



Rehabilitation of Domat al-Jandal Archaeological Site

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Abstract

Domat al-Jandal site contains a wealth of diverse monuments, reflecting the historical depth of the area, as it was a conduit for commercial convoys and a display for many important historical events.

Accordingly, this study aims to find appropriate solutions to preserve this significant archeological site, rehabilitate it⁽¹⁾, and develop it architecturally, culturally and economically, highlighting its cultural features and its historical dimension.

Before this, the study begins with a brief overview of Domat al-Jandal site in terms of identifying its location and determining the morphological stages it passed through (its planning, its architectural design, and the architectural uses of its lands). The study attempts to fulfill its objectives and answer the following questions:

-What is the current state of the architectural monuments in Domat al-Jandal site?

-Preserving monuments is a national responsibility to be borne by all, as they are a source of inspiration for great history. Based on the importance of Domat al-Jandal site, is there a way to historically display it?

-Is there a way to preserve the remaining monuments from negligence, tampering and removal?

-Is there an appropriate way to restore and maintain the ruined buildings?

-In addition, monuments are regarded as an economic source, so is there a possibility for rehabilitating the site within the modern architectural design to become an archaeological center and a touristic attraction, without affecting the old heritage?

- The historical depth of Domat al-Jandal site, now known as the "daraa neighborhood", includes the oldest historical monuments, such as the fortress of Mard that was built before Islam, Omar ibn al-Khattab Mosque of a unique architectural style with its conical minaret, and the old market that is one of the initial markets of Arabs before Islam. For these distinct considerations, is it possible to select daraa neighborhood, transforming Domat al-Jandal site into a global important heritage site?

Keywords :

Rehabilitation, archaeological site, architecture, Domat al-Jandal, Saudi Arabia, old cities.

⁽¹⁾Rehabilitate: It means to reuse old sites in general, including residential, commercial or industrial buildings, through its maintenance or development, while preserving the building's parts and elements that bear distinct historical, architectural or cultural values through the ages the building witnessed since its establishment, in order to preserve it. See Madbouly, Mostafa Kamal, Rehabilitation of Central Areas with Historical Value in Developing Countries, "Cairo Case Study", MA Thesis, Cairo University, Cairo, Egypt, 1992, p. 26.

Introduction:

The numerous transformations that took place at Domat al-Jandal site have destroyed or buried most of the buildings over the centuries. Now, the old Domat al-Jandal is endangered to disappear due to the recent urban expansion and the migration of the indigenous people to other more spacious and quieter areas. In fact, the only remaining buildings are the fortress of Mard (Pic. 1), Omar Ibn Al-Khattab Mosque, and few ancient buildings dating back to around 150 to 200 years.

The Italian engineer (Romulo Loreto), in a lecture he gave⁽²⁾, stressed the necessity for total preservation of Domat al-Jandal through general maintenance of the site, and the study of Dr. (Hissa Alshammari)⁽³⁾ approved his suggestion with some differences in fine details, while the consultant engineer (Sharideh Daraa)⁽⁴⁾ suggested in 1438 AH partial preservation of the site through the maintenance of a section of the residential buildings.

The concerned authorities, represented in archaeological excavation teams and the General Authority for Tourism and National Heritage, have started to make efforts in unraveling, preserving and rehabilitating historical treasures.

Thus, the importance of this study has come based on the move towards preserving this archaeological site, in addition to the

major significance of the study of "Rehabilitation of archaeological sites" in the Arab area, and the fact that the Saudi Arabia library lacks the presence of sufficient studies tackling the issue of preserving archaeological sites.

The current state, represented in the lack of previous studies that shed light on the mechanism of restoring historical sites and buildings in Saudi Arabia, makes this study of distinct importance, for it constitutes the first basis for studying and analyzing those projects that are implemented in the Arab world in general and in Saudi Arabia in particular, which assists in focusing on such studies and developing them in quantity and quality.

In this study, the inductive approach was followed, collecting available information and references, in addition to field visits by the researcher, documenting information and analyzing it through observation and photography. It also included conducting interviews with several individuals representing the various bodies working on the preservation of monuments and architectural heritage at the official and private levels.

First Idea: A geographical and historical overview of Dumat al-Jandal site:

Domat al-Jandal is located in Al-Jouf region, 50 km south of Sakaka city⁽⁵⁾, and it is in the far north of Saudi Arabia, with a population of about fifty thousand people, and its total area is about 300 km²⁽⁶⁾.

⁽²⁾ A lecture given by the Head of the participating Saudi team, Mr. Thamer Al-Maleki, and the Head of the Italian team, Dr. Romulo Loreto, entitled "The results of the work of the Saudi-Italian mission in Al-Jouf region during the period from 2009-2016", in the lecture hall at the National Heritage Sector in the Institution.

⁽³⁾ Alshammari, Hissa Obaid Soyana, Daraa neighborhood in Domat al-Jandal "An Archaeological Architectural Study", 2nd ed., Abdul Rahman Al-Sudairy Charity Foundation, Al-Jouf, 1425 AH / 2004AD, p. 69.

⁽⁴⁾ The engineer Sherida Farhan Daraa, a civil consultant in Al-Jouf, and a former resident of Daraa neighborhood.

⁽⁵⁾ Domat al-Jandal was the base of Al-Jouf region, until the emirate was transferred to Sakaka city at the end of Prince Turki Al-Sudairy's reign in 1349 AH / 1931 AD, mainly for administrative reasons. Thus, Domat Al-Jandal shifted from the center of power to that of subordination in the region, but despite all this it still maintains its historical depth and its pioneering role that is historically registered for it through the ages.

⁽⁶⁾ Al-Shammari, Daraa neighborhood, Domat al-Jandal, p. 18.

Its climate in general is continental desert cold in winter, hot dry in summer, and the average maximum temperature is 42 degrees Celsius in summer and 8.5 degrees Celsius in winter. July is the warmest month of the year in Al-Jouf, while the temperature drops in January, which is the coolest month of the year, reaching between two to seven degrees below zero, and the average rainfall is approximately 200 millimeters⁽⁷⁾.

Domat al-Jandal is generally an oasis⁽⁸⁾ in the Great Nafud desert, and its hollow comes in the form of an angle that extends approximately 5-6 km, including fields and villages and surrounded by adjacent plateaux⁽⁹⁾. In the middle of the oasis is a rocky plateau about 150 meters high, which is the highest point in the area on which a fortress was built to protect it (Fig. 1)⁽¹⁰⁾.

The importance of Domat al-Jandal since ancient times is due to its geographical and strategic location at the intersection of ancient routes linking southern Mesopotamia with the Arabian Peninsula, along with being a commercial spot north of the Arabian Peninsula. Also, due to its livelihood, it was one of the centers of human stability on earth through successive historical eras⁽¹¹⁾.

The secrets of this city, which is deeply rooted in history with more than 2,800 years, are merely known through scattered

inscriptions and drawings that reflect its ancient history and few architectural monuments that represent the various ages that the city witnessed, starting from the era of the Assyrians in the eighth century B.C., after which the Nabataeans ruled, with whose reign Doma evolved, then were succeeded by the Romans⁽¹²⁾.

Domat al-Jandal was one of the most important Arab markets in the pre-Islamic era⁽¹³⁾. Later it became under the Byzantine rule⁽¹⁴⁾ until the Islamic conquest by Khaled bin Al-Walid in the twelfth year of hijra at the beginning of the caliphate of Abu Bakr al-Siddiq, may Allah bless him⁽¹⁵⁾.

It was found that the texts dating back to the Middle Ages are few. For, after Domat al-Jandal was an important conduit for commercial convoys, it seems that it lost its significance after the path of commercial routes transferred to following the paths of the pilgrims to Mecca. Perhaps also the hostility of the locals to Islam at its beginning caused the rapid decline of the oasis, making it lose its economic value and strategic importance until the nineteenth century AD. The Arabic texts do mention Domat al-Jandal, but linking it only to the events mentioned above⁽¹⁶⁾.

The history of Domat al-Jandal can be more vastly realized in the nineteenth century, due to the writings of western

⁽⁷⁾ Al-Shammari, Daraa neighborhood, Domat al-Jandal, p. 22.

⁽⁸⁾ The oasis is a low area in the desert, and in its deepest part there is a small narrow fertile land. The oases have great historical significance, as many historical sources have talked about the centers of human stability on earth through successive historical eras, and in some sources it was stated that the oases are one of the most important of these areas, with a unique architectural heritage.

⁽⁹⁾ Al-Junaidel, Saad Abdullah, Bilad al-Jouf or Domat al-Jandal, 1st ed., Dar al-Yamamah, Riyadh 1401 AH / 1981AD, p. 81.

⁽¹⁰⁾ Al-Shammari, Daraa neighborhood, Domat al-Jandal, p. 64.

⁽¹¹⁾ Al-Shammari, Daraa neighborhood, Domat al-Jandal, p. 19.

⁽¹²⁾ Charlo, Guillaume, Loreto, Romulo, Domat al-Jandal 2800 years of History in Saudi Arabia, European Air Defense and Space Company, General Authority for Tourism and National Heritage, Paris, Riyadh, 2014, p. 54.

⁽¹³⁾ Ali, Jawad, Detailed Information on the History of the Arabs before Islam, Dar El Ilm LilMalayin, Beirut, Al-Nahda Library, Baghdad, 1976 AD, part 5, p. 112.

⁽¹⁴⁾ Al-Sudairy, Abdul Rahman bin Ahmad bin Muhammad, Al-Jouf - Wadi Al-Nafakh, Macmillan Company, Abdul Rahman Al-Sudairy Foundation, United Kingdom, Saudi Arabia, p. 39.

⁽¹⁵⁾ Al-Hamwi, Shihab al-Din Abi Abdullah Yaqut bin Abdullah, A Glossary of Countries, Dar Sader, Beirut, 1404 AH / 1984 AD, Part 2, p. 488.

⁽¹⁶⁾ Charlo, Romulo, Domat al-Jandal, p. 52.

travelers⁽¹⁷⁾, some of whom observed the geographical and political periods that influenced the form of the oasis and deeply reshaped it. In 1208 AH / 1793AD, Domat al-Jandal combined with Al-Jouf region, forming the first Saudi state by Imam Abdul Aziz bin Muhammad bin Saud⁽¹⁸⁾.

At the beginning of the nineteenth century, the two voyagers "Burckhardt and August Valin" stated that the inhabitants of Domat al-Jandal pay zakat to Saud family.

They are, thus, in a state of dependency, while Doma was administratively linked to the Emirate of Hail and Imams were sent to teach religious matters. At that time, Doma witnessed a period of peace, unlike previous periods of ruling conflicts⁽¹⁹⁾.

In 1254 AH / 1838AD, Jabal Shammar Prince Abdullah bin Rashid extended his authority over the Al-Jouf region. After that, Domat al-Jandal came under siege and witnessed many events that caused major damages, in addition to the massacres and deportations of inhabitants. Consequently, entire neighborhoods, such as Al-Jarawi and Al-Dalhamiyah, disappeared around 1254 AH / 1838 AD, and poverty and hunger spread as a result of these consecutive events⁽²⁰⁾.

The conditions in Domat al-Jandal did not alter until Saud family reigned, bringing stability to the region, extending the sovereignty of the third Saudi state over it in 1340 AH / 1921 AD⁽²¹⁾. This was the beginning of a period of security and stability after the fatal wars that lasted for more than a century and Domat al-Jandal was transformed from a town ravaged by wars to a medium-sized urban and economic area

that benefits from its distinct location, completely changing the daily life of the local inhabitants.

Second Idea: Historical buildings in Domat al-Jandal site and the reasons for their disappearance:

First: The Historical Buildings⁽²²⁾:

Domat al-Jandal contains important archaeological sites dating back to different periods, the most distinctive of which are Mard Fortress that overlooks the city, Omar Mosque, and the old city with its fortified walls (Pic. 2). Domat al-Jandal consists of a group of fifteen closely related neighborhoods known as the "markets", each of which containing between 2 to 10 families. Each neighborhood consists of a group of stone and mud houses with flat roofs, connected by a network of streets and winding alleys. The lower part of the valley also includes some wells that are used for irrigation through small channels. Each neighborhood had a leader or tribe sheikh, uniting the neighborhoods under the power of a great sheikh. Often, tribal conflicts and rivalries used to occur among the inhabitants of these neighborhoods, causing destruction and abandonment of such neighborhoods. A thick stone wall with rectangular towers surrounded these neighborhoods and their adjacent gardens, over which were a number of huge towers placed for surveillance, with a height of four meters and an apparent extension of about 2 km⁽²³⁾.

Despite the great architectural development witnessed by Domat al-Jandal in the last half of the twentieth century, the

⁽¹⁷⁾ Al-Shammari, Daraa neighborhood, Domat al-Jandal, pp. 44-48.

⁽¹⁸⁾ Al-Sudairy, Al-Jouf, p. 43.

⁽¹⁹⁾ Charlo, Romulo, Domat al-Jandal, p. 50.

⁽²⁰⁾ Al-Sudairy, Al-Jouf, p. 46.

⁽²¹⁾ Al-Sudairy, Al-Jouf, p. 45.

⁽²²⁾ Historical buildings are the collection of buildings that represent the architectural heritage of any region, and have historical significance for their historical dimension and their connection with important events in the region, see Feilden, Bernard M, **Conservation of historic buildings**, London: Butterworth Architecture, 1994, p. 11.

⁽²³⁾ Al-Shammari, Daraa neighborhood, Domat al-Jandal, pp. 57-89.

city's old center retained the form of the compact architectural design with narrow streets and alleys, assimilating the main feature of historical places.

Hence, more than 2800 years have passed in Domat al-Jandal, and morphological stages indicate that the city has gone through periods of flourishing, discontinuation and deterioration during which most of the architectural designs disappeared for various reasons related to the construction material and the city's exposure to wars, invasions and others.

The Mard Fortress once represented the whole city of Domat al-Jandal and did not settle on a certain state. In some periods, life was confined to the Fortress, while at other times, life extended to the lower part of the west.

Having a closer look at Domat al-Jandal site to shed light on the historical buildings left by the ancestors and the formers, being one of the main pillars of the tourism industry in the country, the magnitude of the dangers encountered by that heritage will be realized, which requires taking serious steps to protect and develop that heritage.

Second: Reasons for the disappearance and collapse of historical buildings in Domat al-Jandal:

Historical buildings are constantly at risk of disappearance, collapse and exposure to various factors more than any other type of archaeological evidence the preservation methods and means of which are available.

In fact, there are various natural and human factors and causes that put Domat al-Jandal monuments at risk, just as the rest of the world monuments. People must expect such factors for they are normal ones, some of which are old, related to age, while others are modern variations imposed by contemporary living conditions. Such causes are related to the following factors:

Firstly: Causes arising from environmental conditions, including:

1- Humidity and Water:

The ancient buildings of Domat al-Jandal are heavily affected by the continental desert climate and its destructive elements, represented in the various sources of humidity, as they play a major role in the deterioration of the ancient buildings of the site. The rain and the ongoing torrents that the site is exposed to every winter or the leakage of agricultural irrigation water cause cracks leading to the deterioration of many buildings or parts thereof, and other problems such as carving of stone walls and their weakness, and changing limestone to black, along with cracking of clay walls⁽²⁴⁾.

The destructive causes of ground water⁽²⁵⁾ are represented in Domat al-Jandal salt lake near the archaeological site (Pic. 3), where salt-laden water seeps into the soil beneath the buildings, transfers to the infrastructure, and then to the walls, leading to the deterioration of building materials, whether stone or clay. There are also some low areas in the land filled with water throughout winter, forming large swamps, and what increases their danger is their vicinity to the archaeological sites.

Rains also play a role in the deterioration of ancient buildings when they collide with the clay walls, causing longitudinal lines that gather under the walls and weaken the infrastructure, which this may lead to the total collapse of the building.

⁽²⁴⁾ Adam, Mahmoud Abdel-Hafiz Muhammad, Architectural Clay Heritage in the Egyptian Oases - Risks and Means of Protection and Development, Symposium on Security and Safety of Archeology and Tourist Establishments, Naif Arab University for Security Sciences, Riyadh, 406, August 2015, p. 6.

⁽²⁵⁾ Abd El Hadi, M. **The structural damage of the building stones as effects of the physio-chemical factors.** In, **Stone material in monuments: diagnosis and conservation** , Second course, Heraklion -Crete, 1993, p 102.

It is found that in Domat al-Jandal rain mostly falls in winter and decreases during the rest of the year, but in general, when rain falls, it may be heavy and sometimes causes torrents, destroying ancient buildings, especially clay ones, due to the sensitivity of clay to water.

2- Wind:

Domat al-Jandal is located in the semi-tropical high pressure belt, which makes wind an effective factor in the region, for it destroys the archaeological establishments in several ways. Wind, with what it carries of dust, sand, and gravel, distorts the surfaces and facades of ancient buildings, becoming a major factor of sedimentation⁽²⁶⁾. Wind also plays a major role in transferring the sand dunes and drifts⁽²⁷⁾ in Domat al-Jandal. This and the toxic wind, which is a local hot wind loaded with dust, are harmful to humans, buildings and heritage in Domat al-Jandal.

It is worth noting that the phenomenon of sand dunes is considered one of the major factors leading to the deterioration of ancient buildings, as air deposits that might be called "dusty sands"⁽²⁸⁾ spread, taking many forms, most notably dunes, which buried whole buildings (Pic. 4).

Secondly: Biological Factors:

Addressing the problems facing the ancient buildings in Domat al-Jandal, the attacks of termites on the clay buildings and the wood used in the thresholds, doors, windows, or ceilings, and others cannot be forgotten. This causes the buildings to lose their strength to bear the pressures and loads they face, which leads to the collapse of the walls, turning the buildings into piles of dust⁽²⁹⁾.

Termites may also feed on the wooden supports used in buildings, leading to their collapse, or insects may feed on the wooden ceilings causing them to fall inside the buildings, destroying their internal elements. Other than termites, there are many animals, birds, reptiles, trees, wild plants and others that cause problems for ancient buildings.

Thirdly: Human Causes:

Among the human factors that cause the disappearance and deterioration of historical buildings are:

- Wars and conflicts, as they are among the major risks resulting from human action for they are manmade, and they lead to architectural heritage destruction and to various material and moral losses.
- Thefts and attacks on ancient buildings and archeological sites, for man has found in these buildings an accessible source for plundering the materials needed for the construction of new buildings, as well as obtaining artistic elements from the ancient and historical buildings that are ready to decorate the new ones. Man also found an irresistible temptation for quick wealth by trading in parts of these buildings without considering their heritage value and what they represent for humanity. Added to this is the damage caused by illegal search and excavation works to ancient buildings, deforming their features, and one may even lead to the destruction of an entire ancient building for pursuit of quick wealth⁽³⁰⁾.
- Neglecting and abandoning the ancient and heritage buildings, and not performing periodic maintenance is one of the major factors behind their damage and destruction⁽³¹⁾.The ancient buildings of Domat al-Jandal have been severely damaged and destroyed due to neglecting the maintenance of these buildings, which led to

⁽²⁶⁾ Salim, Mohamed Sabry Mahsoub, *Western Desert of Egypt, Study in Natural Geography*, Faculty of Arts, Cairo University, 1992, p. 312.

⁽²⁷⁾ Adam, *Clay Architectural Heritage*, p. 10.

⁽²⁸⁾ Adam, *Clay Architectural Heritage*, p. 11.

⁽²⁹⁾ Adam, *Clay Architectural Heritage*, p. 11-12.

⁽³⁰⁾ Adam, *Clay Architectural Heritage*, p. 15.

⁽³¹⁾ Adam, *Clay Architectural Heritage*, p. 16.

the total collapse of many of these unique buildings. It might have been possible to avoid all of this if there were periodic maintenance work for these establishments.

- Community's lack of awareness of the significance of monuments, and lack of knowledge of their historical and artistic value, which leads to lack of protection of it.
- In addition to lack of funding resources and other causes affecting ancient buildings.

Third Idea: Rehabilitation of Domat al-Jandal Site:

First: Motives for rehabilitating Domat al-Jandal Site:

The major motives for the rehabilitation of Domat al-Jandal site reside in the protection of the national heritage represented in the architectural design for historical, spiritual, national and aesthetic dimensions, as well as being a major model in its consistence with the social and economic frameworks that can be an inspiration for a contemporary framework. This is in addition to its economic viability, for the rehabilitation of Domat al-Jandal site can yield a rewarding economic profit.

Second: Current directions followed in the rehabilitation of Domat al-Jandal site:

The process of the site rehabilitation is not a simple routine task, but an entangled intensive work. In general, it should be done according to main steps, starting with gathering and examining information, and ending with setting and implementation of plans. Moreover, the rehabilitation of the archeological site requires teamwork as it is implemented by an integrated and cooperative team of specialists, engineers, craftsmen, archaeologists, photographers and painters.

Thus, this work was the result of a long series of tasks taking place at Domat al-Jandal site since 2009 AH / 1428 AH, and is still continuing in cooperation between the

General Authority for Tourism and National Heritage and the foreign mission, as well as a group of other concerned authorities in Domat al-Jandal, involving the local community. What has been implemented over this period can be summarized as follows:

- Documentary surveys and scientific conservation:

The Authority worked on conducting scientific research work on Domat al-Jandal site, and formed a specialized team from the antiquities and museums sector in the authority to participate with the French-Italian mission, and recorded all the archaeological remains found from prehistoric times to the Islamic era in a scientific and systematic methodology. Through the remaining monuments, signs of all human activities are found as: buildings, stone centers, cemeteries, wells, water networks, etc.), or inscriptions (inscriptions and pictures carved on the walls, stone paintings, etc.). This is in addition to the tangible monuments, especially the decorated granite and the marble pieces found on the surface of the earth, representing valuable temporal indicators for the archaeologist, enabling dating and understanding the site, especially before the appearance of writing or when recordings are missing.

The surveys of inscriptions on the site were carried out by epigraphists and specialists in inscriptions and ancient writing, or historians, in coordination with archeologists. Also, every monument was photographed and documented using hand tools and also precision devices (called differential positioning system)⁽³²⁾.

- **The use of geographic information systems:**

The archaeological works implemented relied on geographical information systems,

⁽³²⁾ Charlo, Romulo, Domat al-Jandal, p. 26.

and the identification of archeological sites in topographic maps. This is because maps, aerial views and satellite imaging assist in giving an accurate view of the archaeological state of Domat al-Jandal, and shed light on the most important stages of the development of the archaeological site.

A number of geomorphological studies were done to verify the geographical formation and elements of water and sediments, recording all data on databases⁽³³⁾.

- Archaeological excavations at the site:

The archaeological mission carried out excavations in various places of Domat al-Jandal. Their aim was to accurately and completely examine the state of the archaeological remains area, in order to evaluate the archaeological assets, determining the tourist areas in a better way through this process, in addition to identifying the risks they face⁽³⁴⁾.

Among the works of the project on Domat al-Jandal site was that two types of archaeological sensors were performed⁽³⁵⁾, installed in parallel in two different parts of Domat al-Jandal in order to provide accurate scientific data, documented to assist in the rehabilitation of the site. In the historical area where there are various main features, a deep optional drilling has been carried out on a large scale to determine the significant stages in the development of the site since its establishment to the last stages of its existence. It was found that this part contains several archaeological layers that extend to even more than six meters below the surface of the earth, which asserts that Domat al-

Jandal remained inhabited for a long period of time⁽³⁶⁾.

Excavations were performed in a variety of ways in order to obtain maximum amount of data without doing archaeological surveys that are often harmful since they may cause irreparable damage to some ancient levels. One of the methods used in excavation is the square-shaped excavation method of 300 x 200m⁽³⁷⁾.

This is in addition to the geophysical excavation method, which is a modern method operated by precision equipment and highly skilled and experienced technicians, and depends on measuring the depth of the ground using magnetic sensor⁽³⁸⁾.

Among the most prominent discoveries was finding a huge building whose area and manner of construction indicate that it belonged to a rich person or used for public or religious purposes (Pic. 5). In addition, the excavations revealed a large "Triclinum" building (the Romans guest room), dating back to the period between the first century BC and the first century AD⁽³⁹⁾ (Pic. 6).

- Restoration and preservation of artifacts:

The restoration of artifacts is done simultaneously with the archaeological discoveries in the site⁽⁴⁰⁾. This is implemented through al-Jouf Regional Museum in Domat al-Jandal to preserve the artifacts and archaeological items after their restoration and treatment through a scientific method that guarantees their survival and safety.

- Diagnosis of ancient buildings:

Before starting the process of restoration and preservation of historical buildings, the General Authority for Tourism and National Heritage followed a clear strategy based on

⁽³³⁾ Charlo, Romulo, Domat al-Jandal, p. 24.

⁽³⁴⁾ Charlo, Romulo, Domat al-Jandal, p. 18.

⁽³⁵⁾ The sensors are copper wedges, each of 1m in length, 1.25cm in diameter. These wedges are implanted into the ground at equal distances between them, and then the depth to which each wedge reaches is calculated, for it is difficult for it to reach a deeper level, drawn in bar graphs and analyzed. However, this method is difficult to use if the rocks are very deep.

⁽³⁶⁾ Charlo, Romulo, Domat al-Jandal, p. 18.

⁽³⁷⁾ Charlo, Romulo, Domat al-Jandal, p. 26.

⁽³⁸⁾ Charlo, Romulo, Domat al-Jandal, p. 18.

⁽³⁹⁾ Charlo, Romulo, Domat al-Jandal, p. 29.

⁽⁴⁰⁾ Charlo, Romulo, Domat al-Jandal, p. 16.

scientific principles. It began with the field survey with the aim of identifying the historical buildings and analyzing their construction condition and the risks surrounding them. Then, elaborate architectural designs were set, followed by collecting the necessary data of the folk and written heritage and the old photos, doing an archaeological survey and analysis of the ancient material of historical buildings.

This initial stage is important for diagnosing the condition of the buildings in the archaeological site. It included the following⁽⁴¹⁾:

- 1- Preparing architectural maps, plans and necessary details on the buildings.
- 2- Preparing diagnostic maps identifying the areas of cracking and deterioration.
- 3- Photographing the buildings thoroughly and accurately.
- 4- Studying and analyzing the buildings historically, technically, aesthetically, and architecturally.
- 5- Preparing the necessary architectural maps for backup, reinforcement and maintenance operations.

- Restoration and maintenance of ancient buildings:

After completing the diagnostic phase, the authority developed a clear plan for the restoration works, and prepared the archaeological site based on specific and administratively, financially and professionally coordinated stages. The authority also formed a team of technical specialists, historians, architects, and craftsmen from outside the region and from its inhabitants who have work experience.

A number of successful restoration projects took place to preserve historical buildings and reveal their value and

originality. Some of these projects were implemented by specialized local hands, while others were based on cooperation with foreign team or companies, making sure that all modifications, reinforcements, and new maintenance works were documented and recorded before starting work and after its completion, to be saved as historical documents for the future. The first of such buildings (Pic. 7) were the following:

Mard Fortress:

It is the most prominent archaeological landmark in Domat al-Jandal, located on a high hill, southwest of Omar ibn al-Khattab Mosque. It is considered one of the military fortresses in north of the Arabian Peninsula, and its height from the ancient city of Domat al-Jandal characterizes it as a defensive fortress. The earliest mention of it dates back to the third century AD, when (Zenobia, Queen of Palmyra) mentioned it saying: "The rebellion of Mard and glory of Ablaq"⁽⁴²⁾ after she besieged the fortress and was unable to enter it, returning to Palmyra⁽⁴³⁾.

The architectural layout of the fortress is divided into two parts; one of which is civilian for residence, housing, and administration, and the other is military for observation and announcement of war and attack. The fortress was destroyed and rebuilt several times over the centuries.

As for the second unit in the fortress, it is new and added along the south side of the main building. It is a palace attached to the fortress, built in the flat area adjacent to the top of the rocky hill upon which the fortress is set, connected to the fortress through the northeastern corner. The palace includes a reception hall, a series of fortifications, towers, an open courtyard and a mosque. Its

⁽⁴¹⁾ Mukhtar, Muhammad Jamal al-Din, *Monuments' and Artistic Works Protection*, Arab Center for Security Studies, Riyadh, 1992, p. 35.

⁽⁴²⁾ A fortress overseeing Tayma, built by Adiya Abu al-Samawal, see Ali, *The Detailed in the History of Arabs*, Vol. 8, p. 106.

⁽⁴³⁾ Ali, *The Detailed in the History of Arabs*, Vol. 8, p. 106.

construction might date back to the date of the fortress' restoration by Ibn Shaalan in 1339 AH after taking control of Al-Jouf⁽⁴⁴⁾.

The fortress and the palace were recently restored to preserve their general form and historical and cultural value (Pic. 8), which raised the prestige of their unique presence and domination over the spatial area, attracting large numbers of tourists.

Omar ibn al-Khattab Mosque:

It is one of the oldest and most important ancient mosques in the north of the Arabian Peninsula. The importance of the mosque stems from its design, as it represents the revival of the design of early mosques. It is a reminder of the design of the Prophet's Mosque, may God bless him and grant him peace, in Medina in its early stages. The significance of this mosque lies as well in the fact that it preserved its original design⁽⁴⁵⁾.

Restoration was recently done to the mosque and it was opened to worshippers. The restoration operations included all parts of the mosque, in terms of rebuilding the collapsed walls, restoring the entire roof, cleaning and paving the floors with stone, filling the spaces between stones, restoring the mosque's retreat and re-roofing and repairing its doors (Pic. 9).

The Old Market:

Arabs before Islam had markets in different regions of the Arabian Peninsula where they gathered in certain seasons and exchanged buying and selling. Domat al-Jandal is regarded one of the oldest and most important Arab markets due to its geographical location⁽⁴⁶⁾.

Domat al-Jandal market includes the ruins of old shops built of stone within the archaeological area below Mard Fortress in the center of the old city and represents part of Domat al-Jandal market that was demolished more than 27 years ago.

Due to the historical significance of the market and its touristic integration with other ancient buildings, the General Authority for Tourism and National Heritage has restored five shops with their antique wooden doors as a first stage for the restoration of the entire market. It also built a line of shops based on the old style at the opposite western side, containing ten shops, with an area of 15 square meters per store, using old materials of stone, clay, and wood (Pic. 10).

Daraa Neighborhood:

The priority given to some of the old buildings is based on the fact that they represent the identity of the region and reflect a major period in history that requires to be highlighted. Daraa neighborhood, with its current design, represents the Arab Islamic city in terms of its distinct architectural design. It is also a significant example illustrating the succession of civilizations in Domat al-Jandal. Its establishment dates back to the medieval Islamic era, while its infrastructure and archaeological layers date back to the middle of the first millennium BC⁽⁴⁷⁾. The neighborhood is distinguished by its arches, stone buildings, and alleys, and its occurrence within gardens and waterways providing life supplies for the residents of the neighborhood from the nearby lakes. Also, the neighborhood is based on the ruins of previous neighborhoods, which is evidenced by the multiplicity of layers as well as the appearance of the neighborhood's old road under the existing buildings. Stability in the

⁽⁴⁴⁾Al-Shawati, Muhammad Abdullah, Palaces, houses, and ancient and heritage homes in the Kingdom of Saudi Arabia, General Authority for Tourism and Antiquities, Riyadh, 1432AH-2011AD, p. 31.

⁽⁴⁵⁾ Al-Shammari, Daraa neighborhood, Domat al-Jandal, p. 61.

⁽⁴⁶⁾Ali, The Detailed History of the Arabs, Vol. 5, p. 112.

⁽⁴⁷⁾Al-Shammari, Daraa neighborhood, Domat al-Jandal, p. 70.

neighborhood successively continued until the 1970s.

Neighborhood property was expropriated more than 27 years ago, and compensation was paid to homeowners. The General Authority for Tourism and National Heritage has finally managed to rehabilitate parts of Daraa neighborhood, and clean the site, removing the dust and debris.

The authority was keen on developing the neighborhood while preserving its authenticity. The neighborhood's main southern entrance (Pic. 11) was restored, the transfer path inside the neighborhood was paved with stone, and the facades and doors of the houses overlooking it were built. The project also included the dismantling and rebuilding of some stone buildings, roofing them with wood and other works in accordance with the development plan set for this neighborhood (Pic. 12).

- The appropriate use of the ancient buildings and their sustainability:

The best way for the rehabilitation and preservation of ancient buildings is to find suitable uses for them that assimilate with the historical ambience of the old city, while preserving their originality and taking continuous care of them. This is in addition to the necessary understanding of large sectors of the community of the monument's significance and its necessity, along with setting the legislative controls and rights to dispose public properties and finally providing the required financial allocations.

The re-use of an old house that dates back to more than 160 years is an example of the developments in Domat al-Jandal that asserted the preservation of previous values, along with stressing the importance of continuing to use ancient buildings. This house is located at the foot of Mard Fortress within the architectural design of Daraa neighborhood, and was previously Al-Nassar

family house. It consists of two floors (Pic. 1), following the style of old Domat al-Jandal buildings with local building materials and techniques. It was selected for its location and ease of access to it, and because its constructional structure is mostly in good condition, as well as its acceptable exterior and interior form. Then, the General Authority for Tourism and National Heritage of Al-Jouf Region worked on its restoration, providing it to one of the investors from Domat al-Jandal for its rehabilitation 1435 AH to be used as a popular hall to host Arab hospitality traditions (Pic. 13). The collapsed parts were repaired, treating it with the building materials that were originally used in construction. Air-conditioning and heating systems were installed in a way that does not harm the building, along with the addition of lighting and furniture and other elements in a consistent manner with the spirit of the place (Pic. 14), The hall of the fortress became a popular destination for visitors and tourists, and thus, in this ideal method, the identity of the site was preserved.

Also, the revitalization of Domat al-Jandal old market is one of the major projects that have been carefully received by the Tourism and National Heritage Authority within the rehabilitation of Domat al-Jandal site. Visitors of the Al-Jaof region and its tourists visited it from time to another. The old market attracted attention through the traditional style of its shops that takes the visitor back to the atmosphere and authenticity of the ancestors' past in selling and trading. It displays all kinds of crafts that were known previously in the region. It also includes popular stores for productive families upon which a number of women depend, selling many popular foods, spices, handicrafts, heritage works and souvenirs.

Also, one of the investment programs supported by the Authority to highlight the

culture and history of the region and to develop the tourism sector in the region is the restoration of the old emirate building that was established in 1372 AH during the reign of King Abdulaziz (may Allah have mercy on him), converting it by a local investor into a heritage museum. It contains halls displaying old coins, numismatics, stamps, Quran copies, accessories, swords, guns, shields, carpets, sewing tools, hospitality and Arabic coffee tools, and farming tools, in addition to a comprehensive heritage tent, three rooms with mummifications and fossils, and a popular market having various traditional and popular pieces.

- Propagating the activities in the historic city center area:

The General Authority for Tourism and National Heritage of Al-Jouf Region propagated the activities in the central area of Domat al-Jandal site, such as the Fortress Square and the Market Square, because of its archaeological and historical aspects, and to link the citizen and visitor to these important landmarks in the region. Many festivals and events were held, including Domat al-Jandal Festival, Olive Festival, and Al-Jouf Spring Festival. The activities varied based on their qualitative national heritage, holding competitions, horse and camel riding activities, and making (al-Jamri) bread that the area is famous for, in addition to doing clay construction courses, and displaying the crafts of expertise craftsmen for the new generations (Pic. 15).

Among the plan of the new projects implemented by the General Authority for Tourism and National Heritage is the renewal and development of Al-Jouf Regional Museum in Domat al-Jandal in a modern style and its preparation for new exhibitions that will contribute to familiarizing visitors with the region's heritage, history and archaeological discoveries, and to represent

the most important tourist attractions in the Al-Jouf region.

Fourth Idea: Evaluating the experience of rehabilitating Domat al-Jandal site:

Based on the above analysis, and upon field visits to the site, it has been noticed that the majority of the ancient buildings are still in poor architectural condition, representing about (60%) of the total number of buildings (Pic. 16).

In the researcher's view, no integrated project was directed to the restoration and rehabilitation of the historical buildings in Domat al-Jandal site, but was merely a restoration of some deteriorated alleys and buildings and a rehabilitation of a few important separate buildings, transforming them into tourist attractions. Also, the renewal of the infrastructure was mostly superficial and did not solve most of the problems.

The development of public spaces and their use in activities was also noted. Yet, providing shades was not taken into consideration in most urban spaces, along with the unorganization of a plan aimed at improving environmental issues such as removing debris and accumulated wastes, reducing pollution and recycling the wastes spread in the collapsed areas as an appropriate solution for the environment.

However, despite this and the weak potentials available, the experience has made some achievements, for example:

- Considering the historical role of some buildings and architectural sites, either for their relationship with the cultural heritage or for their social dimension. As an example of this is the restoration of Ibn Shaalan Palace, which was established after his control over Al-Jouf in 1327 AH / 1909 AD, and the old emirate building and its reuse after transforming it into a public museum.

- Restoring prestige to the gates of the fortress, especially the western one, and the southern gate of Daraa neighborhood.
- Preserving the narrow and twisted alleys system, paving them with mud-like brick similar to the original, to assimilate with the structures in it and specify it for pedestrians only.
- Maintaining the value of the market in the central region, for the significance of this facility, being the zone of movement and activity in the site.
- Preserving the existing trades and traditional activities, developing them by providing training courses.
- Preserving the original design of the historical area, with regard to the streets and spaces of the old neighborhood.
- Supporting the economy by reusing some ancient buildings and providing tourist attractions.
- Raising the awareness of the community on the importance of monuments and heritage.

Fifth Idea: Rehabilitation of Domat al-Jandal site at the international level:

The process of rehabilitating Domat al-Jandal will progress greatly, for there is a progressing development plan that will include the old city, and its implementation has not started yet. Rehabilitation will be at the international level in the future, as Mr. Hussein Al-Khalifa, Director General of the General Authority for Tourism and National Heritage in Al-Jouf stated that: Due to the archaeological and historical significance of Domat al-Jandal, the General Authority for Tourism and National Heritage worked on developing "Daraa Neighborhood" to include it in the list of UNESCO World Heritage sites. Also, the Architectural Heritage Department of the Authority is currently working on a project for the restoration, preparation and development of Daraa neighborhood, including a broader section of

the buildings extending to the adjacent heritage neighborhoods such as "Suhaim" and "Al-Abbas", in line with the standards and requirements approved by UNESCO to transform it into a distinctive tourist attraction in Domat al-Jandal archaeological site.

Therefore, the researcher proposes to rehabilitate all the old neighborhoods of Domat al-Jandal, and to convert Daraa neighborhood into a heritage motel or hotel, developing each of its parts with its distinct characteristics. This enables it to join the World Heritage List, following the integrated development approach, provided that the authority prepares an operational plan to make use of the site in all aspects (cultural, social, heritage, economic and touristic), so that the site is revived and positive interaction is generated between the local environment on one hand, with what it represents of local and heritage products and handicrafts, and the tourism plan of the site on the other. The rehabilitation of the site is to be coordinated as well with an expertise to cooperate in the rehabilitation of the neighborhood based on international standards. The main goal of the project is to preserve the remaining buildings in Daraa neighborhood with all their architectural elements, through their maintenance and restoration in a way that preserves their components and characteristics that represent the environment and reflect the old lifestyle in Domat al-Jandal reflected in this historical neighborhood. This is in addition to the integration of the neighborhood in its local architectural and environmental aspects, as well as the cultural and scientific at the national and global levels.

The researcher also proposes the establishment and operation of a center for the visitors of the site, along with the development of the gardens surrounding the

region from the north and east, to be a place for visitors to sit and watch Domat al-Jandal monuments, irrigating gardens through channels and waterwheels.

Conclusion and recommendations:

The study tackled a number of controversial ideas that raise several questions on the rehabilitation of Domat al-Jandal archaeological site. It also dealt with the factors and causes behind the deterioration of historical buildings, and the current efforts being implemented to preserve and rehabilitate the site, attempting to assess that experience of architectural preservation and rehabilitation.

The study concluded that the method of rehabilitating and reusing those buildings of historical value is considered one of the most important methods for the preservation of monuments from disappearance, ensuring their sustainability and affirming the cultural and historical identity of the site.

The study also concluded that the method of rehabilitating and using valuable buildings in performing new tasks that are consistent with the place and age, maintaining the buildings and their value, is one of the principle elements of preservation and is considered an appropriate source of revenues for the economic reality of developing countries.

Some recommendations:

- Promoting the appropriate use of ancient buildings as one of the methods of preserving them and maintaining the cultural identity of the archaeological sites, ensuring their sustainability for future generations.
- Reusing as one of the strategies for preserving the architectural heritage of the old Arab city and thus maintaining the cultural identity of these cities in a manner

that guarantees their sustainability for future generations.

- Including the whole site in the rehabilitation, not parts of it.
- Highlighting architectural characteristics and aesthetic values to reflect the stages of the development of civilization.
- Examining the environmental and social conditions of historical buildings prior to implementation to avoid the emergence of problems after using them in new ways.
- Emphasizing the treatment of empty lands and before doing any new constructions, it is necessary to identify the extent of its impact on the site.
- Distinguishing the restoration works from the original.
- Affirming the graduation of urban spaces used in the neighborhood design.
- Improving the infrastructure of historical buildings, and its rehabilitation and renovation.
- Holding some touristic activities that are compatible with the ancient buildings in Domat al-Jandal on one hand and the nature of the environment on the other, including services of food, accommodation, parking lots and others.
- Preserving the central area by developing a simple method for collecting garbage in the neighborhood.
- Making use of the compact design in old neighborhoods for lighting or natural ventilation.
- Raising the community's awareness on the importance of monuments and heritage and the necessity for preserving them.
- Distributing lighting units appropriate to the general historical style.

Acknowledgment:

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3- Oral Narrators:

- Dr. Ali Al-Ghabban, Vice-President of the General Authority for Tourism and National Heritage.
- Mr. Hussein Al-Khalifa, Executive Director of Tourism, Al-Jouf.
- Mr. Ahmed Al-Qaid, Director of Domat al-Jandal Museum.
- Eng. Sheridah Farhan Daraa, Civil Consultant, Ministry of Health, Al-Jouf.
- Eng. Bader Al-Hamdan, Director General of the Architectural Heritage Center, Al-Jouf.

4- Websites:

- Website of the General Authority for Tourism and National Heritage: <https://scth.gov.sa>

Pictures and Figures:



Pic. (1)
Mard Fortress



Pic. (2)
Main Ancient Buildings in Domat al-Jandal



Pic. (3)
Domat al-Jandal Lake



Pic. (4)

Removing sand from the western side of the wall in 1432 AH



Pic. (5)

A huge building discovered, perhaps representing a palace
Source: General Authority for Tourism and National Heritage



Pic. (6)

Excavations showing the Nabataean triclinium building (ballrooms)
Source: General Authority for Tourism and National Heritage

Rehabilitation of Domat al-Jandal Archaeological Site



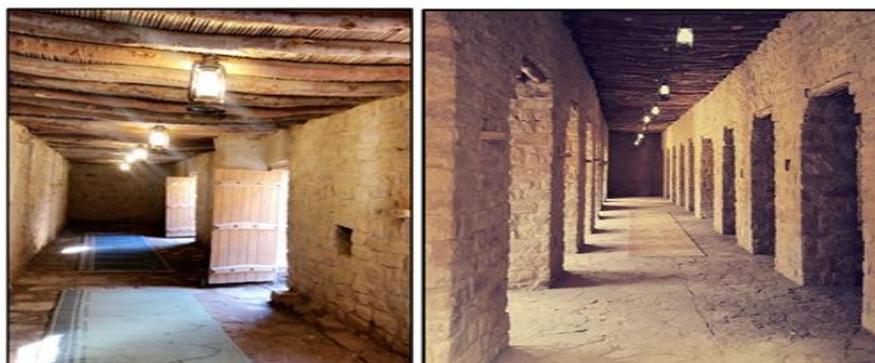
Pic. (7)

Domat al-Jandal site after rehabilitation



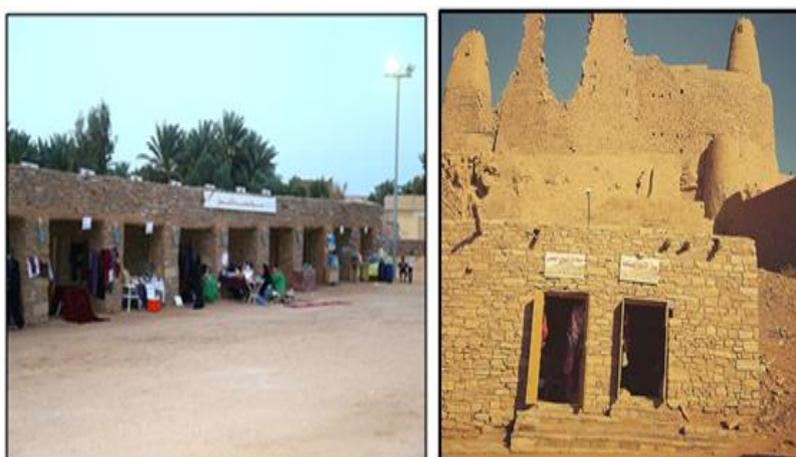
Pic. (8)

Ibn Shaalan Palace and Mard Fortress after restoration



Pic. (9)

Inside Omar Mosque after restoration and preparing it for prayer



Pic. (10)

Domat al-Jandal Market after rehabilitation



Pic. (11)

The main southern entrance to Daraa neighborhood

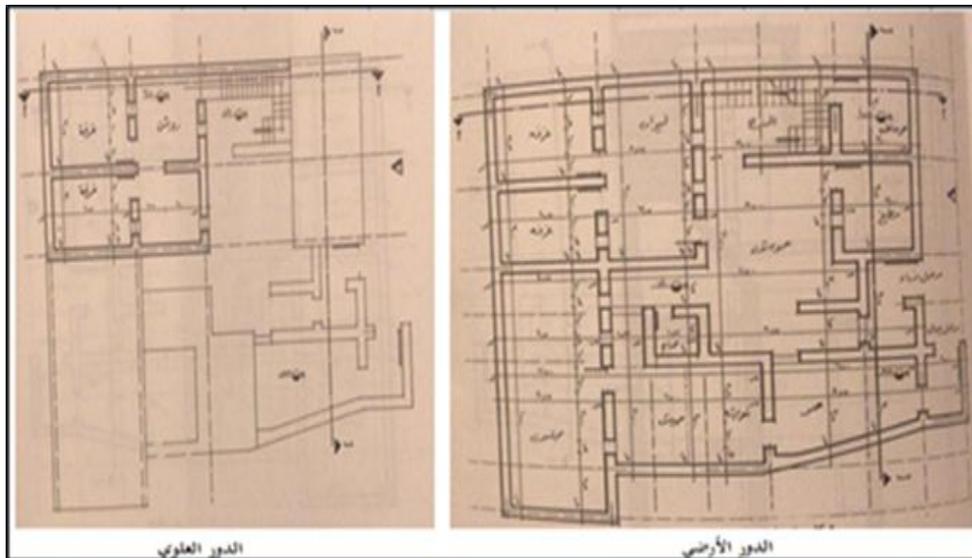
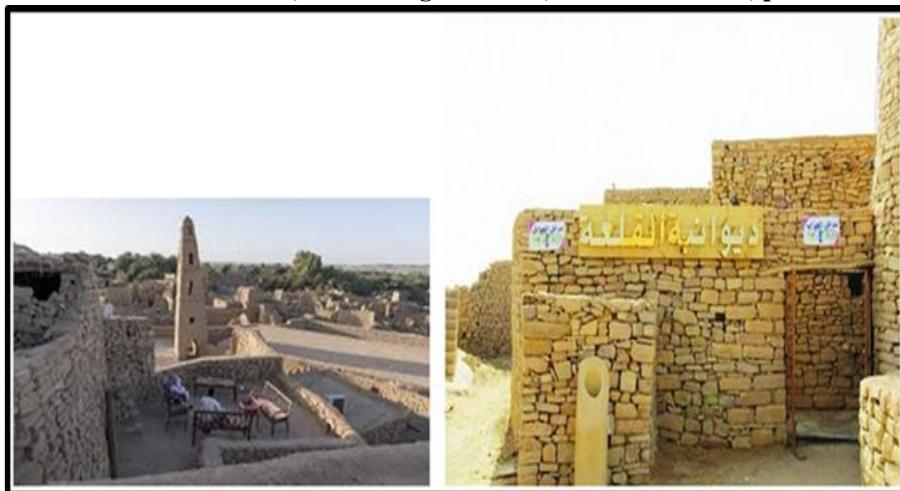


Fig. (1)

Plan of the house converted to a popular hall

Source: Al-Shammari, Daraa neighborhood, Domat al-Jandal, p.315-316



Pic. (12) Fortress hall from the outside

Rehabilitation of Domat al-Jandal Archaeological Site



Pic. (13)

Fortress hall from the inside



Pic. (14)

Restoration of parts of Daraa neighborhood



Pic. (15)

Some of the cultural events and activities held in the archaeological area



Pic. (16)

Large parts of Domat al-Jandal buildings are still in poor condition

إعادة تأهيل موقع دومة الجندل الأثري

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الملخص:

يحتوي موقع دومة الجندل على كم هائل من الآثار المتنوعة، التي تعكس العمق التاريخي للمنطقة، حيث كانت ممراً للقوافل التجارية ومسرحاً للكثير من الأحداث التاريخية الهامة .

وانطلاقاً من هذه الأهمية جاءت هذه الدراسة بهدف إيجاد حلول مناسبة للمحافظة على هذا الموقع الأثري المهم وإعادة تأهيله^(٤٨) وتطويره وتنميته عمرانياً وثقافياً واقتصادياً، بما يُبرز معالمه الحضارية وبعده التاريخي، وقبل هذا كله تبدأ الدراسة بلمحة موجزة عن دومة الجندل من حيث تحديد موقعها، والتعرف على معطيات المراحل المورفولوجية التي مرت بها (تخطيطها ونسيجها العمراني، والاستعمالات الحضرية لأراضيها)، محاولة تحقيق أهدافها الرامية والإجابة على التساؤلات التالية :

- ما هو الوضع الحالي للآثار المعمارية في موقع دومة الجندل، وما هو حجم المتهاك والمندثر منها ؟
- المحافظة على الآثار مسئولية وطنية يتحملها الجميع، فهي تعد مصدر إلهام لتاريخنا العظيم، وانطلاقاً من أهمية موقع دومة الجندل، فهل من سبيل لإبرازها تاريخياً ؟
- وهل من سبيل للمحافظة على آثارها الباقية من الإهمال والعبث والإزالة ؟
- وهل هناك طريقة لاستدراك ما ضاع منها، أو حلول مناسبة لترميم وصيانة مبانيها المتهاكة ؟
- إضافة إلى إن الآثار تعد مصدراً اقتصادياً، فهل هناك إمكانية إعادة تأهيل الموقع ضمن النسيج الحضري الحديث ليصبح مركزاً أثرياً ورافداً سياحياً، دون التأثير على التراث القديم .
- يتسم العمق التاريخي لموقع دومة الجندل فيما يسمى حالياً بحي " الدرع "، والذي يحتض أقدم المعالم التاريخية، كقلعة مارد التي تعود لما قبل الإسلام، و مسجد عمر بن الخطاب ذو الطراز المعماري الفريد بمئذنته المخروطية، والسوق القديم الذي يعد من أوائل أسواق العرب قبيل الإسلام. ولهذه الاعتبارات الخاصة هل من الممكن ترشيح حي الدرع ليشهد موقع دومة الجندل مرحلة جديدة بتحويلها إلى موقع تراثي مهم على المستوى العالمي ؟

الكلمات المفتاحية:

إعادة تأهيل، موقع أثري، عمارة، واحة، دومة الجندل، المملكة العربية السعودية، مدن قديمة.

^(٤٨) مفهوم إعادة التأهيل، يقصد به إعادة استخدام المواقع القديمة بشكل عام بما فيها من مباني سكنية أو تجارية أو صناعية، وذلك من خلال الإصلاح أو التطوير مع الحفاظ على أجزاء المبنى وعناصره التي تحمل قيمة تاريخية أو معمارية أو ثقافية مميزة عبر العصور التي مرت على المبنى منذ إنشائه، كل ذلك من أجل تحقيق استمراريته والمحافظة عليه، انظر مدبولي، مصطفى كمال، إعادة تأهيل المناطق المركزية ذات القيمة التاريخية في الدول النامية " دراسة حالة القاهرة "، رسالة ماجستير جامعة القاهرة، القاهرة، مصر، ١٩٩٢م، ص ٢٦