surrounded by historic walls with numerous towers and gates, such as the Damascus Gate and the Jaffa Gate, which were part of the city's defense system.
6. **Traditional Architecture**:
   Buildings in the Old City are characterized by the use of white limestone and traditional Islamic architecture, with mosques, churches, and synagogues reflecting the diverse civilizations that have shaped the city.
7. **Public Spaces**:
   The Old City includes public areas like the Al-Aqsa Mosque Courtyard, and other open spaces that serve as centers for social, religious, and cultural interaction, fostering unity among its residents.
8. **High-Density Urban Layout**:
   The Old City features a high-density urban layout, where buildings are closely packed, and each space serves multiple functions, contributing to the area's vibrant life.
9. **Cultural and Historical Connections**:
   The Old City is a cultural and historical hub, reflecting Jerusalem’s rich and diverse heritage through its landmarks, monuments, and the various civilizations that have passed through the city.

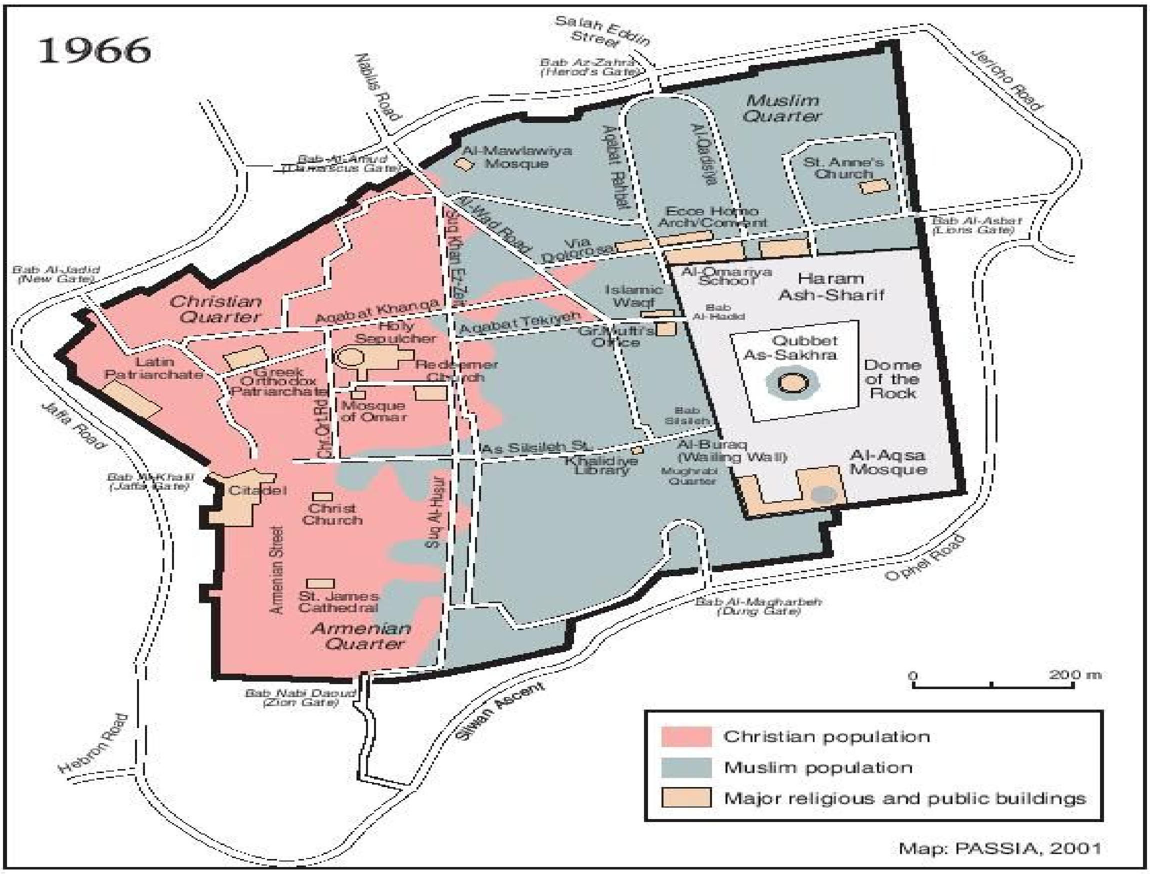


https://www.sudouest.fr/

An image illustrating the cultural differences in the Old City.


PLAN
DE LA VILLE
de
JÉRUSALEM
dressé en 1888
PAR L'ABBÉ HENRI NICOLE
Membre de la Société de Géographie de Paris
CIMETIÈRE MUSULMAN
BEZETHA
Haret Bab Hytta
Haret Bab el Amoud
S^t SÉPULCRE
ACRA
Haret Bab es Silsileh
HARAM ESCH CHERIF
MORIAH
MURISTAN
CASERNE TURQUE
CÉNACLE
LÉGENDE EXPLICATIVE
QUARTIER CHRÉTIEN
QUARTIER ARMÉNIEN
QUARTIER JUIF
QUARTIER MUSULMAN
VIA DOLOROSA
EL KALA · CITADELLE
EXPLICATION DES LETTRES


1944
Muslim Quarter
Christian Quarter
Jewish Quarter
Armenian Quarter
Haram Ash-Sharif
Dome of the Rock
Al-Aqsa Mosque
Christian population
Jewish population
Muslim population
Major religious and public buildings
Map: PASSIA, 2001


1966
Muslim Quarter
Christian Quarter
Armenian Quarter
Haram Ash-Sharif
Dome of the Rock
Al-Aqsa Mosque
Christian population
Muslim population
Major religious and public buildings
Map: PASSIA, 2001

- An example of the balance between modernity and heritage in Jerusalem:

- Urban fabric: tightly connected stone buildings, internal courtyards, Islamic and Ottoman influences.

- Markets

http://www.eveandersson.com/

- Public Spaces:

Alqastal.com

3.2.Twin city of Jerusalem. The Turkish city of Mardin.

https://arabic.cnn.com/

https://arabic.cnn.com/

https://arabic.cnn.com/

https://arabic.cnn.com/

During my tour of the Old City of Hebron and my study of its urban layout from an on-the-ground perspective, I observed a strong resemblance to the Old City of Jerusalem.


قنطرة الشلودي
Qantaret
Al-Shaloudi

3.3. Post-war reconstruction model

3.3.1. The reconstruction of Warsaw after the war (Examples of post-war reconstruction)

° The city of Warsaw is a model for post-war reconstruction

The history of Warsaw dates back to the 19th century, marking the beginning of its establishment. Its history has been closely intertwined with that of Poland. Over the years, the city has witnessed numerous catastrophes and wars.

The city was invaded, overrun, and destroyed multiple times. It also endured epidemics, sieges, and administrative restrictions. Yet, each time, Warsaw managed to recover and rebuild itself in an impressive manner. However, the city's greatest suffering occurred during World War II when the Germans carried out a systematic and organized destruction of the city and its cultural heritage.

As a result, Warsaw was left in ruins, emerging from the war with a tragic toll on both human life and urban infrastructure. By January 1945, the city was buried under approximately 20 million cubic meters of rubble, ashes, and ruins. Material losses exceeded $45 billion, as shown in Image (1), which illustrates the scale of destruction. Around 650,000 people were killed, and hundreds of thousands were deported to concentration camps in other parts of Poland. Furthermore, over 85% of the city's urban fabric and 96.5% of its historical buildings were destroyed.

° The results of the German destruction of Warsaw

The results of the German destruction of Warsaw were catastrophic on several levels:

1. Human Losses:

- **Number of deaths:** Approximately **650,000 people**, which represented a large portion of the city's population.
- **Deportations:** Hundreds of thousands of Warsaw's residents were deported to concentration camps and other areas in Poland.

2. Urban Losses:

- Total destruction: More than 85% of the city's urban fabric was destroyed.
- Historical damage: About 96.5% of the historical buildings were demolished, including cultural and religious landmarks.

3. Economic Losses:

- Material losses exceeded 45 billion US dollars (based on the value at that time).
- The entire infrastructure was destroyed, including roads, water, and electricity networks.

4. General Scene:

- By January 1945, the city was covered with an estimated 20 million cubic meters of rubble and debris.
- Warsaw became a deserted and devastated city, with no clear urban identity.

5. Cultural Impact:

- Warsaw lost a significant portion of its cultural and historical heritage, as the Germans deliberately destroyed national archives, libraries, and artistic monuments.

6. Social Impact:

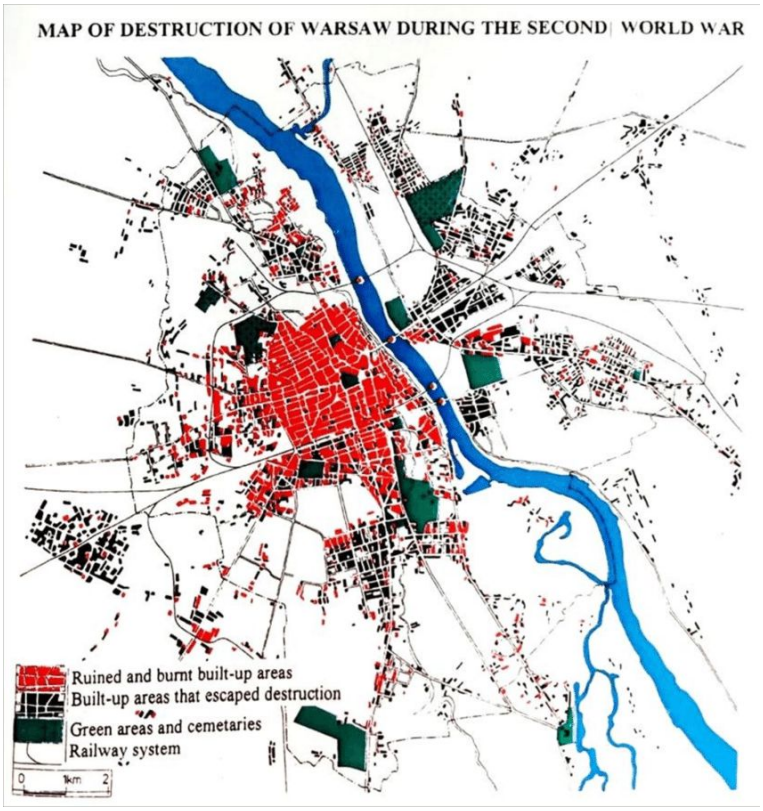
- The destruction and mass displacement led to the breakdown of social ties within the local community.

- Survivors faced tremendous difficulties in rebuilding their lives after the war.

Despite this catastrophe, Warsaw managed to come back to life through massive reconstruction efforts that began immediately after the war, becoming a symbol of revival and resilience.

- Bridges, roads, and railways: 100%
- Theatres and cinemas: 95%
- Industry: 90%
- Healthcare buildings: 90%
- Historical monumental buildings: 90%
- Tram infrastructure: 85%
- Tram cars: 75%
- Housing: 72%
- Education: 70%
- Trees in parks and gardens: 60%
- Electricity: 50%
- Gas pipes: 46%
- Water supply: 30%
- Road surfaces: 30%

Holocaust Encyclopedia



www.researchgate.net

3.3.2. The Reconstruction of Warsaw After the War – An Architectural and Urban Perspective

The post-World War II reconstruction of **Warsaw** stands as one of the most ambitious urban restoration projects of the 20th century and serves as a prominent example of how architecture and urban planning can preserve and reinforce national identity and cultural memory.

Historical Background:

During World War II—especially following the **Warsaw Uprising of 1944**—the city suffered massive destruction, with over 85% of its urban fabric wiped out. This destruction included the historic **Old Town (Stare Miasto)**, cultural institutions, administrative centers, and residential neighborhoods. The devastation wasn't only a result of war but was also a **deliberate effort by Nazi forces** to erase Polish identity.

Architectural Approaches to Reconstruction:

Rather than following a purely modernist approach—as many other European cities did—Poland decided to **reconstruct the historic Old Town in its original architectural style**, seeking to revive the city's historical and cultural legacy. This process included several key architectural elements:

1. **Reconstruction of the Old Town**:
    - Buildings, churches, and public squares were meticulously rebuilt using historical paintings, most notably the 18th-century works of **Canaletto**.
    - Stones and bricks salvaged from the ruins were reused to preserve authenticity.

    - Traditional architectural elements were revived, such as arched facades, red-tiled roofs, and ornamental windows.
2. **Preservation of Traditional Urban Fabric**:
    - The reconstruction maintained the **original street layout**, including narrow alleyways, open courtyards, and the interwoven mix of residential, commercial, and religious functions.
    - Public squares—like the **Old Market Square**—were restored as central hubs for social and cultural life.
3. **Balanced Integration of Modern Elements**:
    - In areas beyond the Old Town, **modern urban planning** was introduced: wider streets, administrative buildings, and updated infrastructure—all carefully designed to harmonize with the city's historical character.
    - Infrastructure such as water systems, electricity, and central heating were modernized while maintaining the appearance of the historic environment.
4. **Symbolic and National Dimensions**:
    - The reconstruction became a national symbol of resilience, showcasing the Polish people's determination to reclaim their capital and heritage.
    - It demonstrated how **architecture could serve as a tool for cultural resistance and identity reconstruction**.

Outcomes of the Experience:

- The **Warsaw Old Town** was later designated a UNESCO World Heritage Site as one of the first and most complete examples of **historical urban reconstruction**.
- The Warsaw experience has since inspired many other cities affected by war or disaster, offering a blueprint for **blending heritage with modern needs** in reconstruction efforts.

3.3.3. Reconstruction

Anticipating Hitler's ultimate plans, the reconstruction of Warsaw started before the war and during its destruction. Planners and architects in Warsaw risked their lives when they began surveying the city during the war and covertly making plans for its recontruction. Upon cessation of hostilities the planning and even working drawings were ready to commence the immense effort that faced them. A covert Studio for Architecture and Town Planning was located in the Cooperative Building Enterprise to study postwar needs. One of the pioneers of Polish modern architecture, Szymon Syrkus was its director until his deportation to Auschwitz. The Planning Department worked clandestinely with a secret commission of town planning experts to study the redevelopment of Warsaw's circulation routes.

The greatest feat is attributed to the members and faculty of the Warsaw Technical University's architecture department. Of especial note were the efforts of Professor Jan Zachwatowicz who obtained a special pass to enter the deserted and devastated city as fighting raged on between Nazi German forces and brave Warsaw Uprising insurgents. During several such trips his team recovered the massive documentation of Warsaw's historic structures hidden in the architectural department. The documentation (drawings and photographs) of Warsaw's heritage began at the turn of the century and picked up apace immediately after the Russian Tsarist occupation ended in 1919.

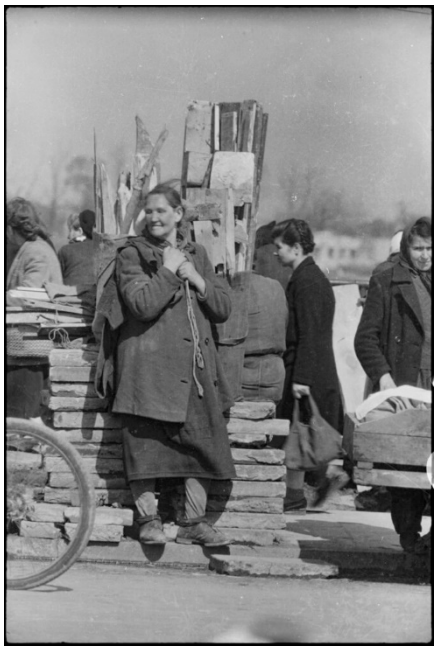
Although by command of the German occupying force the university had been reduced to a secondary school for training in building trades, as an act of defiance, faculty and students developed studies on Warsaw's reconstruction all through the war and occupation and continued the documentation of the city's landmarks.

Also during the deliberate destruction of the city, the Geibel Commission led by professor Lorenz and other Polish scholars attempted to retrieve valuable objects from churches, libraries and archives saving some old prints, rare books from the Theology Department of the Warsaw University. The extremely valuable towards the city's future reconstruction library of the architecture faculty of the Polytechnic had already been sent to Łowicz just after the Uprising.

These studies along with the documentation retrieved by Professor Zachwatowicz were all hidden in the ancient stone coffins of dead monks in the monastery of Piortkow and after the war formed the *sine qua non* basis for Warsaw's meticulous reconstruction along with detailed paintings of Warsaw by Bernardo Bellotto.

After the war, the next generation of Polish planners and architects was ready to get to work.

www.archdaily.com



3.3.4. Reconstruction begins

- On january 13, 1945 the Polish government in Soviet occupied Poland decides in the temporary capital of Lublin to rebuild Warsaw

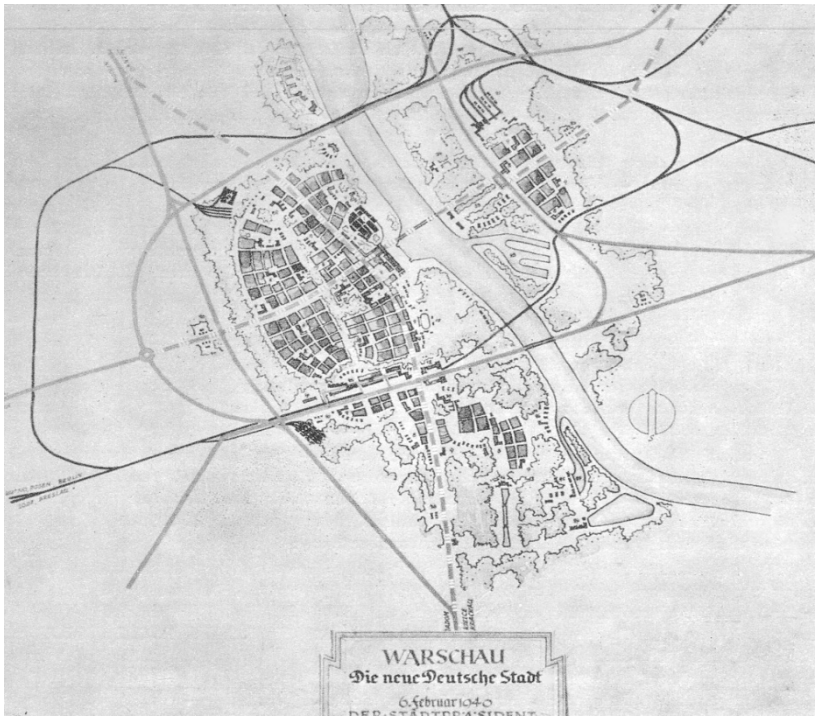
- The clearance of 20 million cubic metres of rubble begins

- The legal basis for systematic town planning and reconstruction was the Polish Government Decree of October 1945 that made all city land municipal property, only buildings belonged to previous owners. This gave planners total freedom to arrange and plan the city's land uses and infrastructurebut was also tantamount to expropriation

- The organization in charge was the Biuro Odbudowy Stolicy or Warsaw Reconstruction Office (later replaced by Warszawska Dyrekcja Odbudowy - Warsaw Reconstruction Management Office) who oversaw the clearing of rubble, the creation of a masterplan, design of reconstructed historic buildings and the prioritization and sequencing of reconstruction. BOS was located at 33-35 Chocimska Street, one of the few intact buildings in the centre of Warsaw

- A draft masterplan was ready by the end of 1945 and all salvageable components of historic buildings were inventoried and warehoused

- The first areas to be rebuilt were Nowy Świat and Krakowske Przedmieście followed by Łazienki Park while houses in districts of Mokotów, Żoliborz and Koło that were only burned but not destroyed were repaired



3.3.5. Post-War Phase and Reconstruction

After the war ended, hidden documents, which were in good and intact condition, were brought out and used as the foundation for rebuilding the city.

In reality, there were differing opinions about whether to build a new city elsewhere or to rebuild Warsaw on its original site. When considering the reconstruction of the city after the war, experts from the Soviet Union suggested building a new socialist-style Warsaw. However, many of Warsaw's residents gathered in front of the city government headquarters to discuss this issue. When teachers and students from the University of Warsaw presented a plan for rebuilding the old city, a plan that had been prepared before the war, it was considered seriously.

Gradually, people reached a consensus to restore the original pattern of the old city. Soon, three hundred thousand citizens returned to Warsaw from abroad as soon as they heard this news.

Thus, the Polish government aligned with the people's wishes and began organizing them to participate in the reconstruction efforts of Warsaw. As a result, a strong sense of patriotism spread throughout the city, leading to the successful rebuilding of their city. This reflects the rapid recovery of Warsaw after World War II.

3.3.6. Warsaw's Reconstruction Strategy After the War

In 1980, the historic center of Warsaw was designated a UNESCO World Heritage Site. It was recognized as an outstanding example of a complete reconstruction of a period in history.

Key Features of the City's Reconstruction Strategy

1. Preparation and Planning for the Future
One of the factors that contributed to the reconstruction of the city in its original form was the foresight of a possible Nazi attack on Poland and the subsequent preparedness. The residents worked proactively to hide or relocate anything that could be safeguarded. Additionally, architectural students documented the city to preserve its urban heritage in case of destruction. This documentation served as the foundation for the city's reconstruction.

B - Use of Traditional Construction Methods and Materials

During Warsaw’s reconstruction, original building materials were reused whenever available. If original materials were not obtainable, traditional methods and similar materials were employed as substitutes (1).

C - Selectivity

The reconstruction process in Warsaw involved preserving specific historical periods while neglecting others. There was a focus on restoring the older historical eras of Warsaw, while certain political periods were deliberately overlooked. For example, buildings from the 19th century, a time when Poland was divided and under foreign control (1), were excluded from reconstruction efforts.

D - Preserving Identity

Rebuilding the historic city as it once stood reaffirmed the residents' identity, history, heritage, and deep-rooted connection to their land. It symbolized silent resistance against the occupiers and highlighted the residents' pride in their identity and refusal to assimilate into any imposed foreign identity. To its people, the city represents a repository of accumulated historical memory.

E - Preserving Collective Memory

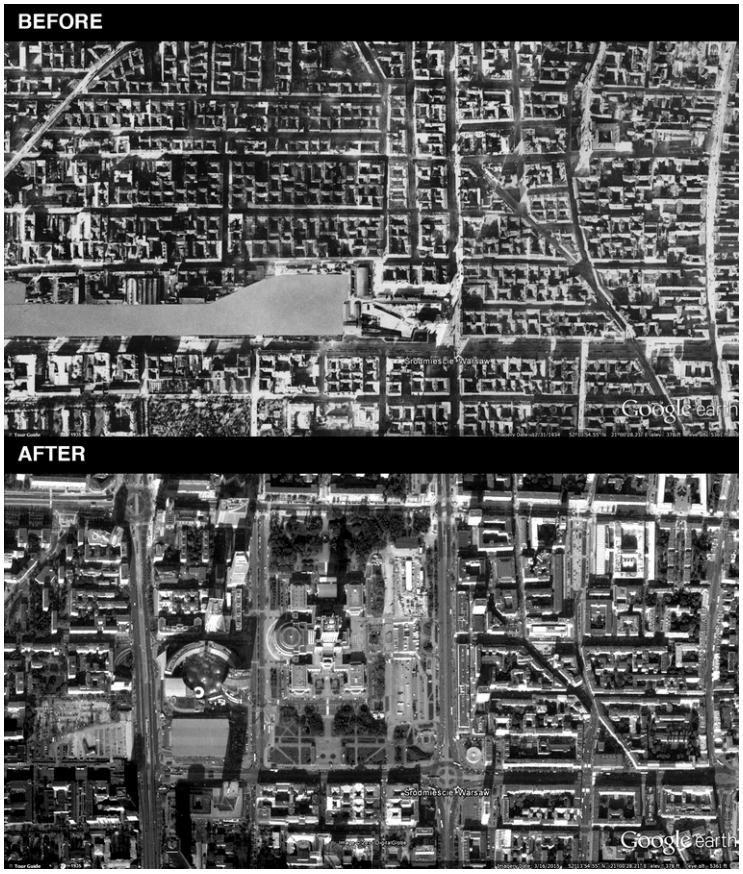
The reconstruction of Warsaw aimed to preserve the collective memory of the Polish people by bringing their city back to life from the ruins, complete with its landmarks, symbols, and buildings in the same locations and forms, using the same materials whenever possible. The goal was to rebuild everything as it had been before.

F - Cost

Reconstructing the same streets, for instance, was less costly because the foundations of the street network already existed and only needed rebuilding. Additionally, infrastructure lines were in place but required repair.

www.researchgate.net

http://www.mascontext.com/issues/21-repetition-spring-14/building-repetition-through-history-motivations-and-implications



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3.3.7. Challenges Faced During Reconstruction

1. **Massive Destruction**
   A large portion of Warsaw over 85% was destroyed during the war, including almost all historical buildings. Clearing the enormous amount of rubble (around 20 million cubic meters) was a major initial challenge.

2. **Economic Difficulties**
   Post-war Poland faced severe financial strain. Funding the reconstruction was difficult, and building materials were scarce. Recycled materials from the ruins were used whenever possible.

3. **Political and Ideological Pressures**
   There was a conflict between those who wanted to rebuild Warsaw as it was and Soviet suggestions to redesign it in a socialist-modernist style. Some historical periods, such as those linked to foreign occupation, were intentionally excluded from reconstruction.

4. **Lack of Skilled Labor and Resources**
   The destruction caused the loss of many skilled workers, architects, and artisans. Rebuilding required people with experience in traditional techniques, who were not always easy to find.
5. **Urban Infrastructure Damage**
   Essential infrastructure roads, water, electricity, sewage was in ruins. These systems had to be rebuilt before full reconstruction could begin.
6. **Displacement of the Population**
   Many residents were killed or deported during the war. When they returned, there was an urgent need for housing and services, which increased pressure on the reconstruction process.
7. **Preserving Cultural Identity**
   One major challenge was restoring the city's historic character and national identity while also meeting modern needs. The goal was to rebuild not just physically, but also spiritually and symbolically.

Conclusion: Key Lessons from the Reconstruction of Warsaw

- **The will of the people was fundamental**: The experience of Warsaw proved that public awareness and determination to restore their city were the decisive factors behind the success of the reconstruction.
- **Pre-existing documentation was essential**: Relying on preserved documents and photographs enabled a precise reconstruction of the city based on its original character.
- **Balance between heritage and modernity**: The city was rebuilt in a way that preserved its historical identity while integrating modern infrastructure to meet contemporary needs.
- **Sustainability and cost-efficiency**: Original materials were reused whenever possible, reducing costs and ensuring continuity of the city's architectural fabric.
- **National identity and collective memory**: The reconstruction of Warsaw was not just about rebuilding structures, but about reviving national spirit and restoring collective dignity after occupation.
- **Institutional planning and organization**: The creation of a dedicated reconstruction office helped to coordinate efforts and allocate resources efficiently.

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Section IV: Removing rubble and recycling it

4.1. Rubble Removal and Recycling in Gaza: Between Necessity and Opportunity

The process of rubble removal is the first and most critical step in any reconstruction effort after war, particularly in the Gaza Strip, which has witnessed extensive destruction of infrastructure and residential areas. Given the complex reality on the ground, this process is not only a technical task but part of a broader humanitarian, environmental, and economic project.

https://www.emaratalyoum.com/

4.1.1. First: Rubble Removal – Precision and Field Sensitivity

The process begins with a thorough field assessment to identify the most severely affected areas, while considering safety concerns, especially the presence of unexploded ordnance. Multiple actors are involved at this stage, including municipalities, civil defense, and UN organizations, all working to secure sites before heavy machinery operations begin.

Heavy equipment—such as bulldozers and cranes—is then deployed to remove the debris, often accompanied by preliminary on-site sorting to facilitate transportation and eventual recycling. The rubble is collected from streets and destroyed buildings and transferred to temporary storage areas or designated recycling centers.

4.2.2. Second: Recycling – Turning Debris into Resources

Once collected, the rubble enters the recycling phase, which is not only an environmental measure but also an economic and technical opportunity to reduce dependence on imported construction materials—especially in light of the blockade imposed on Gaza.

The rubble is sorted to separate metals and iron from concrete chunks. The concrete is then crushed into various gravel sizes using specialized crushers. The resulting material undergoes technical testing to ensure its suitability for reuse, mainly in road paving, landfilling, or as a base layer in non-structural construction.

https://www.emaratalyoum.com/

4.2.3. Challenges on the Ground

Despite its importance, rubble recycling in Gaza faces numerous challenges, including:

- **The Israeli blockade**, which restricts the entry of advanced machinery and equipment.
- **Weak infrastructure** and the limited capacity of existing recycling facilities.
- **High population density**, which complicates the allocation of space for debris storage or processing.
- **Lack of sustainable funding** for environmental recycling projects.

https://www.emaratalyoum.com/

One of the most significant challenges facing recycling efforts particularly in the aftermath of this war is the absence of advanced technological equipment and large-scale machinery, which are essential to handle the massive volume of destruction.

4.2.4. Opportunities Ahead

Nonetheless, rubble recycling presents real opportunities:

- **Reducing reconstruction costs** by using local recycled materials.
- **Creating local job opportunities** in debris sorting and recycling operations.
- **Strengthening self-reliance** and reducing dependency on imported materials.
- **Minimizing environmental pollution** caused by rubble accumulation in residential areas.

https://www.emaratalyoum.com/

This image shows the process of recycling rubble to produce concrete bricks. This method helps save on new building materials by reusing waste, which reduces costs and protects the environment.

This process is a good example of how recycling can be positive and effective in rebuilding damaged areas.

In conclusion, the process of rubble removal and recycling in Gaza is a pivotal step not only in eliminating the visible scars of war but also in building a sustainable recovery model. With political will and international support, this process can be transformed from a burden into a genuine opportunity to rise from beneath the rubble.

Section V: The project and the urban and city planning of the Al-Boura neighborhood

5.1. Introduction to the project

This project primarily aims to reconstruct the Al-Boura neighborhood in the city of Beit Hanoun through a comprehensive approach that considers all dimensions of the reconstruction process urban, social, environmental, and cultural. The project is not limited to the physical rebuilding of structures; rather, it presents an integrated vision that seeks to blend the preservation of local heritage with modern and contemporary architectural concepts. One of its core principles is the integration of traditional architecture with modern design in order to create a balanced built environment that respects the past while meeting the needs of the present and future.

Sustainability is also a fundamental pillar of this work. The project aims to achieve it through realistic design and implementation choices that consider the local environment and its natural resources, while minimizing the environmental impact of buildings, both in terms of materials used and long-term energy consumption and efficiency.

The project aspires to serve as a pioneering model that can be replicated across other areas of the Gaza Strip, acting as a starting point for a broader and more inclusive reconstruction of the region based on strong architectural and humanitarian foundations. This includes reviving the architectural heritage that has been deeply affected by rapid modernization and socio-political challenges, while re-establishing a genuine architectural identity that reflects the spirit of the place and its people. The project also aims to directly link architecture to human needs, maintaining a clear prioritization of those needs in everyday life.

Another essential aspect of this vision is the creation of harmony between natural building materials and modern human-made products that can enhance quality of life. In addition, the project seeks to revive traditional craftsmanship and artisanal skills, which can play a vital role in the reconstruction process and help create employment opportunities for a large number of residents in the Gaza Strip, especially given the region’s difficult economic conditions.

Considering the repeated wars and conflicts that Gaza has suffered over the past twenty years, the project also aims to design buildings that are more resilient and less prone to destruction in future conflicts, by adhering to structural standards that ensure the highest levels of safety and durability for inhabitants.

In short, this project is not merely a reconstruction plan for a single neighbourhood it is a comprehensive vision for sustainable, humane, and identity-driven rebuilding that can make a real difference in the future of the Gaza Strip.

5.2. The general concept of the neighbourhood's urban planning

Dividing the site into four sections based on the mechanical roads.

The public courtyards between the houses.

The winding and shaded pathways.

Providing commercial shops for the neighbourhood.

Attached houses.

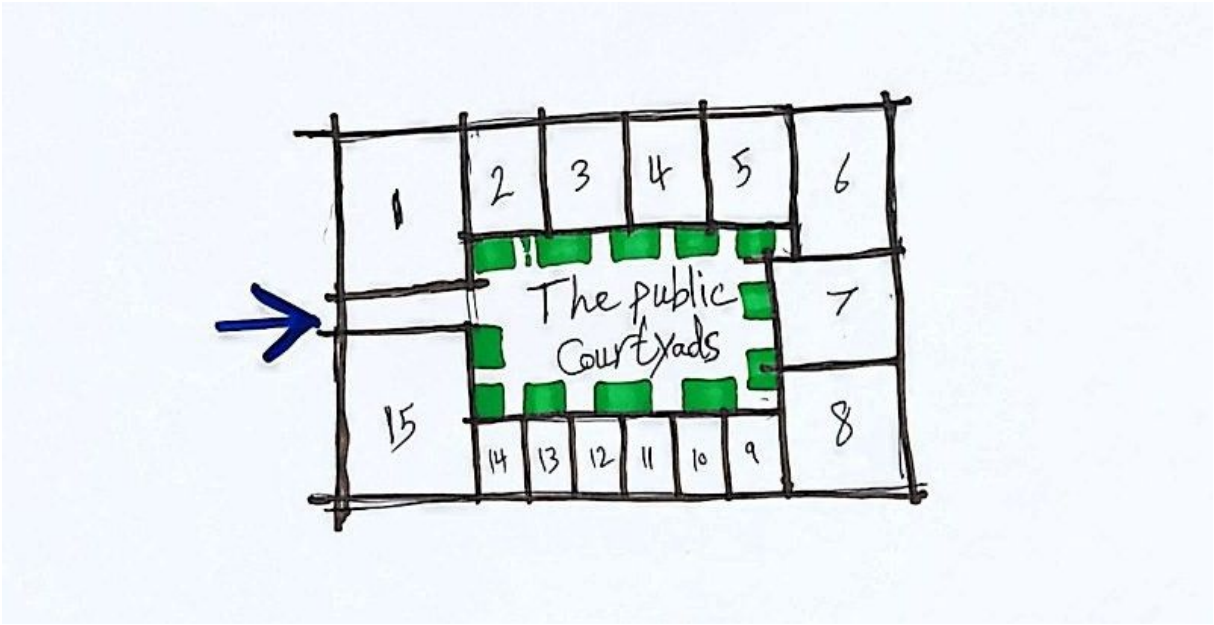
The inner courtyard of each house.

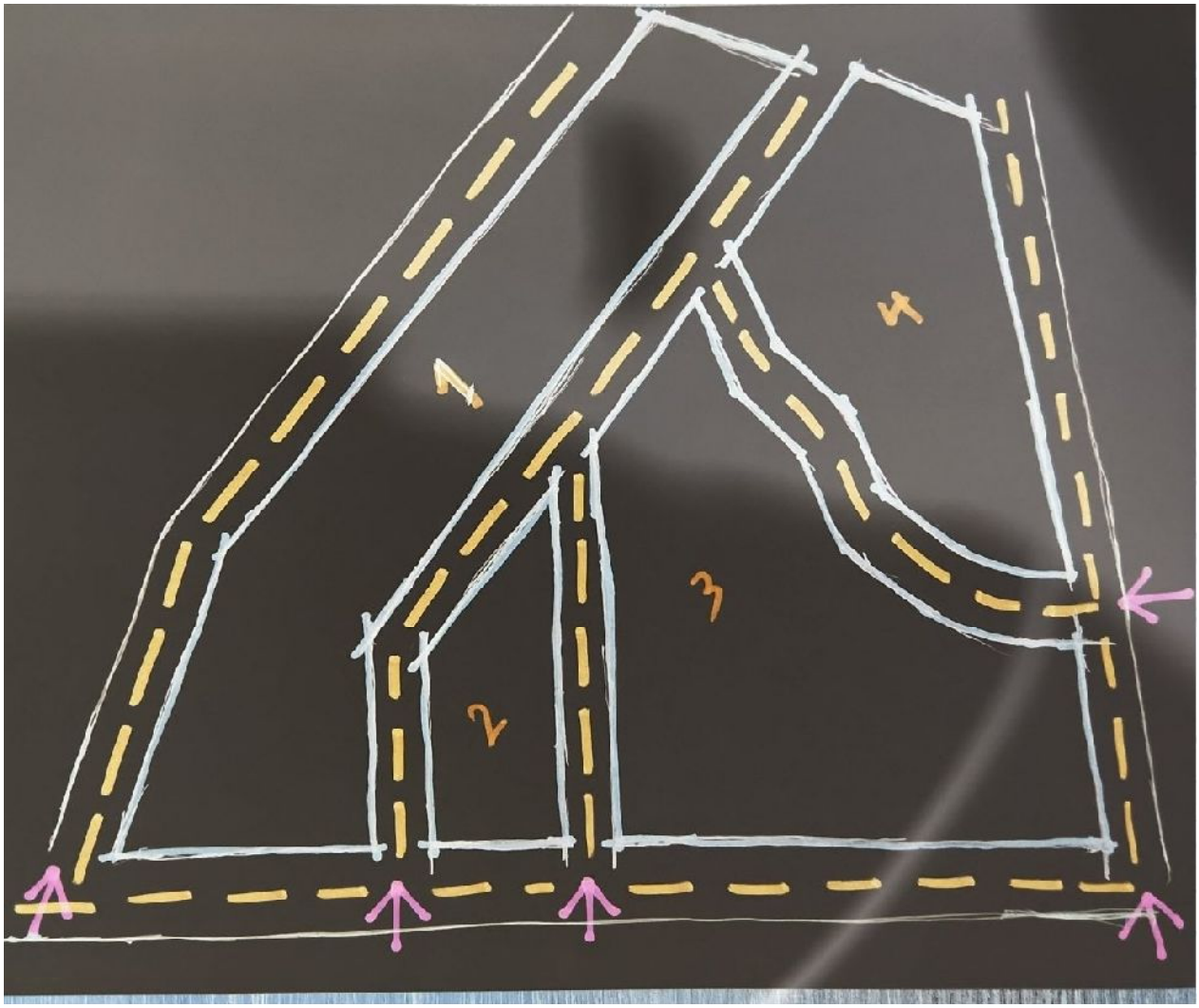
The mosque's centrality in the neighborhood (most roads lead to it).

Preserving the horizontal expansion of the neighbourhood.

The neighborhood as a single mass (uniform external appearance).

The mosque's minaret rises above the neighborhood's external landscape.

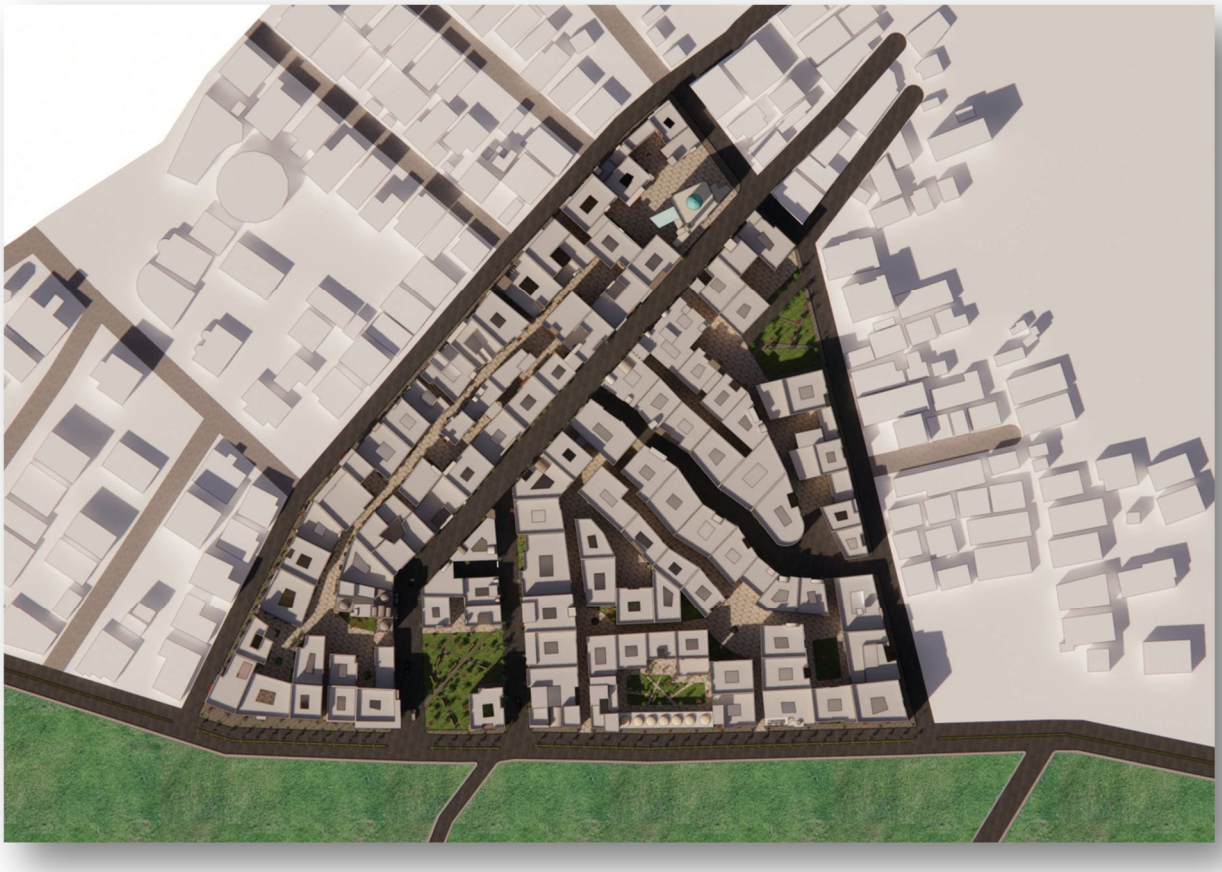




5.3. Site division and planning based on mechanical roads.

The site has five main entrances designated for vehicular (mechanical) movement, strategically distributed to facilitate access to various parts of the neighbourhood. In addition to these, there are several other pathways and entrances originally designed for pedestrians, but their strategic locations and sufficient width allow them to be used for vehicular access in emergency situations, such as for ambulances or fire trucks. This layout enhances mobility within the neighbourhood and ensures safety and quick response when needed.

5.4. The urban plan of the neighbourhood



Neighbourhood components :

Residential buildings 119

Mosque.

Commercial shops:

Supermarket.

Bakery.

Pharmacy.

Coffee shop.

Public gardens 2

5.5. Infrastructure

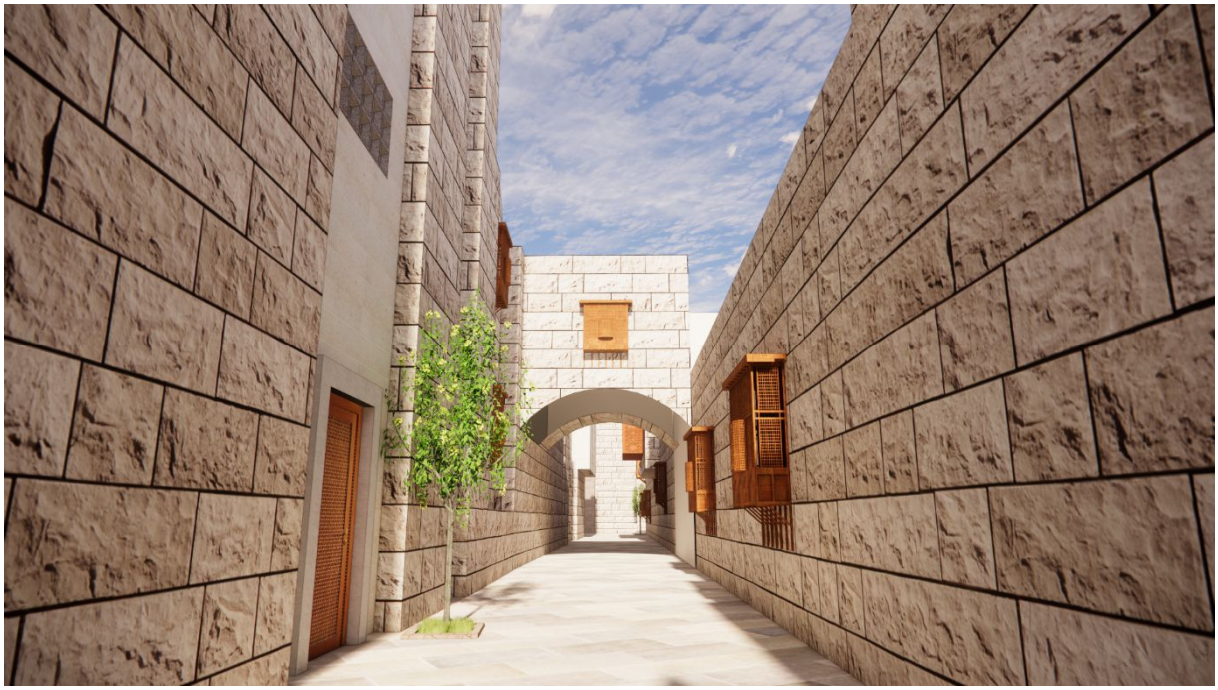
5.5.1. Pedestrian paths and shaded walkways

The concept of designing the internal roads in this project represents one of the fundamental pillars of the neighborhood's infrastructure. These roads were not treated merely as functional elements but rather as key components that contribute to enhancing the quality of life within the neighborhood on multiple levels. The winding and shaded pathways were carefully designed based on thorough environmental and architectural studies aimed at creating a more comfortable and sustainable urban environment.

The curved layout of the roads is not just an aesthetic or visual choice—it stems from a deep understanding of air movement and natural light within the site. These bends and turns help guide air currents more smoothly, which assists in naturally ventilating and cooling the area, especially in a hot climate, without relying on technological systems or additional energy consumption. This approach strongly supports the sustainability principle that the project seeks to achieve.

The shaded walkways were also designed in harmony with the heights of the surrounding buildings, creating a calculated relationship between the road width and building height. This ensures the presence of natural shading throughout the day, offering a comfortable walking experience and encouraging pedestrian movement without direct exposure to the sun, thus enhancing the livability and human-centered nature of the urban design.

In summary, the internal road design in this project not only serves transportation purposes but also acts as an effective tool for improving the local microclimate, promoting sustainability, ensuring physical and psychological comfort for residents, and establishing a distinct architectural identity for the neighborhood.



Infrastructure Plan 1

5.5.2. Public courtyards between the houses

Public courtyards between houses are vital elements in modern urban planning due to their multiple positive effects on the built environment and residents' quality of life. In the context of the Al-Boura neighbourhood reconstruction project, this model was adopted as a fundamental part of the design to achieve an integration of social, environmental, and structural functions.

From an environmental perspective, courtyards play an important role in enhancing neighbourhood ventilation by providing open spaces that allow free and regular airflow between buildings. This airflow promotes natural cooling, reducing the need for air conditioning or mechanical cooling systems, thus supporting sustainability and lowering energy consumption.

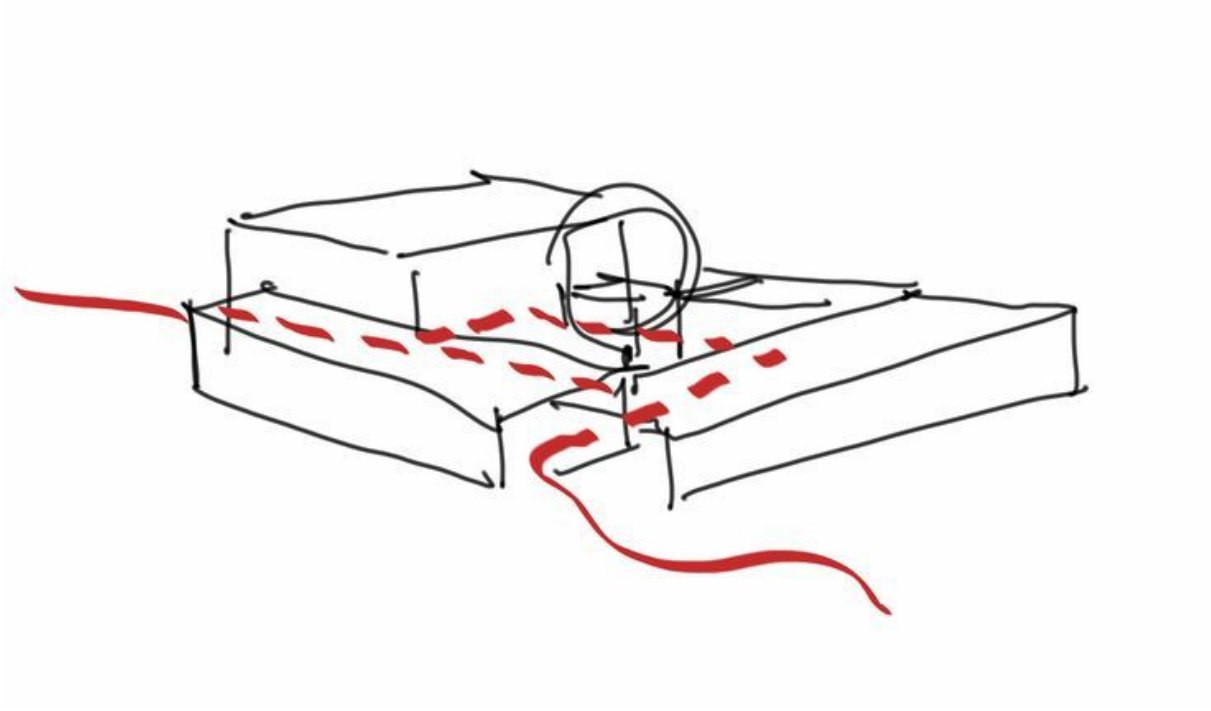
Socially, these courtyards offer shared spaces that bring residents together in a safe and protected environment, strengthening social bonds and community

interaction. They also provide children with safe areas to play and move around, away from busy or dangerous streets, which is essential in densely populated urban settings.

Structurally, courtyards help achieve greater privacy for surrounding buildings by preventing direct adjacency of façades and providing buffer distances that reduce noise and visual intrusion between neighbors. They also improve natural light penetration into buildings, increasing residents' comfort and reducing reliance on artificial lighting.

Additionally, these spaces can be utilized for planting greenery and trees, enhancing air quality and adding natural beauty to the neighbourhood. This creates a moderated microclimate that helps lower high temperatures during the summer.

In summary, public courtyards are not merely empty spaces between buildings but strategic design elements that combine environmental, social, and structural functions, forming an integral part of the neighbourhood's identity and quality of life.



Description of air circulation in this model.

A view of one of the designed inner courtyards in the neighborhood.

5.5.3. Providing commercial shops to serve the neighborhood

As part of the development of Al-Boura neighborhood, special attention was given to providing essential commercial shops that meet the daily needs of residents, such as grocery stores, a bakery, a pharmacy, and a café. This aims to enhance the neighborhood's self-sufficiency and reduce the need for residents to travel outside the area for basic services.

It is worth noting that the neighborhood was previously a purely residential zone, lacking any clear organization of commercial activities, with shops if any being very simple and randomly placed. This highlights the importance of integrating thoughtfully planned commercial activity into the new neighborhood design.

In addition, some spaces have been designated for privately owned commercial units, to serve as a future reserve in case there is a need to expand commercial activity in the neighborhood. This offers significant flexibility for future commercial growth and gives residents small-scale investment opportunities without compromising the overall residential nature of the area.

In summary, the idea aims to strike a balance between residential and commercial functions, in a way that serves residents' comfort and supports the neighborhood's economic and social sustainability.


SUPERMARKET
Bakery
COFFEE


COFFEE


MARKET

5.5.4. The three-dimensional form of the neighborhood after planning

When analyzing the three-dimensional form of the neighborhood after its redesign, we observe a clear visual harmony that suggests a fully integrated urban fabric. This unity does not come from total uniformity in every detail but rather from a general adherence to shared design principles, including:

1. **Consistent Building Heights**: The buildings have been designed with similar heights, creating a balanced visual rhythm and avoiding sharp contrasts in the urban skyline. This concept, known as *homogeneity of the skyline*, enhances a sense of stability and belonging.
2. **Unified or Compatible Building Materials**: Local and natural materials—such as stone, wood, and treated clay—have been chosen to harmonize with the surrounding environment. This reduces visual pollution and reinforces the principles of sustainability and local identity.
3. **A Shared Design Reference**: The architectural designs are based on common concepts, such as inner courtyards, arches, shaded windows, and flat roofs. These elements form the project's unified architectural language, contributing to a *cohesive architectural identity* for the neighborhood.

Despite this overall harmony, **architectural individuality** is not absent. Subtle differences appear in each building through:

- The shape and placement of window openings,
- Façade treatments,
- The layout of interior courtyards,
- The use of colors or light decorative motifs.

These differences reflect the cultural and social character of each family, giving the neighborhood **internal diversity without disorder**, and creating a rich spatial experience full of discovery for those walking through it.

In essence, the concept of *Unity in Diversity* has been adopted as a foundational design approach, allowing the neighborhood to appear as a cohesive urban mass from the outside while revealing depth, individuality, and human character within. This aligns with contemporary urban planning principles and human-centered architecture.

5.5.5. Urban façades of the neighborhood

5.5.6. The horizontal expansion of the neighborhood:

The Concept of Horizontal Expansion in Urban Planning:

Horizontal expansion in urban planning refers to a low-density development approach that emphasizes the outward spread of residential blocks rather than vertical stacking through high-rise buildings. This model is commonly found in traditional neighbourhoods, especially in hot and arid climates.

Its Application in the Neighborhood:

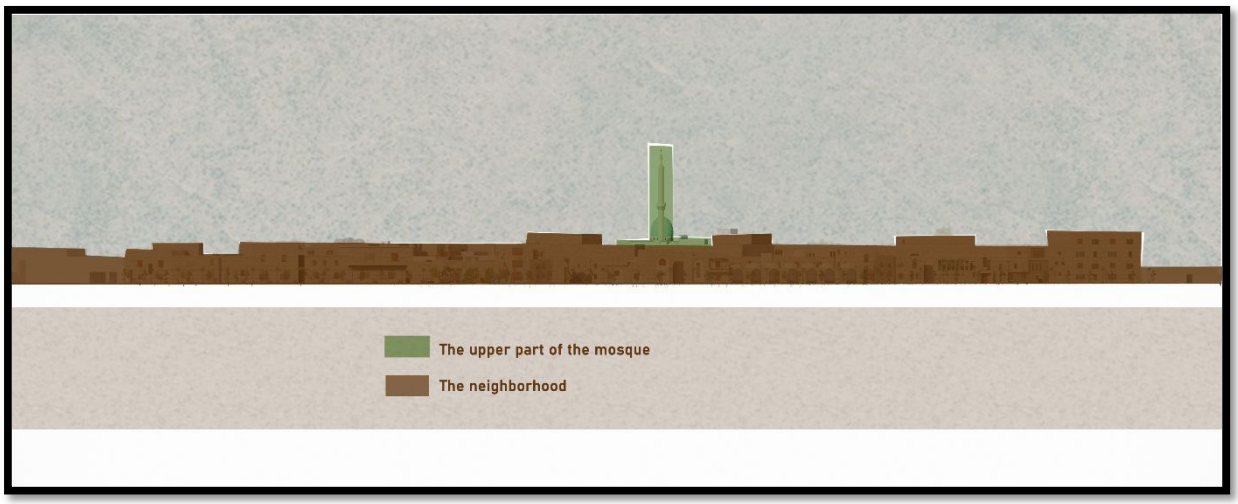
In the case of the neighborhood that underwent redevelopment, it was evident from the beginning that the existing urban fabric was characterized by low building heights, architectural uniformity, and the presence of in-between open spaces used as internal courtyards or public squares. During the redesign, this approach was preserved through:

1. **Limiting the maximum building height** to two or three floors.
2. **Designing housing units as horizontally attached structures**, reducing the need for complex vertical infrastructure.
3. **Relying on internal courtyards** to enhance natural ventilation and privacy.
4. **Controlling population density** to ensure a comfortable living environment aligned with this horizontal model.

Technical Benefits of Horizontal Expansion:

1. **Environmental and Climatic Comfort:**
    - Allows for better natural ventilation and reduces the urban heat island effect.
    - More green and open spaces contribute to improved air quality.
2. **Density Management:**
    - Reduces overcrowding within the urban fabric, facilitating easier movement and better service efficiency.
3. **Economic Efficiency:**
    - Lowers construction, operation, and maintenance costs—especially by avoiding the need for elevators and complex mechanical systems.
    - Less dependent on high-capacity infrastructure (e.g., high-pressure water systems or vertical transport systems).
4. **Social Sustainability:**
    - Encourages a stronger sense of community and social cohesion due to shared courtyards and walkable distances.
    - Preserves the traditional architectural character of the neighborhood, reinforcing local identity.

The mosque dominates the general view of the neighbourhood:



Highlighting the Upper Part of the Mosque as a Dominant Architectural and Cultural Element:

In architectural and urban design, selecting a prominent architectural element to define the visual identity of a place is a key principle in the planning of public spaces. In the case of this neighbourhood, the upper part of the mosque—including the dome, minaret, and upper architectural mass—was intentionally made the most visible and striking feature. This decision was not arbitrary, but driven by clear cultural, symbolic, and functional considerations.

1. Cultural and Symbolic Motivations:

- Enhancing the cultural identity of the neighbourhood:
  Making the mosque visually dominant adds a deep cultural character to the neighbourhood and reinforces Islamic and Arab identity in the visual memory of both residents and visitors.
- Reviving traditional architectural symbols:
  Historically, domes and minarets were iconic features of Islamic cities and visible from afar. Today, these elements are reintroduced not just for their religious role, but also as distinctive urban markers.
- Connection to heritage:
  Highlighting these features reflects a broader approach of heritage revival, where traditional architectural elements are reintegrated into modern urban fabric—not by copying them literally, but by reinterpreting them through contemporary design.

2. Urban and Architectural Concept:

- Establishing a visual identity for the neighbourhood:
  The upper part of the mosque becomes a visual landmark within the urban layout. It helps in orientation, gives character to the place, and distinguishes the neighborhood within the larger city.
- Harmony between heritage and modernity:
  In this approach, heritage elements are not isolated from contemporary architecture. Instead, they are integrated in a way that respects traditional aesthetics while making use of modern technologies—such as architectural lighting, updated materials, and carefully studied proportions.

3. Social and Psychological Impact:

- **Strengthening the sense of belonging:**
  When the mosque is visually accessible from various parts of the neighbourhood, it becomes a shared symbolic reference point for the community, enhancing social cohesion.
- **Positive psychological effect:**
  The presence of a culturally and spiritually meaningful visual marker contributes to a sense of comfort and spatial security among residents.

Materials used in construction:

Regarding the materials to be used in the reconstruction process, the following points are clarified:

1. **Recycling rubble:**
   The rubble from the demolished houses will be recycled and properly incorporated into the reconstruction, while considering that the use of recycled materials will be limited.
2. **Primary materials:**
   The reconstruction will mainly rely on two primary materials:
   - **Natural stone**, which is well-known in Palestine and forms the main building element.
   - **Wood**, which will be used extensively for making windows and doors.
3. **Secondary materials:**
   Additionally, materials such as **concrete** and **steel** will be used as supporting and secondary materials in the construction process.

Reasons for choosing natural stone:

- **Durability and Strength:**
Natural stone is highly durable and strong, capable of withstanding various climatic conditions and structural loads for long periods.

- **Thermal Insulation:**
Stone has good thermal insulation properties, helping to maintain moderate indoor temperatures, reducing the need for air conditioning, and increasing occupant comfort.

- **Sustainability and Environment:**
Stone is a natural and renewable material. Using locally sourced stone reduces the need to import other building materials, lowering the carbon footprint and promoting sustainability.

- **Local Availability:**
Palestine, including the Gaza Strip, has abundant natural stone of known quality, which reduces transportation costs and supports the local economy.

- **Aesthetic Appeal:**
Natural stone gives buildings a traditional and aesthetic character that reflects the cultural and historical identity of the area, enhancing the sense of belonging.

- **Fire Resistance:**
Stone is fire-resistant, increasing building safety and reducing fire-related risks.

- **Low Maintenance:**
Natural stone requires less maintenance compared to other materials like brick or wood, reducing long-term costs.

- **Resistance to Moisture and Erosion:**
Certain types of stone, such as limestone, have good resistance to moisture, minimizing problems related to dampness, especially in coastal areas.

- **Compatibility with Architectural Heritage:**
Using stone aligns with the traditional architectural style of the neighborhood, preserving its architectural and cultural identity and enhancing the continuity of the urban fabric.

The Ease of Using Natural Stone Compared to Concrete and Its Role in Accelerating Reconstruction and Achieving Sustainability

In the context of reconstructing Al-Boura neighborhood in the Gaza Strip, the choice of building materials is critical—not only from an engineering standpoint but also considering political, economic, and logistical challenges. This is where the advantages of **natural stone** become evident compared to materials like **reinforced concrete**.

1. Political and Logistical Dimension:

Concrete is considered a “dual-use” material by the controlling authorities, which means it is often subject to strict restrictions when entering Gaza. This leads to:

- Delays in reconstruction projects lasting weeks or even months.
- Increased costs due to complex coordination and transportation procedures.

In contrast, **local natural stone** does not face the same level of restriction. It can be sourced locally or from nearby areas with relative ease, which allows for:

- Faster reconstruction timelines.
- Reduced dependency on border crossings and external political decisions.

2. Supporting Local Production:

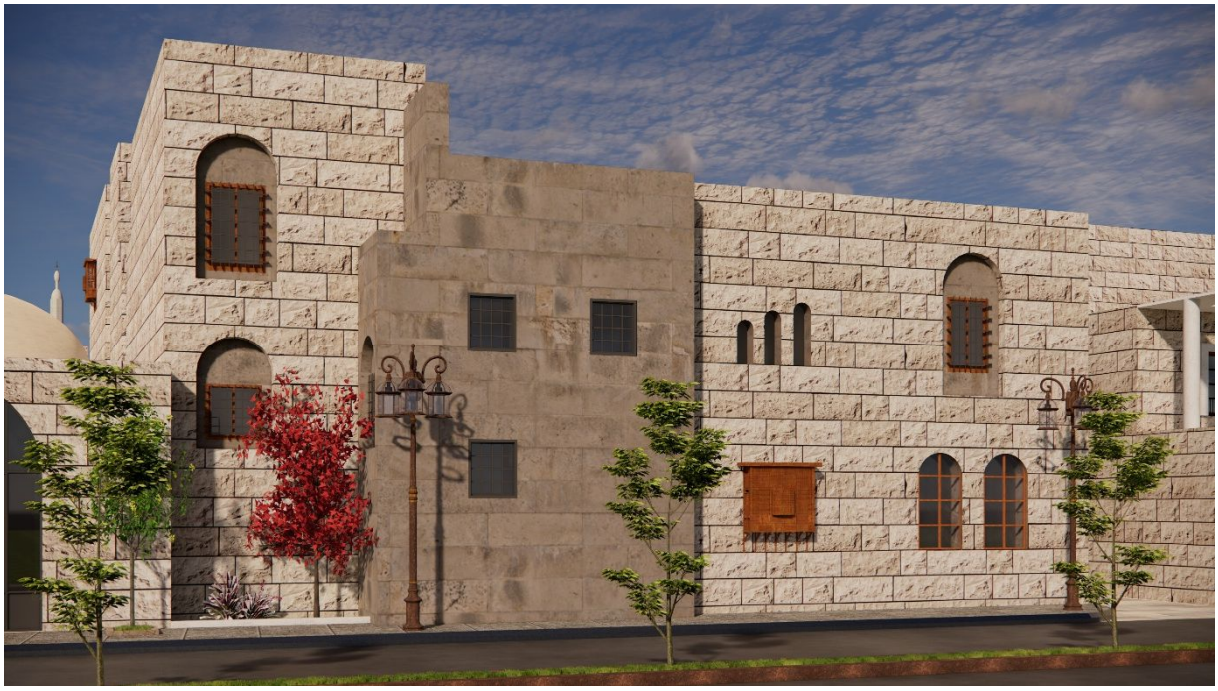
By using Palestinian natural stone:

- We support local quarrying and stone industries.
- We create job opportunities in extraction, transport, and manufacturing.
- We enhance architectural and economic self-reliance.

3. Achieving Multi-dimensional Sustainability:

- **Architecturally:** Stone aligns with traditional urban identity and enhances the longevity of buildings.
- **Economically:** Costs are reduced due to fewer delays and lower import dependency.
- **Culturally:** It preserves the traditional architectural character of the neighborhood.
- **Temporally:** It saves time by bypassing bureaucratic and political obstacles.

Therefore, the use of natural stone is not only a technical or environmental decision—it is a strategic choice that takes into account the complex realities in Gaza and contributes to fast, efficient, and sustainable reconstruction.



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