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## Preservation of Urban Fabric: Towards Sustainable Development of Tarim City in Hadhramout Valley, Yemen

Anwar Ahmed Baeissa\*

### Abstract

The Old Hadhrami Cities such as Tarim are famous for many luxurious palaces whose buildings integrated both the Hadhrami architectural original style and the Asian one. Thus the use of local construction materials in the city's luxurious palaces made of mud clearly indicates the concept of active participation of the inhabitants in determining the quality of the architectural heritage which emerged from their social and cultural traditions and customs. This special use of local construction materials in buildings gives the city a distinguished position among other cities in the region. The present study aims at highlighting mainly the source of available facilities of urban development as well as the preservation of the city with regard to the available land space for sustainable development and the possibility of including some new services and projects to meet the needs of inhabitants. The large number of mosques, clay houses and religious schools in Tarim, all these buildings together, constitute a unique identity in the architectural construction in the city which appear clearly in the availability of a network of main and secondary roads located in the city under study. Further, the study aims to find out if it is possible to link the palaces in Tarim with other surrounding buildings in the area of the city through the suggested roads and passageways there. Finally, the study seeks to investigate the instructions and guidelines necessary for the city's sustainable development through making use of the empty spaces and areas which may be useful for the meeting of the city's visitors. All these supporting facilities are necessary for the urban renovation of the city under study for they might help in improving the economic situation for this region. Moreover, they might provide the city with the necessary services as well as connecting it with the other surrounding regions for the sake of tourism investment as an alternative for the crafting and industrial ones in the heritage environment. The city inhabitants' increasing awareness of the heritage environment supports the preservation of those historical cities and as a result, encourages the inhabitants to settle in that area.

**Keywords:** Preservation, Urban fabric, Sustainable Development, Architectural Heritage, Rehabilitation.

### Introduction:

Tarim City is characterized with the quality of its unique and distinctive architecture. This is not limited to the large number of mosques and famous palaces, but it also includes houses, schools, forts, fences and the outstanding decorative gates. Tarim has witnessed urban development since the twelfth century after Hijrah, accompanied by the construction of luxurious homes and mansions built by affluent people. The urban construction of Tarim dates back to about three to four hundred years. The most important characteristic in the city is its (physical fabric) and architecture, which still retains its full features. The buildings preserve their identity and reflect the socio-economic relation. Studying the case of Tarim city gets great interest due to the diversity of the aesthetic values and various elements in the buildings of the city. These different elements feature techniques and the principles of Integrated Architecture. The heritage palaces of Tarim have attracted international bodies for preserving the

architectural heritage such as UNESCO [6].

However, the palaces and their urban surrounding are still neglected. There is a need for urban renovation and rehabilitation programs in order to be preserved and converted into areas of attraction for investors. Also, the city needs to be developed economically by its inhabitants to ensure the continuity of its heritage. Yet, the inhabitants' living standards need to be raised in the first place to stimulate their contribution in the economic development of the City.

The City of Tarim has witnessed urban movement of different features during the past century that no any other city in Wadi Hadhramout had experienced. The primary building material is clay. Pondering over the reality of mud-brick architecture in Tarim, it is worthy to present the clay buildings, urban fabric and its different features of resistance against today's variables and the needs of the future.

### Problems and Obstacles of Architectural Potentials and Urban Development:

Urban features of the palaces in Tarim have been documented. The main problems and obstacles to urban development have been pinpointed and the potentials and resources have been identified. The key results can be deduced as the following:

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- One of the potentials for the development is the presence of empty spaces in the city. They can be used for introducing projects, services, and urban renovation. Heritage palaces are situated in close proximity to form an entity. There is a network of main roads and streets, so heritage palaces can be linked with the outer surroundings of the city through sidewalks. Lastly, there are squares and spaces for visitors' gatherings.

- Another potential lies in creating an opportunity for self-effort stimulation to contribute to the development of projects and renovation of heritage palaces. A third potential for development is accommodating the future services and projects suggested inside and outside the borders of the area of study. The study shows that there are huge empty spaces of land within the urban areas (about 49% of the area's total size). This space can be exploited for urban renovation and touristic development.

- One of the serious obstacles for urban development of the City is the increasing rate of construction inside the borders of the City and in the outskirts. Further, multiple unplanned expansion and sprawl buildings threaten the available spaces of land that can be utilized for urban development. There are scarce or very limited urban spaces around the heritage palaces that hamper visual communication. The area around the palaces lacks public services that can serve tourism sector. Another problem is that some residential buildings need to be restored or they can be removed.

- The spread of urban sprawl on agricultural land or empty spaces demonstrates a real threat for the city at a time of increasing demand for residential lands. There is even a lack of urban planning to exploit the available spaces inside urban areas. Further, many other variables complicates the urban development for the City including insufficiency of services to meet future demands, absence of planning regulations, and the possibilities of fire incidents without the capacity to control it.

#### **Aims of the Study:**

The study aims at exploring the features of Tarim City, particularly its heritage palaces it presents design-alternatives for urban an renovation project and rehabilitation of the area based on the diagnoses of the problems, influential variables, and the available potentials. The paper's overall aim can be achieved through the secondary aims

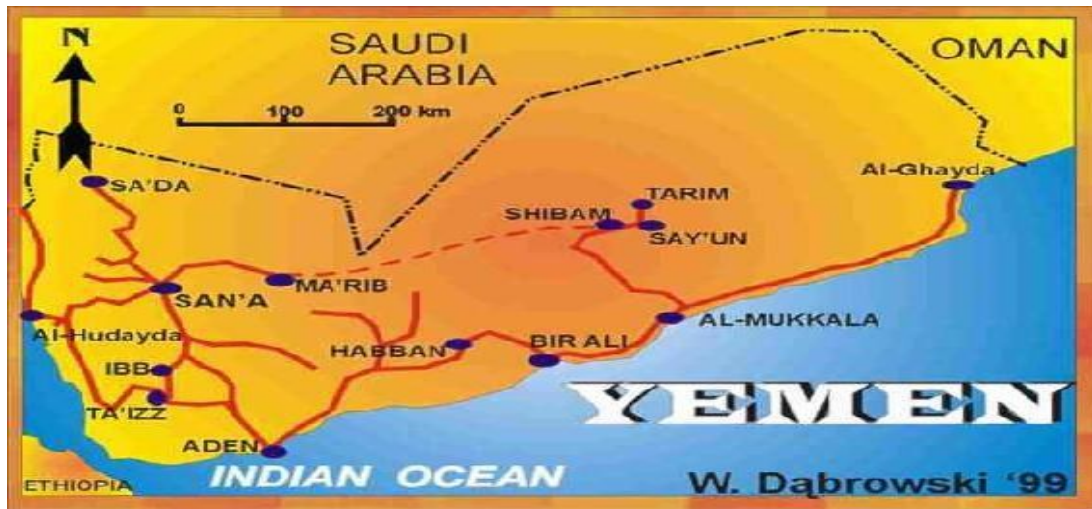
of developing the area economically, providing suitable services, architectural renovation, and revitalizing the palaces area in the City of Tarim to become a tourist attraction.

#### **Methodology of the Study:**

The study documents the features of the City, obstacles, and potentials for development that can be considered in the urban and architectural solutions. Three design-alternatives have been presented for the City under investigation. The alternatives take into account the components of urban renovation project based on the obstacles, potentials of development, goals and policies of the outline of the urban renovation. The outline of the palaces area specifies the design-alternatives and it comprises a conservation scheme. It features sustainability and identifying the facilities to be incorporated and suggesting ways of utilization of the rehabilitated heritage palaces in the region.

#### **Location of Tarim City:**

Tarim is situated in the east of Hadhramout Governorate; close to the center of Valley of Hadhramout (Figure 1). Its total area is 2894 km<sup>2</sup>. It is located thirty-four km eastward of Seyion District and at a latitude of sixteen degrees north of the equator and at forty-eight degrees longitude. It is situated on a junction of a main road and it has a network of roads that connect the different areas of Tarim City to the capital of the Hadhramout. Tarim landscape features flat surface plains surrounded by mountainous chains from both the north and the south. The surface also features a number of dry valleys flow down the plateaus of Hadhramout. *Adem* valley flows down the southern plateau and *Thibi* and *Alkhon* valleys flow down the northern plateau. These valleys flow down the mainstream of Wadi Hadhramout and in the plains of Tarim City where urban communities, agricultural landscape, heritage and religious monuments proliferate. Tarim City is one of the oldest cities in Wadi Hadhramout. It was the capital of kings of *Kindah* family. During the Islamic reign, it became a hub of science and culture. The history of Wadi Hadhramout dates back to the Stone Age and several civilization inhabited it ever since up to the present. The population of Tarim was about 105,552 in the census of 2003 with a population density of 36 individuals per square km.



**Figure 1: Map of Yemen**  
 Source: Google Earth

**Foundation and Development of Tarim City over History:**

According to Taj Alaroos by Murtadha Azzabidi, Tarim was named after its founder Tarim Bin Hadhramout. Historians confirm that Tarim was established in the fourth century BC. It was also said that the City of Tarim was established during the era of Shabean rule to Hadhramout and it was named after one of the sons of Sheba

the junior or named after a name of a tribe from Tarim. Tarim (Figure 2) was affected by several historical incidents and the most important of what has been documented was mud-brick architecture [2]. Reflecting on the history of the clay building in the last century, it is noticeable that expansion of the city has influenced clay architecture. Urban expansion in the City of Tarim can be divided into three main phases [1]:



**Figure 2: Illustrate the Growth of Tarim City**  
 Source: Google Earth

**Phase One:**

The beginning of the first phase of urban expansion dates back to the last decades of the 19<sup>th</sup> century up to the second decade of the 20<sup>th</sup> century. In this phase, Tarim was a small walled city, where gates used to be closed right after sunset i.e. Tarim Old City. The clay buildings at this time were not dissimilar to other residential societies in Wadi Hadhramout such as Shibam and Seyuon.

**Phase Two:**

The City of Tarim witnessed architectural expansion inside the walls of the city due to Hadhrami migration from Southeast Asia. Many families purchased lands as a result of accumulative economic activities. This phase begins in the end of the second decade of the 20<sup>th</sup> century up to the 1960s after the independence of southern part of Yemen in 1967. The second phase features emergence of new neighborhoods such as As'heil, Alnoiderah and Mahiadharh neighborhoods. Also, some majestic palaces were constructed in the second phase such as Al-Kaff, eg .Mr. Abu Bakr bin Sheikh Kaff's mansion. It was during this phase that *Almehdhar* Minaret was built as the first clay minaret square in shape [3].

**Phase Three:**

It begins in 1969 and stretches up to the present day. The third phase features decrease in expansion of construction movement and limited emergence of buildings after the independence in 1967, especially in 1969 up to the end of the 1980s. Construction of palaces ceased in the third phase. Further, some palaces deteriorated due to misuse and inhabitants' lack of maintenance during the rule of socialist party to southern Yemen. Emergence of concrete buildings was a negative characteristic in the third phase of the history of clay architecture in the City of Tarim. This phenomenon influenced the general style of clay architecture. It reflects the total lack of understanding the importance of conserving the unique architectural style of Tarim. The third phase also witnessed intense wave of expansion outside the walls of Tarim Old City in the 1980s. It featured sprawling and unplanned construction of some new residential

areas such as *Aideed*, *Tarbah*, *Damon*, *Bagelghan*.

While studying the changes that occurred in clay architecture in the City of Tarim over the last one hundred years, it is evident that they transpired in waves of urban expansion. The following are the most significant changes:

**Social Effects:**

Immigration of Hadhramis to Southeast Asia brought about immense effects. For instance the architect *Alwi bin Abi Baker Al-Kaff* was the only mastermind character behind the construction of palaces and mansions in Tarim City. He was inspired by the common style of architecture in Southeast Asia. The most imminent change in clay architectures while designing residential buildings was the suntrap. It is a slot in the center of the building for the purpose of ventilation and light. Usually, suntraps are designed to ventilate the upper floors, rather than the ground floor.

**Economical Effects:**

The economic effects play a vital role in expansion of construction. As a result, mansions and palaces emerged; defense of cities was fortified; the first modern hospital, Tarim Hospital, was built with advanced equipment. The first public school was opened; the first dam in Hadhramout was found, *Al-Nagrah* dam not far from Gasam village. The catalyst for this economic prosperity was affluent families in some different phases.

**Political Effects:**

Political upheaval and conflicts between fighting tribes lead to political instability. As a result, they negatively affected clay architecture. Political incidents included the establishment of the two sultanates of *Al-Qaaiti* and *Al-Kathiri* in Hadhramout, the aftermaths of the two world wars, Oct. 14, 1963 revolution, and independence of southern Yemen.

**Architecture of Tarim City:**

Clay architecture has been very common in Tarim and this is considered a unique architecture. Tarim City houses about 59 well-known, historical, and religious sites, on the top of these sites comes the site of the majestic palaces for which Tarim is famous, in addition to about 365 mosques [6], the most famous of which is *Al-Mohdhar* Mosque (Figure 3).



**Figure 3: Al-Mohdhar Mosque in Tarim City**

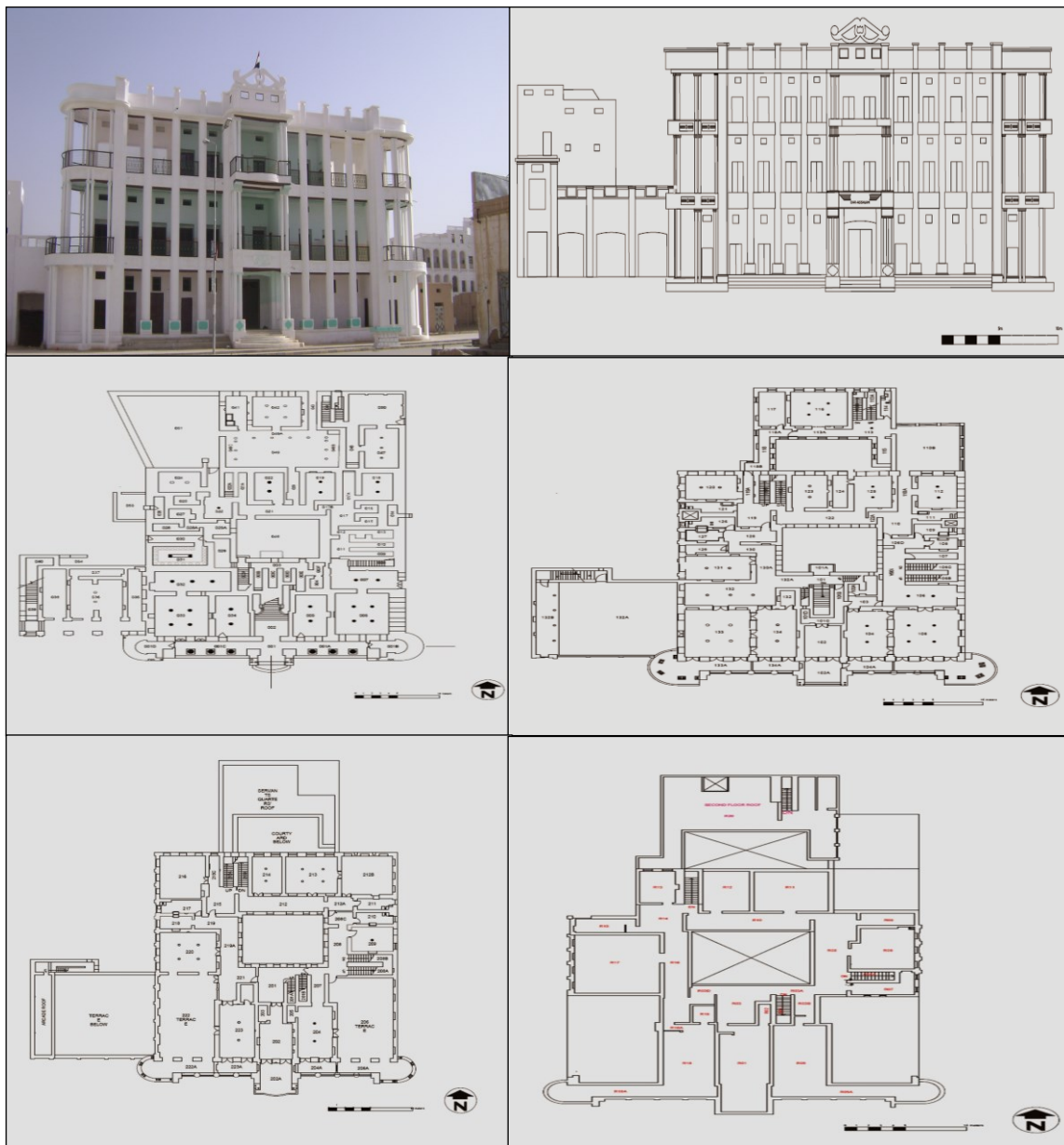
**Source: Author**

In Tarim, clay architecture was affected by the social and economic relationships in the first part of the 20<sup>th</sup> century. Social disparity increased due to class variations and existing economic variables. The social disparity became evident and class variations were reflected in clay architecture too. A new architecture for the elite of the social class emerged, which can be considered as a new identity for the genuine Hadhrami personality. The locations of resorts and palaces were separate from the urban fabric making common residential buildings alienated, while they used to form connected groups of residential buildings. Tarim is rich with luxurious palaces that combine Hadhrami and Asian style of architecture. Architectural style of palaces in Tarim is distinctive with multiple aesthetic effects, decoration of colors, and shapes of borrowed facades from Asian architecture (Indonesia, Malaysia, and India). Further, Hadhrami architectural style involves some Greek and Western touches. The palaces of Tarim are three to four-story buildings. Palaces founded by Al-kaff family are outstanding monuments in the history of architecture of Wadi Hadhramout. They differed from other houses as they had gardens, spacious and they were single designed from other connected houses in the old neighborhoods of Tarim. Alkaff's palaces are distinctive for open and single-design, detached from the regular connected houses. There are about 31 heritage palaces designed and built by builders native to the City of Tarim using the common mud-bricks, the primary material of construction, known in Wadhi Hadhramout as

'*madar*'[5]. The use of local clay materials in building the magnificent palaces is considered an effective participation of the natives in determining their lives. As a result, Tarim City gained a special position. Exploitation of local resources has created a self-adaptive architectural style. Clay architecture is common in Wadi Hadhramout. However, due to the indigenous builders' achievements, Tarim City has unique clay architectural style and innovative painting plasters for clay buildings using lime, known as '*noorah*'[4].

#### **Restoration of Heritage Palaces:**

Due to the historical position of Tarim City, it is qualified to become a center for visitors from all over Yemen and from different corners of the globe. The project of urban renovation is convenient to market the city's historical values and to find relations that stimulate documentation movement and an enhancement for innovative, cultural, intellectual, and architectural work (Figure 4). The urban project is capable of conserving notions, architectural processes, and clay architecture for the future generation. Restoration and rehabilitation of heritage palaces in the region is one of the main goals of the urban renovation project. Economic revenues of the project can contribute in providing the necessary fund for periodic maintenance of the palaces and the urban surroundings. Conservation of Al-Kaff palaces is important because they make unique architectural style originates from a special historical, social and political period of Tarim [3].



**Figure 4: Clay Palace (*Dar- Assalam*) in Tarim City**

Source: Author

**Design-Resolutions for Enhancing Urban Fabric of Tarim City:**

The Design-resolutions for enhancing the area of study are based on treating the heterogeneity and architectural pollution of traditional buildings. It involves exploring the capabilities of merging the buildings into the surrounding through rehabilitation; at the same time preserving their historical identity. During the conservation processes, inhabitants’ cultural background and the economic advantages should be taken into account. The urban renovation project should

create jobs for small self-employed businessmen. The following are the most important proposed design-solutions:

The old areas of Tarim City inside the walls require efficient infrastructure services. During renovation process, the city should be easily accessible and a certain architectural style should be imposed. Generally, the community needs to be educated on the importance of conservation of traditional areas; and how to exploit them properly.

Renovation aims at bringing about a thriving living style and urban environment for

inhabitants, self-employed and visitors where people practice daily life patterns in a secure and attractive surrounding. Renovation, also, aims at conserving the traditional pattern of environment and makes it the basis of growth.

The City of Tarim can be developed at architectural level through the implementation of the following points:

- A gate should be established because Tarim used to be a walled-city with a number of gates.
- The heritage palaces area should be developed. A great care should be given to the coordinating components of the heritage site. The components should be distributed over tourist sidewalks for visitors.
- Heritage palaces should be restored and rehabilitated in tandem with developing the badly affected buildings.
- Sidewalks and emergency services should be designed.
- The available empty lands should be exploited by establishing some required urban and architectural components for the renovation project.
- A manual of urban and architectural design should be written. It should include regulations and directions for the buildings in the heritage sites.

#### **Design-Alternatives for Developing the Area of Palaces in Tarim:**

The design-alternatives depended on an array of goals based on how the method for the alternatives was set.

The palaces area of Tarim should undergo exhaustive renovation. The area should be marketed domestically, regionally, and internationally to become a distinguished tourist destination. The distinctive identity of heritage architecture and the social fabric should be conserved, utilized and merged with daily life of Hadhramis. In addition, social, cultural, economic and architectural dimensions should be reinforced through the following mechanisms:

1- Palaces should be put in daily use after their rehabilitation to demonstrate their benefits and technical and vocational dimension. The City of Tarim should continue to be a cultural symbol communicating the identity of urban city.

2- A coherent architectural fabric should be created. It should be connected and consistent with the local social requirements; taking into account the local architectural culture in terms of its spatial, urban and architectural shape.

3- The economic situation should be enhanced and services should be augmented. The region, also, should be connected with the surrounding areas, as it is a significant tourist center, which is considered an alternative to industrial investment, and handicraft investment.

4- Inhabitants of heritage area need to raise their awareness about the significance of their region as a heritage area that should be conserved, so they would settle down.

5- The urban renovation project should bring about integration amongst empty spaces, their suggested functions, visual pollution, and the urban surroundings.

6- The urban and architectural components need to be fully utilized. The purposes of using land in the City of Tarim should be integrated along with purposes outside the city.

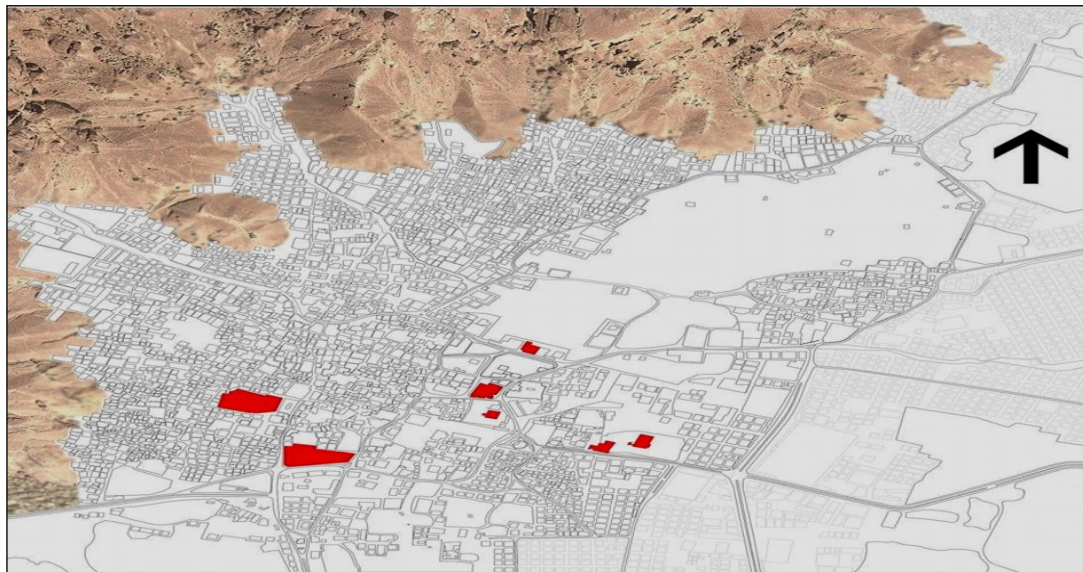
7- The location and demarcation of the area of study should be documented. The undesirable empty spaces should be utilized, so the City of Tarim serves the urban role of the region.

8- The available important components in the region should be preserved. Heritage buildings should be developed. The existing components and newly constructed ones should be conserved. The available courts should be qualified and new urban squares should be created.

#### **Proposing and Interpreting Three Design-Alternatives for Urban Renovation Project for the Palaces Area:**

We should identify permanent components to evaluate the three alternatives giving each one the relative weight, so that we can select the most likely alternative (Figures 5,6).





**Figure 5: Illustrates Proposals of a Design Proposal for a Project for Urban Renovation**  
 Source: Google Earth



**Figure 6: Illustrates Sites of (Dar-Assalam, Hamtot and Esha) Palaces in Study Zone**  
 Source: Google Earth

**Principles and Criteria of Design-Alternatives:**  
 Three design-alternatives have been considered based on the principles of (a) economic dimension (b) social dimension (c) tourist dimension and (d) developmental dimension, and (e) the main

components of the project. Whether the components are newly constructed or already existing ones need to be incorporated. (Figure 7). The following account present the three design-alternatives (*Dar-Assalam, Hamtot* and *Esha*):



**Figure 7: Illustrates Principles and Criteria of Design Tree Alternative in Area of Palaces Source: Author**

**The first alternative, comprehensive development:**

The solution presented in this alternative is conserving all the existing buildings on the site and introducing complementary services, except for the ruined buildings. These services bring about integration of social, cultural, and economic activities. The first alternative also emphasizes that the open spaces on the entire site should be strengthened, and linked to the heritage palaces by sidewalks. The hierarchy of the spaces, squares and of sidewalks should be taken into account.

**The second alternative economic investment:**

The solution in this alternative argues to create sidewalks by removing some buildings and connecting the heritage palaces with these sidewalks and the surrounding squares and spaces. The solution also involves creating economic activities that support the area of study depending on the heritage and tourist monuments.

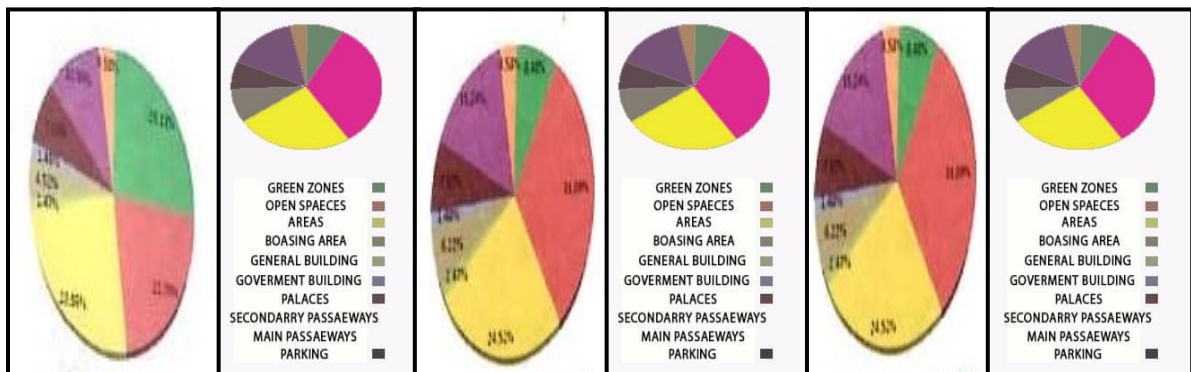
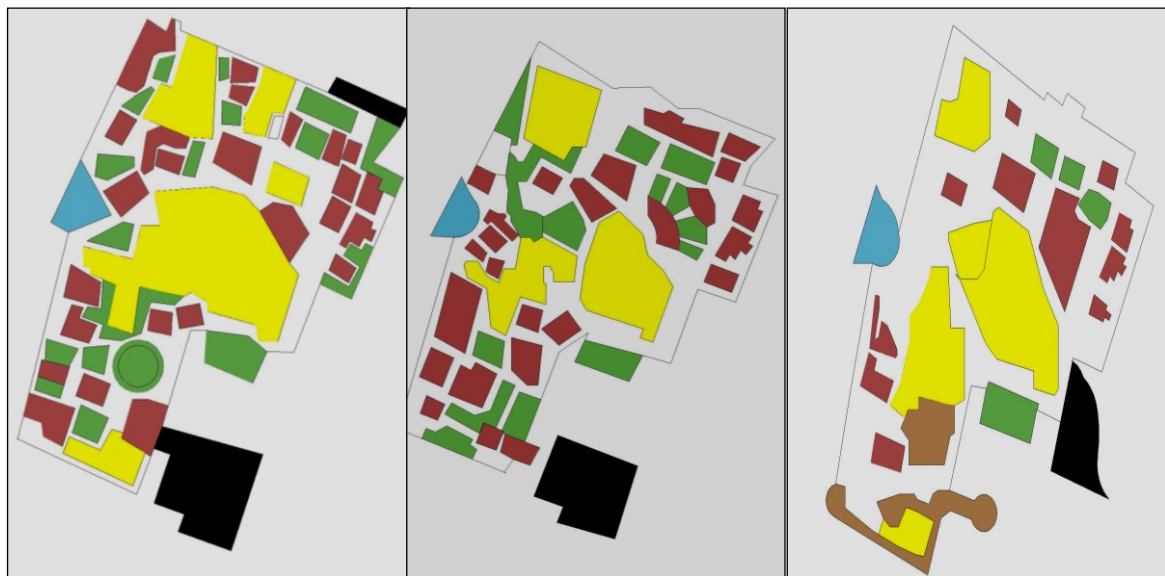
**The third alternative tourism and heritage:**

The proposed solution in this alternative urges to define the traffic tracks and the blocks

surrounding these tracks. The urban blocks surrounding the heritage palaces should not be affected. The solution also comprises the spatial coherence of the components and the functions for the urban composition. In other words, the contents of the heritage site need to be interconnected, the palaces, the traffic tracks, and squares and their usages.

**Evaluation of Alternatives:**

The design-alternatives of the urban renovation project have been evaluated. The main components of the evaluation process have been defined based on three variables (a) conditions and data of the site, (b) the problems surrounding the heritage sites, and (c) relative weight, (Figure 8) for each component commensurate with its importance as well as its hierarchy among the entire components of the community. Based on these criteria the prospective design-alternative along with its different components are determined (Table1) [7]. As the Table demonstrates, the first design-alternative is the most likely to be selected because it got the highest number of points in the evaluation process (92 points) depending on the agreed relative weight.



Scheme of land use in the First Alternative

Scheme of land use in the Second Alternative

Scheme of land use in the Third Alternative

**Figure 8: Alternatives Schemes of the Land Use for the Development of Palaces Area in Tarim City**  
 Source: Author

**Table 1: Evaluation of Design-Alternatives for Urban Renovation Project of Palaces Area in Tarim City**

N	Elements for evaluating Alternatives	Relative Weight	1 <sup>st</sup> Alternative	2 <sup>nd</sup> Alternative	3 <sup>rd</sup> Alternative
1	Percentage of removing the buildings surrounding the heritage palaces in the selected urban fabric.	15	14	8	10
2	Realism in the design for implementing the renovation project in reality.	10	9	6	7
3	Achieving social, cultural, economic & tourist dimensions.	10	8	7	7
4	Urban shape, coherence and integration with urban fabric of the region and the surrounding.	10	9	8	9
5	Achieving the functional purposes of the program.	10	10	9	10
6	Connecting sidewalks, traffic, and urban blocks with the entire site.	15	14	10	12
7	View of the heritage palaces over the sidewalks, traffic, squares and open spaces.	10	10	8	9
8	Hierarchy of open spaces and researcher's confirmation of sequencing spaces in buildings.	10	9	7	5
9	Harmony of urban spaces and their relations to visual marks and the urban surrounding.	10	9	6	7
Total		100	92	69	76

**Potentials of Prospective Alternative for Achieving Goals and Policies of Development:**

The prospective design-alternative was capable of accomplishing the following goals and policies:

The design-alternative has accomplished integration between the region and its urban surrounding through rehabilitation of these regions. The prospective design-alternative has rehabilitated the heritage areas ; it has provided services and it has connected the palaces area with the city. As a result, the design-alternative have transformed the palaces area into a tourist attraction. The alternative has marketed the area as a distinguished tourist product domestically, and internationally.

The prospective design-alternative has provided economic and tourist activities; it has put regulations and policies to organize the area. Consequently, the alternative has brought about a convenient environment of investment.

The prospective design-alternative has reinforced the cultural, tourist and heritage activities.

Therefore, it increased the role of the area in comprehensive development.

The prospective design-alternative has been capable of emphasizing the visual significance of some eminent monuments in the area such as Al-Mihdhar Mosque.

The prospective design-alternative has either restricted or stopped the traffic entirely. The alternative, instead, depended on sidewalks inside the area of study. This means that the alternative has rehabilitated the existing network of roads around the area of study. It has emphasized the hierarchy of roads, and sidewalks inside the city.

The outline of the prospective design-alternative depends on defining the development priorities to illustrate future vision of development.

The outline of the area of study is based on a method that ensures achieving the goals and developmental activities. The development priorities have been identified based on the data of the prospective alternative as the following:

1- Preserving the heritage palaces is a top

priority of the outline. In doing, so any likely mechanism can be pursued to enhance the efficiency and capabilities of the urban frame including residential buildings, services and available squares.

2- A paramount priority is developing the area's construction block to its maximum level of urban occupancy in congruence with its limits and potentials. The development comprises three components: (a) developing the squares and allocating a certain percent for services, sidewalks, and open courts; (b) developing the badly-affected buildings and areas through substitution mechanism; (c) developing areas and buildings of good conditions and implementing periodic maintenance and restoration in accordance with tourist purposes for the area.

3- The economic development of the area is crucial and it can be achieved by stimulating and organizing business activities and providing construction equipment.

4- Providing projects of top priorities is pivotal to the development. The location of these projects should be thoughtfully considered according to uses of lands.

#### **Conclusions:**

1- Preserving heritage palaces is a top priority for the city's outline, which also defines the overarching goal of the urban renovation project. It seeks to enhance the entire city to become a domestic, regional, and international tourist attraction.

2- The overall directions of the urban renovation for the area of study are defined as improving the economic situation of the city, augmenting the services, and connecting the area of study with its surrounding. The city forms a source of tourism investment, a viable alternative to industrial investment and to the investment in handicrafts. Further, urban renovation aims at raising peoples' awareness towards heritage areas and encouraging inhabitants to settle down.

3- The present paper suggests three design-alternatives for the urban renovation project for the palaces area in the City of Tarim. The alternatives are based on a set of standards including tourist, economic and developmental dimension, the main existing components incorporated later on.

4- The selected design-alternative depends on preserving the entire buildings in the heritage site without removing any building, except the ruined ones. The selected alternative includes some functional elements that bring about integration

amongst the social, cultural, and economic activities. The alternative underscores the utilization of open spaces in the entire heritage sites. In addition, the alternative involves connecting the heritage palaces area with the main sidewalks, open spaces, taking into account the hierarchy of the spaces, courts, and sidewalks.

5- The selected alternative achieves integration between the region and its urban surrounding. It transforms the area into a tourist attraction capable of marketing it as a distinguished tourist product by rehabilitation, services augmentation, and connection with its surrounding. The alternative brings about sound investment environment through creating business, cultural, and tourist activities. It, further, ensures the visual marks in the region such as Al-Mehdhar Mosque and some heritage palaces. The selected alternative restricts or completely stops traffic depending on sidewalks.

6- The outline of the selected design-alternative depends on utmost utilization of the constructional potentials and collaboration with the development company in implementing the proposed outline. The alternative, also, provides non-traditional funding sources. It suggests restoring the palaces in the area of study and using them for residential purposes.

#### **Recommendations:**

The paper concludes with some recommendations pertaining urban fabric preservation of clay buildings in the city of Tarim as follows:

- Conferences and specialized symposiums on dealing with pertinent issues to clay architecture should be conducted. They contribute towards studying the reality of developing heritage cities and preserving clay architecture in Hadhramout.
- Studies pertinent to exploring the heritage cities and developing clay architecture need support. These studies contribute to the sustainable development of heritage cities.
- Clay buildings should be preserved and rehabilitated in an urban style that ensures sustainability to present evidence of architectural Hadhrami innovation over history. Preservation mechanisms should be organized.
- Urban fabric of clay architecture can be preserved though encouraging people to keep using clay in building new homes. People should be enlightened about the negative impacts of concrete construction and visual pollution in Hadhramout; let alone the difference in financial cost between clay and concrete buildings.

- Clay should be treated with adhesive materials to improve its physical and mechanic properties for the sake of better quality. Industry of indigenous building materials need to be developed according to humans' potentials of a community and the economic resources of the state.
- Media should play a vital role in educating the different categories of society about the

importance of preserving clay architecture. Media may highlight the adaptability feature of clay buildings of the local environment and other advantages.

- The study recommends restricting scattered and unplanned construction of buildings through activating local regulations, and enforcing them to preserve the environment.

**References:**

- 1- Al-jnied, M.A. (2000). Features of the Steadfastness of Mud Architecture in Wadi Hadhramout Variables in Front of Reality and the Needs of the Times. First Scientific Conference Clay Architecture on the Threshold of the 21st Century 2000. Aden: Hadhramout University.
- 2- Al-Shibany, A. R. and Al-Madhajy, M. (2000), Al-Saluk fi Tashkeel Al-fadhah Al-memari fi Al-Yameen, (Behaviour of the Architectural Spaces Composition in the Yemeni Clay Architectural). Proceedings of First Scientific Conference of Clay Architecture on the Threshold of the 21st Century 2000. Research Studies, Hadhramout University of science and Technology, February 10-13.
- 3- Damluji, S.S. (1992). The Valley of Mud Brick Architecture Shibam, Tarim and Wadi Hadhramout. (1992). London: Garnet Publishing.
- 4- Damluji, S. S. (2007). The Architecture of Yemen: From Yafi to Hadhramout. London: Laurence King Publishing Ltd.
- 5- Leslise, J. Edited by Ahmed Abad. (1991). Building with Earth in South Arabia. MIMAR. Reading: Garnet publishing Limited, March Issue.
- 6- Lewcock, R. (1986). Wadi Hadhramout and the Walled city of Shibam. UNESCO Publishing, UK.
- 7- Noor Adin, M.E & Murtadh, H.A. (2012). Urban Renovation of Palaces Area in Tarim City /Hadhramout valley, Rehabilitation as Approach for Development the City. Studies from Physical Heritage: Proceeding of Research Meeting Second National Physical Heritage.
- 8- [https://www. Google Earth.com](https://www.GoogleEarth.com).

## الحفاظ على النسيج الحضري نحو التنمية المستدامة لمدينة تريم في وادي حضرموت ، اليمن

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### المُلخَص

تتخذ المدن الحضرمية القديمة وفي مقدمتها مدينة تريم بالعديد من القصور الفاخرة التي جمعت في بنائها بين طراز الفن المعماري الحضرمي الأصيل، والبناء الآسيوي. ويعد استخدام مواد البناء المحلية بقصور المدينة الفخمة المبنية من الطين الذي يظهر بوضوح معبراً عن مفهوم المشاركة الفعالة للأهالي في تحديد نوعية إرثهم المعماري المنبثق من عاداتهم وتقاليدهم الاجتماعية والثقافية. وقد أكسب هذا الاستخدام المدينة مكانة متميزة بين المدن في المنطقة. وتستهدف هذه الدراسة التركيز على مصدر الإمكانيات المتاحة للتنمية الحضرية وحماية المدينة إجمالاً في كل من وجود فضاءات متاحة للتنمية المستدامة بالمدينة، وتجديدها حضرياً واستيعاب بعض الخدمات ومشروعات التجديد لتلبية حاجات السكان، ويشكّل وجود مساجدها الكثيرة إضافة إلى البيوت ودور العلم، كل هذه المباني مجتمعة معاً تشكل كياناً واضحاً في التجمع العمراني للمدينة من جود شبكة من الطرق الرئيسية والفرعية على محيط منطقة الدراسة. ووجود إمكانيات قوية لربط القصور مع بقية المباني بالمحيط الخارجي بمسارات المشاة المقترحة للمدينة، وأخيراً تبحث الدراسة عن مدى الإرشادات اللازمة للتنمية المستدامة للمدينة من خلال وجود الساحات والفضاءات الفارغة التي تخدم اجتماع زوار المدينة. وتحدد كل الاتجاهات المساعدة لتجديد النسيج الحضري لمنطقة الدراسة في تحسين الواقع الاقتصادي بالمنطقة وتعزيزها بالخدمات وربطها بالمناطق المحيطة الأخرى للاستثمار السياحي الذي يعد بديلاً للاستثمار الصناعي والحرفي بالبيئة التراثية. إن زيادة وعي السكان بالبيئة التراثية يدعم الحفاظ على هذه المدن التاريخية مما يشجع السكان على الاستقرار في تلك المنطقة.

**الكلمات المفتاحية:** الحفاظ ، النسيج الحضري ، التنمية المستدامة ، الإرث المعماري ، إعادة التأهيل.