



Conservation-Based Urban Design Towards Sustainable Development of Tarim City in Hadhramout Valley, Yemen

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ABSTRACT

The Old Hadhrami Cities such as Tarim city boasts many superior palaces shared in built between the Hadhrami architectural style and the Asian constructions. The limited use of local building materials in the city's architecture of mud clearly shows the active participation of the inhabitants in determining the quality of the architectural heritage which emanates their social traditions and customs. This technique using local materials in building construction gives the city a distinguished position among all cities in the region. The work focuses on the score force available-facilities of urban development and conservation of the city in all of the land space available for sustainable development in the city and some services of renovation projects to meet the needs of inhabitants. Mosques, mud houses and schools all these together constitute a unique identity in the settlement of the city through available of main network and secondary roads on the periphery of the city. All aspects of urban renovation for the case study collaborate in improving the economic situation of this region and reinforce it with services and link it with the other surrounding regions for tourism investment which is considered a substitute for industrial and artisan investment in the heritage environment. The increasing consciousness of inhabitants on heritage environment supports the conservation of these historical cities and as a result, encourages the inhabitants to settle in this area, and finally to search for guidelines of the sustainable city's development through the existence of squares and empty spaces which serve meeting the needs of the visitors of the city.

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1. Introduction

Tarim City is characterized by the quality of its unique and distinctive architecture, this is not limited to the large number of mosques and famous palaces, but includes houses, schools, forts, fences and the outstanding decorative gates. The urban of the Tarim goes back to about three hundred or four hundred years, but the most important characteristic in the city is its (physical fabric) and architecture, which is still retains its full features. The buildings preserved identity which is characterized by their environment, and reflects the socio-economic relation that helped on its formation. Studying the case of the city of Tarim gets great interest due to the aesthetic values diversity and variation elements contained in the buildings in the city, besides the elements of different styles those techniques and the principles of Integrated Architecture show. The city gets its great attention and interests of many international bodies such as UNESCO, especially the palaces of heritage because of preserving the architectural heritage. However, the palaces and the surrounding urban is still neglected and the need to develop a program of urban renovation and rehabilitation is a demand in order to be preserved and converted into areas of attracting investors and also raise the standard of living of the population and encourage them to stay in the region and develop economically to ensure the continuity of the city heritage. This is because the city experienced urban movement in different features during the past century based on clay material architecture that did not exist in another city at the valley.

2. The Location of Tarim City

Tarim city is situated in the eastern part of Hadhramout governorate, at 16N degrees latitude and 48E degrees longitude. It is close to the center of the area of Wadi Hadhramout, (Figure1). The total area is estimated at 2894 square meter, the city is located to the east of Sayoun with a distance of about 34 km. It is situated at a connecting point on a major traffic artery serving an extension of the city, and there is a network of roads connecting the inner and outer regions of

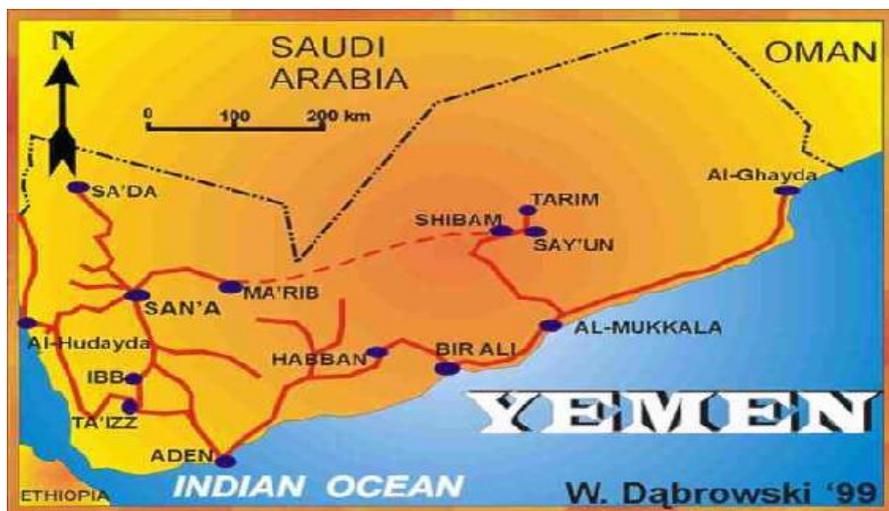


Figure 1: Map of Yemen

Tarim district with each other and with the governorate. The city is characterized by a flat surface plains surrounded by mountain ranges of the north and south sides. On the surface of the city a number of valleys are located. The city of Tarim is one of the oldest cities in Wadi Hadhramout, and was the capital of the kings of *Kinda*, and became with the entry of Islam, a center of science and culture. The population of Tarim in the year 2003 was an estimate of 105.552 people and a population density was about 36 persons /km².

3. Physical Problems Possibilities Available and Determinants of Urban Development

By monitoring the documentary urban features of the palaces area in Tarim, we could identify the main problems in the region and the determinants of development and the obstacles that hinder the process of development and urban renovation of the area and the possibilities and resources available there. Through the study outcomes we can induce the most important indicators and results as follows:

- An indication of the strengths available for the development of the region and its development in the presence of tracts of land and spaces available for development in the region and absorbing some of the services and urban renovation proposed projects. The existence of palaces heritage combined together to form an entity and clear in the assembly of the urban area. The existence of primary network and secondary roads on the borders of the study area, besides the presence of a strong potential for linking palaces with external surroundings of proposed pedestrian passageways and the existence of squares and urban spaces suitable for gatherings visitors.
- A symptom of development opportunities in the region to find real opportunities to stimulate self-efforts to contribute to the development projects and the renovation and development of palaces heritage area. The development opportunities can be centered in the future absorption of some services and proposed projects within the boundaries of the study area and beyond. It is clearly seen from the study that the aspects of land use in the study area and the presence of large tracts of land within the space of urban blocks (an increase of about 49%) of the area. That space can be utilized in the work of the project of urban renovation and development of the region and tourism as well.
- The size of weakness points for the development of the region is the high rate of construction and urban development and the increasing density of urban construction on the borders and the outskirts of the study area. Beside the multiple axes of urban sprawl random that more spaces of lands can be used in the physical development of the area and the limited presence of areas for urban spaces about palaces heritage or lack of it, in a

way that hinders visual communication with each other, and the lack of public services that serve the tourism sector in the palaces region. Finally, there is a problem of some residential buildings required to be removed or can be used after rebuilt or repaired in the proposed urban renovation project.

- The risks are determined by the danger of continuing urban cluster randomized extension on agricultural land or on available spaces due to the growing demand of housing land and the lack of urban design or architectural spaces to exploit the main and sub-blocks within the existing urban. In addition to the risk of failure and the presence of existing services to cover the needs of the future, and the lack of controls and urban planning and the external determinants in the area of the study, and finally, the risk of fires in the region with no bench to confront them.

4. Aim of the Study

This paper studies the characteristics of the city, especially the area of heritage palaces, and then proposes alternatives for the design project of urban renovation and rehabilitation of the palaces area, based on the diagnosis of the problems of the region and monitoring the factors affecting them and the possibilities available to do that. This objective can be achieved by implementing some of the secondary objectives in the region such as developing the area economically and to provide appropriate services for it as well as the upgrading and the urban renovation and revitalization of heritage palaces area and qualifying it to be a tourist attraction.

5. Method of the Study

This paper follows a methodology relies on monitoring and documenting the characteristics of the region and the potential determinants and the underlying urban development invoked in determining the residential and architectural solution vectors. It provides three indications for the design of the study area taking into account the provision of the components of the project of urban renovation based on its determinants and potential referenced. Based on the objectives and policies of the scheme of renovation planning of urban design for the palaces area that identifies an alternative design to develop the region, which includes an approach to maintain sustainability, and involves identifying the facilities to be added to the region for urban and economic development, and propose the ways of use required for rehabilitation and employing palaces heritage in the region in addition to other proposals.

6. Growth City of Tarim and Its Development through the Ages

Tarim is named after its builder Tarim bin Hadhramout according to the book of Murtada Al-Zubaidi (*Taj Al-Aroose*). Historians confirm that the city was originated in the fourth century BC. Other writings say that Tarim was established in the era of *Shabean* rule to Hadhramout and

called after the name of one of the younger sons of Sheba, or after the name of the tribe of Tarim. Tarim city has been affected by a lot of events in the successive stages of the history of the city and perhaps the most important of what we documented in ancient history is mud architecture. The mediator in reality of mud architecture and its history during the past hundred years in the city of Tarim in particular finds that it was impressed with the waves of expansion that occurred in the city,(Figure 2). When we go deeper in the search, we find that changes in the architecture of clay in Tarim came in order to keep pace with those stages. We can divide the stages of urbanization that occurred in the city of Tarim over the past century into three main stages, (Al-jnied, 2000).

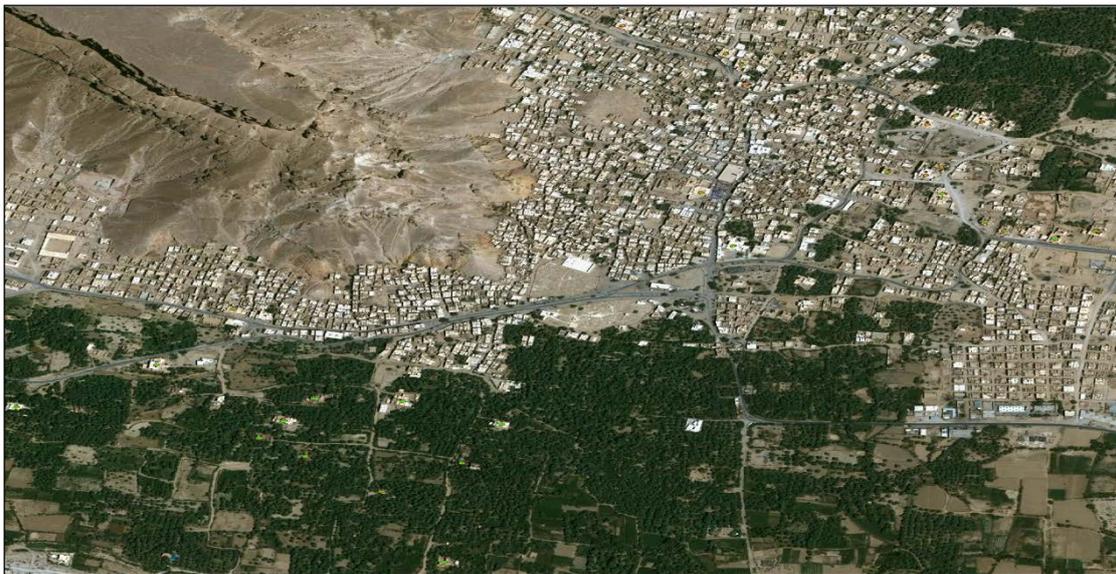


Figure 2: Illustrate the Growth of Tarim City.

6.1 First Stage

We can consider the beginning of this stage from the last decades of the nineteenth century to the end of the second decade of the same century. During this period the city was a small city closes its fence gates at sunset, and was located in the city's old area. Perhaps the feature of this stage in terms of mud architecture as an architectural model did not differ much from that architecture in the rest of the civilian communities in the valley as in the city of Shibam and Sayoun. When comparing the pattern and style of architectural model in all these cities, especially the housing, we could see that there were no great differences frequently noticed.

6.2 Second Stage

In this stage the city witnessed an architectural expansion inside the old fence. This happened as a result of Hadhrami immigration from Southeast Asia and has caused many families to buy houses due to the accumulation of economic activities carried out there. Thus, we

can determine the period of this stage from the end of the second decade of this century until the sixties after the national Independence of 1967 AC. Perhaps one of the most important attributes and features of this stage is the emergence of new neighborhoods to the presence such as As'heil, Alnoiderah and Mahiadharh. Besides, we could see the construction of many large and magnificent palaces, such as the houses of Al-Kaff, eg .Mr. Abu Bakr bin Sheikh Kaff and the emergence of the first square mud lighthouse (*Minerate*) of *Al-Mohdhar* Mosque. Subsequently, as mosques were erected near tombs of saints or by wealthy returned merchants, their number increased greatly, until in Tarim alone there were said to be 360 mosques, (Lewcock, 1986).

6.3 Third Stage

This stage starts from 1969 until the present day, and it is characterized by the receding movement of construction and expansion in a limited period after the national Independence in 1967, particularly after 1969 to the end of the eighties. At this period building palaces stopped even some of them were destroyed due to misuse and lack of maintenance by occupants (beneficiaries) during the period of the Socialist rule. This phase is also characterized by the emergence of concrete construction which has very negative impact on the overall architectural style of the area. Also this stage is characterized by the extreme case of expansion since the early eighties, which, unfortunately, accompanied by random in the planning of schemes of new residential areas that have emerged into existence such as the quarters of Aideed, Tarbah, Damon, Bagelhban, with a complete absence of understanding of the importance of preserving the style of architecture prevalent, especially in older neighborhoods where the expansion of the concrete construction is noticed. The most prominent effects that happened by the various influences are the following:

6.3.1 Social Effects

The results of Immigration have much impact on the styles and patterns of features of architecture in Hadhramout. It has much impact due to the knowledge and experiences gained by the Hadhrami people. A good example is the engineer Alwi bin Abi Baker Al-Kaff, who was the only character that stands behind all of this quantum of palaces in the city of Tarim. He designed the most beautiful and the most inspired design style of architecture prevalent in Southeast Asia. We notice that the most prominent changes in the architecture of clay is the emergence of suntrap (sun shaft) in designing residential buildings which is about slots mediates the building with the aim of ventilation to enter the air and light, as it did not get through building from the ground floor to the ceiling as far as it is in most cases on the floors before the last.

6.3.2 Economic Effects

The economic effects played a major role in pushing the movement of construction and

reconstruction in the city, which resulted in the construction of huge palaces, and strengthen the defenses of the main cities. Moreover the economic effects resulted in the construction of the first road linking the coast and the valley of Hadhramout, building the first modern advanced hospital in that period, Tarim hospital, the construction of the first systematic school, and the construction of the first dam for the use of flood waters in Hadhramout, *Al-Nagrah* dam, which is not far from Gasam village. They were behind all the richness of the movement of many families and the recovery of the economic situation in some of the different periods.

6.3.3 Political Effects

Various conflicts between rival tribes and the succession of political events led to the instability in the region and the establishment of the two Sultanates of *Al-Qaaiti* and *Al-kathiri*. Moreover the outcomes of the two world wars on the domestic scene in the region in general and then the revolution in October 1963 AD and independence in 1967 in South Yemen. All these political events prevailed a negative impact on the course of the development of mud Architecture.



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

7. Architecture of Tarim City

The civilization of mud prevailed in the city and the Hadhrami mud architecture is considered by a lot of interested people as a unique and distinctive building. The city of Tarim contains about 59 historical sites and religious landmark at the top of these sites are the famous traditional palaces, in addition to the large number of mosques, which is estimated to be about 365 mosques. The most famous mosque is *Al-Mohdhar* mosque which built of mud construction, (Figure 3). The architecture in Tarim is influenced by the social and economic relations that existed in Hadhramout in the first part of the twentieth century.

The social differences between the different classes and economic factors are clearly seen in the buildings construction. The social inequality and class differentiation that existed in

*Corresponding author (Anwar Ahmed Baeissa). Tel/Fax: +967734066823. E-mail address: dr.anwarbaesa@gmail.com. ©2015. International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies. Volume 6 No.4 ISSN 2228-9860 eISSN 1906-9642. Online Available at <http://TUENGR.COM/V06/173.pdf>.

Hadhramout appeared clearly and showed clear differences in architecture. The new architecture emerged from the elite social class which is what can be considered as a new identity for a personal converse to the original Hadhrami model. The sites contained resorts, and beautiful halls separate from the rest of the urban fabric and so leaving the neighborhood buildings, that were popular buildings, as isolated citizen residential groups isolated from the outside. Tarim city is rich of many palaces which were combined in the building between the Hadhrami authentic architectural style and the Asian construction. The architecture style of the palaces in Tarim is characterized and heavily influenced by the aesthetic and decking in terms of the colors and front forms of that are borrowed by the sons of and Tarim from the Asian architecture (Indonesian, Malaysian, Indian), but collected within it some peeps of Greek and Western. The palaces of Tarim have three or four floors. The palaces that were built by the family of Al-Kaf have distinctive features in the architectural history of the Wadi Hadhramout and they were unique from the other houses. The palaces have parks and independently planned and different from all the other houses in the old neighborhoods in the city. Also feature several open singles and is separated from the site other than public housing complex and closed. These houses have been built at the end of the nineteenth century and the beginning of the twentieth century; they have been designed and built by Tarim builders. Tarim includes the city of about 31 heritage palace constructed mud by bricks known in Wadi Hadhramout by (Almadr, measuring 40cmx25cmx7cm) a basic material used in the construction of all buildings of the city,(Leslise, 1991). The use of local building materials in buildings and luxury palaces of the city of mud clearly show the effective participation of the people in determining their quality of life around the city to earn a privileged position. Also this leads to the exploitation of local resources in architecture associated with the secretion of place and self-adaptive. In spite of that building of clay bricks is connected with Wadi Hadhramout, the city of Tarim has its unique participation and remarkable achievements done by its skillful builders in architecture, especially of Innovation wall paint and adhesive plaster of lime known locally as (*Al-Noorah*). The attractive facades of the clustered housing in the old zones were given a quick cosmetic paint with lime (*Al-Noorah*) to blend with new buildings, (Damluji, 2007).

8. Restoration Heritage Palaces and Rehabilitation

Due to the status of the historical city of Tarim, which allowed it to be a center for visitors from various parts of the country and from different regions of the world. The project of restoration and rehabilitation of palaces will be more convenient as it will help to highlight the many aspects of historical value, (Figure 4). And maintains a lot of relationships that will help to pay the movement of documentation and development of the creative work of the cultural, intellectual and architectural concepts and various architectural and engineering operations, including mud preserves for future generations as much information that cannot be dismissed or

forgettable. The restoration of heritage palaces in the region and the rehabilitation of them, is the main goals of the urban renovation project that achieves economic return that will contribute to the continuation of the project and assist in providing the necessary funding for the periodic restoration required to keep the buildings and the surrounding urban palaces. The importance of maintaining the *Al-Kaf* houses and palaces is essential because they represent a unique architectural style of historical, political and social era in the history of Tarim. Rehabilitation work will help to sustain local interest and the value of the architectural heritage, and encourage the inhabitants of Tarim to participate in cooperative plan to protect it, (Damluji, 1992).

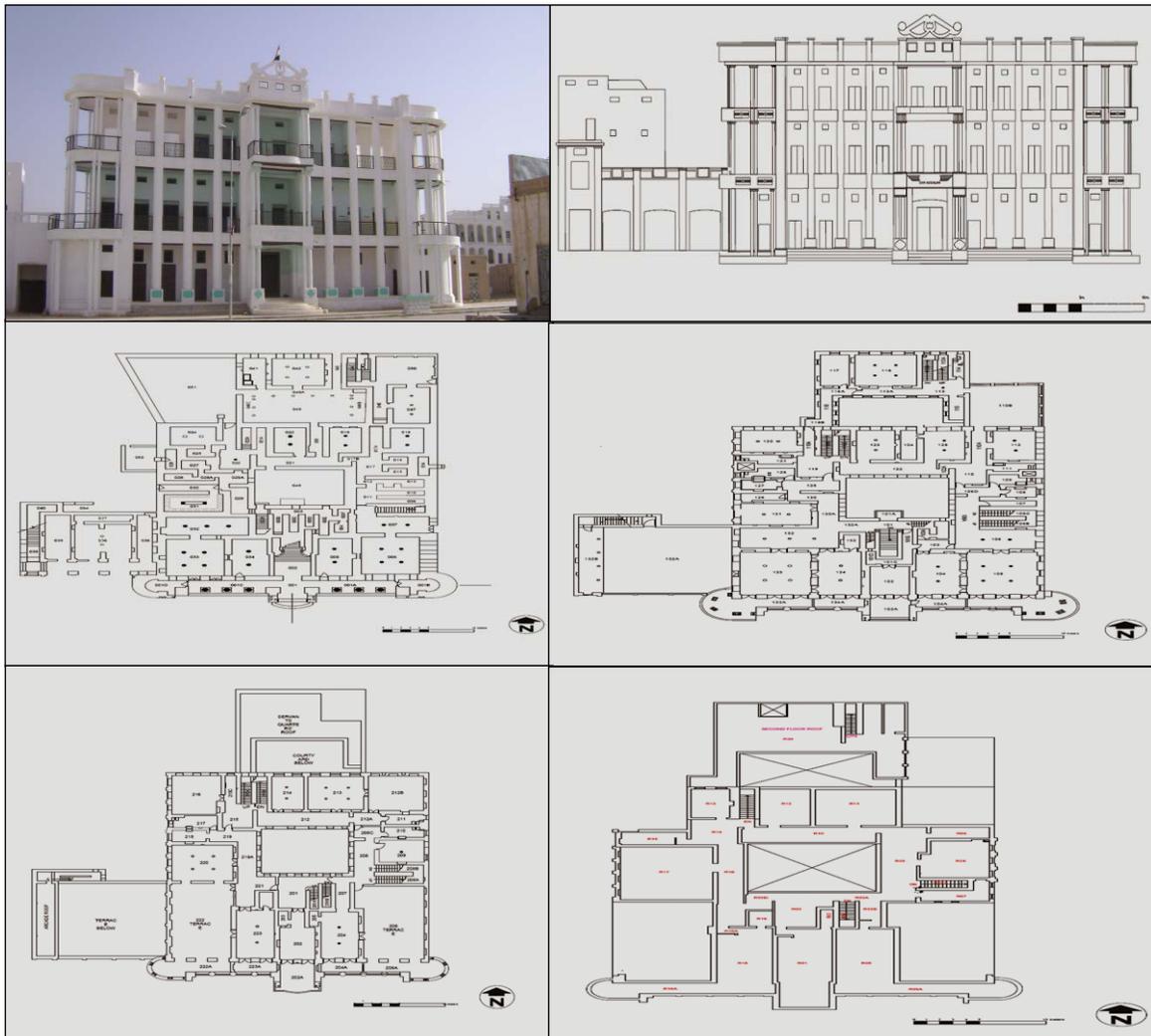


Figure 4: Clay Palace (*Dar- Assalam*) in Tarim City.

9. Design for the Development Decisions of Urban Fabric of Tarim City

The design for the development of the study area is determined by the decisions and is built on the basis of addressing all of the heterogeneity of the region or distortion that may occur for the traditional buildings, and the study of the integration of the buildings within the historic surroundings in order to do the rehabilitation while preserving the architectural identity of the

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traditional region, in addition to take into account the population cultural background and their need to get economical benefits from the project of urban renovation through the creation of jobs for small self-employed citizens. We can identify the most important vectors of the proposed solution design in the following points :

- The ancient region which is inside the fence the city is need for infrastructure services and the increase of its effectiveness. Besides the delivery of services to the area should be done in a most convenient way and stay away from the distortion and the imposition of architectural specified during the renovation, or reconstruction, taking into account the effect of these trends. In general, taking into account the need to maintain community awareness of the need to maintain the traditional region and to clarify to the people how to get the most benefit of it.
- The general trends of the urban renovation of the study area is to done on the basis of that renovation aims to provide a method of living and an urban environment for residents, professionals and visitors, exercised all patterns of daily life in a safe and attractive environment. Renovation also aims to keep the environment and its traditional style and serve as a basis for growth that benefits the population in the future.

10. Development of the Region on Architectural Level through the Implementation of Some of the Points and the Following Acts:

The area can be developed on the architectural level through the implementation of some of the points and the following acts:

A- Building symbolic distinct gate, especially since the city of Tarim was surrounded by a fence and gates in the past.

B- Developing and harmonizing the entrances to the area of heritage palaces, and giving attention to the existence of the elements of the site coordination and distribution along the tracks, especially tourist routes allocated for visitors to the area.

C- Restoration of buildings which enjoys the status of an architectural and rehabilitation (palaces heritage in particular) and rehabilitation and use within the urban area. In conjunction with the development work of architectural buildings deteriorating buildings and replace the bad ones.

D- Designing paths, pedestrian paths and special services in case of emergency.

E- Exploiting the territories spaces available in the establishment of urban and architectural elements required to be provided to the urban renovation project for the region.

F- Preparing of a manual or guide for the architectural and urban design and regulations and guidelines for new and existing buildings within the site.

11. Designing Alternatives for the Development of the Palaces in the City

Adopted design alternatives for the study area on a set of goals and parameters that have been based on the development of a methodology to deal with the alternatives (Figure 5), and objectives and determinants are :

-Urban renovation and rehabilitation of the palaces area with all its components in Tarim to be a tourist attraction and marketing it to be a distinctive tourism product locally, regionally and internationally, and to maintain the distinct identity of the architectural heritage and social fabric and harnessing it to merge in an easy manner with the rhythm of urban life. Moreover to confirm and focus the dimensions of the socio-cultural, economic and urban features. This can be done through:

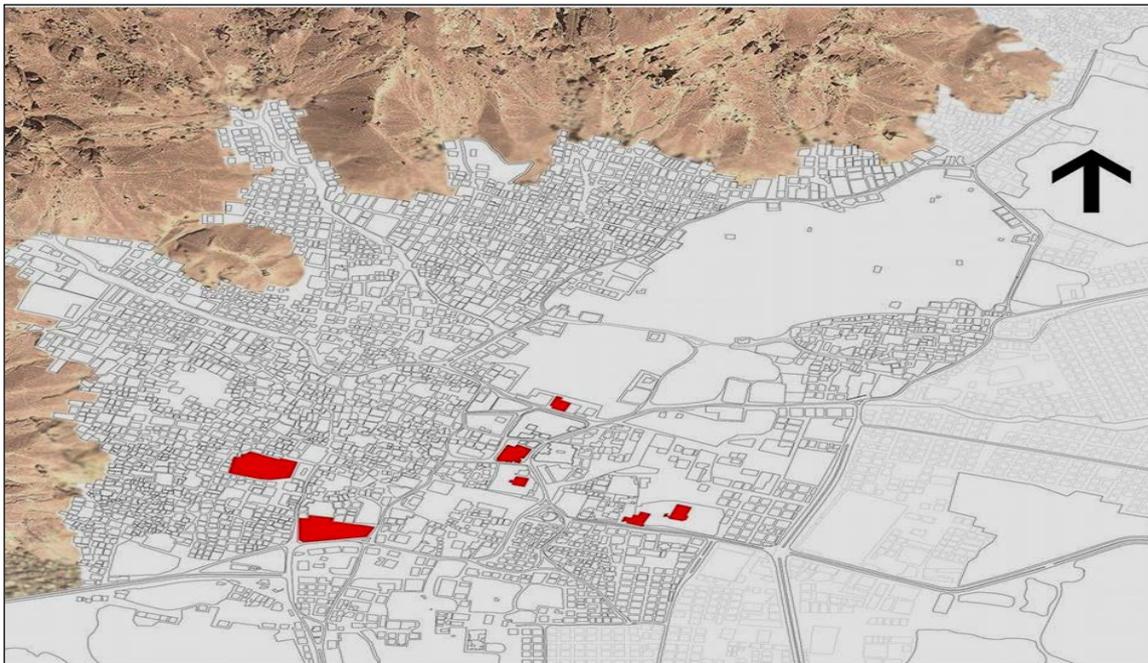


Figure 5: Illustrates Proposals of a Design Proposal for a Project for Urban Renovation

1- The reuse of some of the buildings and heritage palaces and emphasizing its continued usefulness to show the literal dimension and the technical distinct of them in order to continue to represent a cultural symbol that expresses the identity of the city and urban authenticity.

2- Creating a coherent urban fabric and harmonious requirements of local social and pastures of local urban culture in terms of the spatial form of urban and architecture.

3- Improving the economic situation in the region and strengthening services in the area, and linking them with the surrounding areas as a dimension of tourism investment. This will help

to find a substitute for Industrial Investment and literal heritage environment. In other words it is the revival of traditional crafts and industries and employing them economically.

4- Increasing the awareness of the people in the areas of the heritage and cultural legacy and emphasizing the necessity to be maintained and to encourage residents of the area to settle on it.

5- Achieving an integrating and equilibrium between the functional and visual urban spaces and functions of the proposed uses for the integration of surrounded urban.

6- Working on raising the rate of exploitation of urban and architectural elements in the region, and the integration of aspects of land use in the study area as much as possible, with the important use sectors outside its borders.

7- Fixing the limits of the selected site and the determinants of the study area, and re-use the exploit of the unwanted places to serve the cultural and civilized role of the region.

8- Retaining elements of existing things and development of the region and the important heritage buildings and development, and fixing the specific elements of the project from the current elements found in the region or innovative elements, and rehabilitation of existing area and the development of area and new urban spaces graded region.

Three designs are proposed for urban renovation Palaces area project and interpretation of the alternatives. Identify fixed elements to assess the Relative weights of the three alternatives to choose the suitable alternative:

11.1 The Principles and Criteria of Design Alternatives

Three indications have been prepared in designing the study area based on a set of principles and criteria that include both economic, social and tourism dimensions, besides the development dimension and also the key components of the project, that include both the existing elements or the created elements added to the region, (Figure 6). The three alternatives are:



Figure 6: Illustrates Principles and Criteria of Design Tree Alternative in Area of Palaces.

-The first alternative: Comprehensive Development and adoption of a solution policy in the alternative design proposed to conserve the existing buildings on the site without full removal of any existing building except the ruined ones of them, and adding some of the service elements (complementary services for the urban perimeter and surrounding areas). Which challenged the integrated aspects of social and cultural activities and economic relations with a focus on strengthening the open spaces on the entire site and connect the buildings of heritage palaces main pedestrian passageways with open spaces and taking into account the hierarchy of the spaces, squares and passageways of pedestrians.

-The second alternative: The economic investment, and policy-based solution in the proposed alternative design to create axes and tracks the movement of the main pedestrian by removing some of the buildings and connecting buildings palaces heritage through these axes, as well as aspects of use while providing the surrounding squares and connecting spaces of palaces axes through pedestrian traffic, in addition to find aspects of economic activity that supports the area of the study based on the traditional tourist attractions.

-The third alternative: Heritage and tourism and adopting a solution policy in the proposed alternative design to determine the paths of movement and the blocks surrounding the passageways movement without affecting the urban blocks surrounding building palaces heritage, moreover the alternative depends on the spatial coherence of the elements of composition and functions of the physical area through the interdependence between the buildings heritage palaces and the proposed passageways and spaces.

12. Evaluation of Designing Alternatives

Evaluation of design alternatives have been proposed for the urban renovation area for the area of palaces in Tarim city and rehabilitation, to a set of key elements of the assessment identified based on the data and the conditions of the site and its determinants and the reality of the study area and the outstanding problems within and surrounding it. Through these elements we can evaluate design alternatives based on the relative weights,(Figure 7). We can use (Relative weigh) for each element commensurate with the importance of the element and its ranking within all the combined elements of the group, which together make up the total of the final evaluation of each alternative. Relative weighs and then determine the suitable alternative design and its various components (Table 1). It is clear from the table that the alternative design is the first alternative likely to be chosen for having the highest points in the evaluation (92

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points) based on the relative weigh which has been agreed,(Noor Adin,& Murtadh, 2012).



Figure 7: Alternatives Schemes to the Use of Land for the Development of Palaces Area in Tarim City

Table 1: Illustrate Evaluation of Designing Alternatives for the Urban Renovation Project for the Area of Palaces in Tarim City, (Noor Adin,& Murtadh, 2012)

| N | Elements Evaluate Alternatives | Relative Weight | The First alternative | The Second alternative | The third alternative |
|-------|---|-----------------|-----------------------|------------------------|-----------------------|
| 1 | The proportion removing of the buildings surrounding of heritage palaces in urban fabric. | 15 | 14 | 8 | 10 |
| 2 | Realism in the design (the possibility of implementation of the project on the area). | 10 | 9 | 6 | 7 |
| 3 | Achievement the dimensional social, cultural, economic and tourism. | 10 | 8 | 7 | 7 |
| 4 | Urban composition and compatibility and integration with the urban fabric and surrounding physical urban of the area. | 10 | 9 | 8 | 9 |
| 5 | The achievement of the purposive functional program | 10 | 10 | 9 | 10 |
| 6 | The Linking of passageways pedestrians and movement mass with the whole site. | 15 | 14 | 10 | 12 |
| 7 | View of the heritage palaces on the passageways pedestrian movement, squares and open spaces. | 10 | 10 | 8 | 9 |
| 8 | Hierarchy open physical spaces and achievement the system of spaces sequential in planning. | 10 | 9 | 7 | 5 |
| 9 | Harmony Urban Spaces and its relationship with distinctive visual marks with physical surrounding. | 10 | 9 | 6 | 7 |
| Total | | 100 | 92 | 69 | 76 |

13. The Extent to Which the Likely Alternative to Achieve Goals of Developments and Its Policies

The likely alternative design has achieved the following objectives and policies:

- 1- Achieving integration and linkage between the region and its urban environment by the rehabilitation of these areas, using of suitable objects of civilization.
- 2- Transforming the palaces area to become a tourist attraction and marketing it as a distinguished touristic product locally and internationally through the rehabilitation of heritage areas and the promotion of services and linking them structurally to urban city.
- 3- Creating a fresh environment for investment by creating commercial and touristic activities, and making the policies, regulations and procedures that govern them in the region. In addition, raising the region's role in the overall development through the promotion of its aspects of cultural, tourism and heritage activities.
- 4- Visual Confirmation of visually distinctive hallmarks in the region such as (*al-Mihdhar*) mosque and some traditional palaces and taking this into consideration when starting rehabilitation of the region and connecting elements together.
- 5- Complete restriction of traffic or at least minimizing it and relying on passageways and pedestrian movement within the boundaries of the area under study. This can be done through the rehabilitation of the existing transport network around the study area as traffic hub and prevent the movement of transit in the region and confirm the existence of a hierarchy of roads around the study area as well as the hierarchy of the network traffic and interior pedestrian passageways.

The expected alternative has been prepared for the general outline of the study area in a way to ensure the achievement of the goals and the achievement of development activity and the elements of the general plan and its components.

1. The preservation of heritage palaces is considered the major priority of the general plan for the area. Therefore, all possible methods can be used to raise the efficiency of the urban structure and the ability of the area of residential buildings and services In addition to utilizing the available urban facilities as spaces for the lands existing in the area.

2. Development of mass urban area to reach their maximum physical accommodation with consideration to its urban limitations and potentials available to achieve such development. The first element is the development of the passageways and open spaces, and the second element is the development of degraded buildings and areas by following the manner of substitution, the third element is the interest in the areas and buildings of good, medium conditions and always checking them through restoration and renovation on a regular basis, to be compatible with the touristic purposes of the area
3. Economic development of the region through stimulating and regulating the aspects of commercial activities and providing the urban methods to achieve that. In addition, providing priority projects in the region and selecting the appropriate resettlement places for these projects according to the aspects of the use of land in the region.

14. Conclusion

The conservation of the heritage palaces gets highest priority of the general plan of the city. The main objective of the urban renovation project should be upgraded with all its components in order to become a marketed tourist attraction and a distinctive tourism product locally, regionally and globally. This urban renovation improves the economic reality in the region and enhances services and links it with the surrounding areas as a dimension of tourism investment, which is a good alternative for industrial and artisan investment in the heritage environment, and increasing the population's awareness of heritage areas as a legacy of civilization that must be conserved, and encouraging residents of the area to settle in it.

Three alternatives for the design of the urban renovation project for the mansions' area in Tarim have been suggested, based on some fundamentals and criterion which include both dimensions of economic and tourism, in addition to the developmental dimension of the study area, as well as the key components of the project whether the items available now or those updated elements added to the region. Some functional elements create the integration between aspects of the use of social, cultural and economic activities with some focus on some of the open spaces on the entire site. The heritage palaces buildings connect with main pedestrian paths with those open spaces, and take into account the hierarchy of the spaces, squares and pedestrian passageways.

The chosen suggested alternative is likely to achieve the integration and the linkage between the region and its physical surroundings, and works to turn the area into a tourist attraction and a distinctive tourism product marketed through the rehabilitation and strengthening of services and connectivity in the region. Also this suggested alternative will achieve creating a good

environment for investment through the provision of aspects of commercial activity and cultural tourism and visually confirms the visual landmarks in the region such as (*al-Mihdhar*) mosque and some heritage palaces by connecting its elements together. Finally, alternative design achieves reducing traffic or minimizing it and relying on pedestrian passageways' and their movement in the study area.

The general outline of the alternative design depends on the reference to make the most of the physical possibilities available and the cooperation of the urban development bodies in the region in the implementation of the proposed scheme and the provision of non-traditional sources of funding and proposing restoration of palaces in the study area. Besides, the rehabilitation of the palaces is through the restoration and re-employment and re-using them in their original function of housing.

15. Recommendation

- Conservation of the mud buildings and rehabilitating them using a civilized and scientific manner to ensure their durability and development so that they remain a witness of the creativity of the Hadhrami architecture through the ages and to develop ways to preserve the different styles and methods and mechanisms of construction.
- Encouraging the process of building with mud to preserve the traditional urban fabric based on scientific studies that give comparisons between the construction of mud and construction of reinforced concrete and the impact of visual pollution of the expansion of concrete construction, let alone the difference in financial cost prices.
- Adopting conferences and specialized seminars in addressing issues related to mud architecture, which will contribute to boost studying the reality of the development of the ancient cities and how to conserve the mud Hadhrami architecture and its development.
- Encouraging and supporting studies and researches related to the monitoring and researching of all the variables experienced by the ancient cities and how to develop the mud Hadhrami architecture and its suitability of the environment for sustainable development.
- Mobilizing the mass media efforts to draw the attention of all community layers to the importance of preserving the mud architecture and highlighting its positiveness and suitability for the local environment and the rehabilitation of these cities in terms of planning. In addition, reducing the phenomenon of unregulated random construction and

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enacting the necessary domestic legislation and the commitment to implementing it in order to ensure preservation of the environment from natural and artificial pollution.

- Reducing the phenomenon of unregulated construction and enact the necessary domestic legislation and the commitment to implement it in order to ensure preservation of the environment from, natural and artificial pollution.

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