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Al-Amal Neighborhood Obsolesced Buildings Necessarily Renovated to Meet the United Nations Habitat Density Standard.

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ABSTRACT

The United Nation Habitat adopts the use of a density standard of one fifty people per hectare as a model. From a design viewpoint, the dense urban areas offer a suitable shade for passers-by in the streets. Building renovation and remodeling improve the living space, each with its own set of benefits. Their differences help in choosing either of them for buildings best suits the client. Renovation updates the perception of just one space or the whole building without changing its intended purpose required for urban development in the context of this research. This consideration limited to residential, commercial, and mixed used building being the majority and most significant building types, for people's well-planned settlement and social and economic growth. To come out with recommendations for the renovation of residential, commercial, and mixed used buildings, Hail City's Al-Amal neighborhood chosen as a case study in which these three types of buildings necessitating renovation to counterbalance the imbalanced population density recommended by United Nation Habitat. The methodology depends on the theoretical aspect, this approach based on the statistical study and analysis of the residential, commercial, and mixed used building and their urban sprawl, urban zone, and urban density to reach at such impact on the United Nation Habitat recommended standard. To end up the research and conclude by a practical field statistical studies and analyses exemplifying the residential, the commercial and mixed used buildings requiring renovation opting for the recommended population density the United Nation Habitat calls for.

Keywords: Neighborhood district, Renovation, Obsolesced buildings, The United Nations Habitat recommended density.

INTRODUCTION

Neighbourhood

The neighbourhood is a setting for the houses and their supportive facilities, composed of the streets, trees, shrubs, hedges, setbacks, and street components. The neighbourhood includes a pattern of walkways, driveways, garages, porches, diversified building types and landscaping. Neighbourhoods are urbanized setting with an integrated and diversified human activities. Connectors separating neighbourhoods from districts are called corridors. When a single neighbourhood is found separately in a setting is called a village. (City of Burlingame Neighbourhood Design Guidebook, 2012). [1].

The neighbourhood has a well-integrated activities as dwelling, shopping, working, learning, worshipping, sporting, and entertainment. The ideal size of a neighbourhood is 402 meters from its centre to its edge. The district is an urbanized setting that is specialized in a certain function which is to basically dwell residents. Districts are not strictly single activity zones of any setting compared to complete neighbourhoods, which are necessarily having full range of activities such as parks, housing of different types, lower-level educational institutions,

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worshiping places, and shopping centres. The multiple activities support the specialized district's primary identity. Exemplars of specialized districts are the theatre districts, which have restaurants and bars supporting and intensifying their nightlife, there are also the tourist districts, encompassing hotels, retail activities and leisure activities as well as the university campus, dominated by a large institution but still considered as a district. Other districts accommodate large-scale transportation such as airports, even though having that aspect of specialization their character and efficiency is still enhanced. (Andres Duany and Elizabeth Plater-Zyberk, 2010) [2].

BACKGROUND

Obsolesced buildings

The adjective obsolete defined as no longer used or practised, outmoded, out of date, worn away, effaced, eroded, worn out, dilapidated, atrophied. The noun obsolescence is as well defined as the process or fact of becoming obsolete or outdated, or the process of falling into disuse, or more specific the process whereby or state at which machinery, consumer goods, become obsolete as a result of technological advancement, changes in demand. Oxford English Dictionary (2010) [3]. (The Merriam-Webster New Dictionary, 2010) [4] goes to other definitions as it means no longer current and old-fashioned. As obsolescence is a condition leading to demolition, there are other solutions, the most suitable of all is renovation prolonging the buildings life span. (André Thomsen and Kees van der Flier, 2011) [5].

Buildings Repairment Interrelated Terms Definitions

The rebuilding method of returning a building, place or area of activity to its previous good condition generally referred to as Rehabilitation. Rehabilitation assures the restoration and repair of things of historic values, more especially when providing replacement as it assumes that the property is so much deteriorating prior to restoration and repair. Rehabilitation defined as the operation or process of possibly making an appropriate reuse of a property through restoration, amendment, and change while preserving the parts, details and components that convey its historical, socio-cultural, or architectural values, mostly by maintaining the same previous function and building type. The rehabilitation principles recognize the necessity of altering or adding to a historic building to meet up with the continuing or new functions meanwhile keeping the building's historic values. Rehabilitation then is to improve a building or an area so that it returns to the good condition it was in before, (Longman Dictionary of Contemporary English, 2008) [6].

Preservation known as the aspect of applying considerations inevitably sustaining the existing form, character, and materials of the historic building such as the means of protecting the building, focusing upon the continuing maintenance and repair of historic materials and components rather than an overall replacement and total construction renewal. The defined and sensitive upgrading of mechanical, electrical, and plumbing systems and other necessary works to make properties functional is so much required within a preservation project including new exterior additions. To come out with a distinctive preservation, retention of a good number of historic profiles along with the building's historic form, most significantly the preservation of the same previous function and building type. Restoration known as the aspect of accurately highlighting the building form, its features, and its character as it appeared at a certain period, and this is achieved by removing features attributed to the different

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periods in the past and by reconstructing the missing features requiring restoration as well. The restricted and precise upgrading of mechanical, electrical, and plumbing utilities and other required services to make properties well functioned is sufficient to a restoration project. The Restoration requirements reach at a specified building at a particular time in the past by the maintenance of materials, forms, finishes, and its spatial aspects as early as its period of significance and as the same time eliminating those from other historic periods in addition to the maintenance of the same previous function and building type. Reconstruction referred to as the method of highlighting, by means of new construction, the form, profiles, and detailing of a non-surviving site, landscape, building, property, or structure for the purpose of reviving its existence at a certain past period in its previous historic location in addition to keeping the same similar former function and building type. The Reconstruction standards form a limited range for recreating a fading out or disappearing building by employing new materials, primarily for explanation reasons. (Kay D. Weeks and Anne E. Grimmer, 1995) [7].

Adaptive reuse known as the process of reusing an existing building for a purpose other than which it originally built or designed for, sometimes defined as recycling and conversion. Adaptive reuse is a successful strategy to optimize the operational and commercial performance of built property. Adaptive reuse of buildings becomes an attractive alternative to new construction in terms of sustainability and a circular economy. Adaptive reuse prevented thousands of buildings' demolition making them most significant components of urban regeneration. Not all-old buildings necessitate adaptive reuse. Architects, developers, builders and entrepreneurs wishing to become involved in renewing and reconstructing buildings must first make sure that the finished products serve the needs of the market. Also being completely useful for its new purpose and become competitively priced. The beatification process adapting buildings for new uses while retaining their historic characteristics is known as Adaptive Reuse. Using an adaptive reuse model increases a building's life span, from the groundbreaking stage to the time when the building needs to be demolished, by retaining all or most of the building services, inclusive of the structure, the outer skin and even the interior materials. This type of revivalism is not limited to historic buildings of significance and strategically adopted in case of outdated buildings. Adaptive reuse is an effective way of reducing urban sprawl and negative environmental impacts as considered by some urban planners. Reactivating the existing already fabricated building skin by renewing the use or function of the old buildings becomes a wonderful resource to a community by keeping neighbourhoods occupied and vital. As Yung and Chan affirmed, "adaptive reuse is a new kind of maintainable rebirth of city, as it covers the building’s lifetime and evades destruction waste, encourages recycles of the embodied dynamism and also delivers substantial social and economic profits to the world". (James Douglas, 2016) [8]. The method of reusing an old site or building for a purpose other than which it was built or designed for is referred to as adaptive reuse and regarded as the main factor in the act of conserving the least in an urban development. Renovation, facadism, and adaptive reuse are so close in meaning, therefore it becomes so difficult and debatable to distinguish between these three terminologies. Adaptive reuse is considered a better choice compared to demolition and historic preservation. Urban heritage and historic conservation share the same plans and policies. Obsolete buildings are nowadays regarded as inappropriate as progress in technology, politics, and

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economics moves faster when compared to the built environment. This notion makes adaptive reuse more appropriate since its programmatic requirements and sustainable options more reclaimable in the sites that require development. (Faris Ali Mustafa, 2011) [9].

The act of converting waste materials into new materials and objects is what is called Recycling. Recycling is an alternative to waste disposal, a term used before the employment of the term Recycling and the two terms refer to the process of material saving and greenhouse gas emissions reduction. The limitation of utilizing virgin raw building materials maintained in the construction loop of buildings for as long as possible is not necessarily by preserving the same previous building function and type is called recycling. (Jasmina Radosavljević1, et al, 2011) [10]. When projects conserved from a rental building to a lodging hotel building in accordance with, and as contemplated by, the project budget, the plans, specifications, and the terms of this agreement, conversion, therefore, occurs. Conversion is the transformation notion of buildings to become better refunctioned upgrading its social, economic, and cultural aspect. It is as well the process of refunctioning a partially use building or portion thereof into a holistic use by providing a positive heating supply to the converted area; a potable water supply, protected from freezing; or energy conservation in the form of insulation to protect from heat loss. The alteration and the refunctioning of obsolesced buildings is also considered as conversion. Ari Widyati Purwantiasning, (Lily Mauliani et al, 2013) [11].

Renovation is undertaken when improving a broken, damaged, or an abandoned structure or to revive or reform something, most especially a space in a building or to renew the design and appearance of a building block in order to modernize it and making it more attractive. Renovations are mostly either commercial or residential. Moreover, renovation can refer to making something new, or bringing something back to life it is as well the notion of repairing and improving something, especially a building or the act or process of repairing and improving a building to bring it to its good condition again, or the amendments that are carried out to come with such effects. Remodelling is the act of altering the function and the design of a certain space. It may involve knocking down a wall to expand the living room and redesigning a master bedroom layout so the wardrobes, self-contained bathroom, changing room, are located and repositioned. Remodelling not always involves significant structural changes, as it can be something as simple as turning a home office into a guest bedroom. If the function of the area requires an alteration, it is then considered remodelling.

MATERIALS AND METHOD

Research Design and Methodology: The methodology depends on the following methods: the theoretical aspects, which in this approach based on the study and analysis of the categorized renovated residential, commercial and their mixed used building types and their urban sprawl, urban zone, and urban density. This eventually reach at such impact on the United Nation Habitat recommended standard of one fifty person per hectare in any urban area. To end up the research and conclude by a practical field studies and analyses to exemplify the residential, the commercial and their mixed used buildings requiring renovation.

The utilization of expected results and the expected outcome of this study is very beneficial to the Ministry of Municipal and Rural Affairs, policy makers. They could implement these guides for effective methodology to accelerate reaching the

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targeted population density recommended by the United Nation Habitat, of 150 persons per a hectare possible not only in in the city of Hail, but also in the whole of the Kingdom.

RESUTS AND DISCUSIONS

Difference between Renovation and remodelling in regard to the Quantity, Quality and The Cost Buildings Undergo When Repaired

Renovation and remodelling are similar terms but not synonymous. The terms Renovation and remodelling are often used interchangeably, but it is better to understand these terminologies before choosing either of them. Renovation is also called remodelling as both renovation and remodelling uplift and update the living space. Even though they are very different, each one of them has its own set of benefits and considerations. There are seven key characteristics for each of the two helps in choosing either of them in the buildings that best suits the client. Firstly, Renovation aims at updating the appearance and increases the well-being feeling in being inside the spaces or increases the joy feeling when looking at the stylish aesthetic of the entire structure either without necessarily changing its intended purpose being partially a living room, a dining room or a whole structure being a commercial building or a residential building. Secondly, in a renovation, a kitchen remains a kitchen and a bedroom remains a bedroom, but repairs, amendments and updates are significantly made. This generally includes, but not restricted to such works as painting, installing new flooring, and switching out items like cabinet knobs and faucets. Thirdly, renovation includes structural rebuilding as well. For example, if decayed wood members are discovered, they would be replaced and the area where it is fixed being wall, subfloor, or roof will be rebuilt using new more suitable building materials. Fourthly, during a remodel, the design and sometimes the structure is necessarily altered. Fifthly, remodelling is often more costly than renovation. Since remodelling involves changing the physical structure of a space or a building, it is often necessary to replace the wiring, plumbing, and ductwork, which makes the project more complex and more expensive. Remodelling is a better solution to poor and improper building design. Sixthly, if you have to walk through one bedroom to get to another, or if the water supply lines to your kitchen sink are installed in an exterior wall and leak every now and then, renovations will not solve the problems. When a building is poorly designed, remodelling is often the only solution. Seventhly, adding construction to the building would also be considered a remodel no matter how little is the addition that is why only renovation is allowed on some historic buildings, but remodelling is not. Almost one-third of their working time architects are involved in the owners or the developers' always available and standby staff. Almost one-third of their working time architects are as well work for the lessees around the clock. (ADM Associates, Inc.TecMRKT Work LLC, 2002) [12]. Architects working and involved in all of the earlier mentioned tasks according to the energy efficiency information based on a survey made by decision makers. Either of the two, remodelling or renovation could play an alternative role in existing buildings.

Based on the below comparison made between Renovation and remodelling in reference to seven points; the appearance and increment in the well-being feeling, Repairs, amendments and updates, Structural rebuilding, design, cost and necessary additions to the construction.

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No.	The quantities and qualitative repairs made to the building and the cost reached by such repairs.	Preference to either Renovation or Remodeling with less cost.	
		Renovation	Remodeling
1	Updating the appearance and increases the well-being feeling inside the building and increases the joy feeling when looking at the stylish aesthetic of the entire structure.	✓	
2	Repairs, amendments, and updates are significantly made.	✓	
3	Structural rebuilding.	✓	
4	Design and sometimes the structure is necessarily altered.		✓
5	Often more costly.		✓
6	When a building is poorly designed.		✓
7	No addition to a construction to the building.	✓	

The United Nations Habitat Recommended Density Proposal Employment on the Kingdom Generally and on Hail City Precisely

The Kingdom has 13 regions, among which Hail City with its four provinces located at the Northeastern side. Hail City in the map shown below, with a population ranging between 500,000 and 800,000 indicating that the Hail City is categorized among the least populated Cities of the Kingdom of Saudi Arabia in the Kingdom's 13 regions, Figure (1).

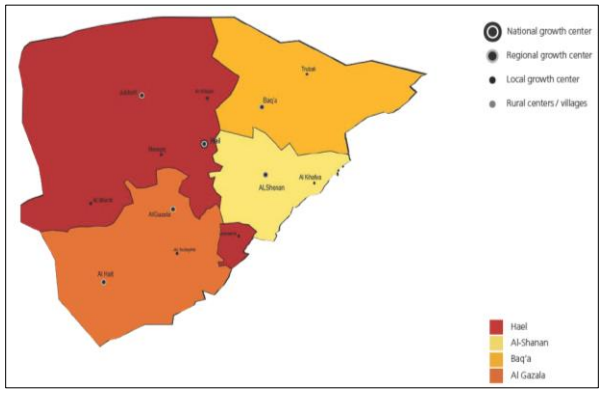

Figure (1) The Kingdom has 13 regions among which Hail city with its four provinces located at the Northeastern side of the Kingdom [13].

(Eduardo Moreno, et al., 2019) [13]. Hail is 118,000 Km2, an area almost 6% of the total area of the Kingdom. The principality of which the Hail region administrative divisions is based formed of these three governorates: Baq'a, Al Shanan, and Al Gazala, Figure (2).

The population of Hail region is almost 7,000 as the 2010 census indicated representing about 2 % of the Kingdom's total population. Hail region's population is as well representing about one-fifth of the regional population dominated by non-Saudi expats.

In the governorate of Hail, there is 70% of the regional population constituting most of the population then followed by Al Gazala with almost 17%, then Al Shanan 7%, and lastly Baq'a with almost 7%. Hail being a new city compared to other Kingdom cities represents the prime commerce, industry, transportation, and logistics centre in the Middle East Region. The Hail railway recently initiated line-connecting Riyadh to Al Haditha on the Jordanian border servicing as goods and people transporter and connecting Hail to neighbouring regions. Hail therefore becomes a significant development point in the Kingdom's Northern part. The Regional Airport of Hail is the only regional airport serving passengers and goods transporter link Hail to other Kingdom's regional cities. Figure (2) the principality of which the Hail region administrative divisions is based formed of these three governorates: Baq'a, Al Shanan, and Al Gazala [14].

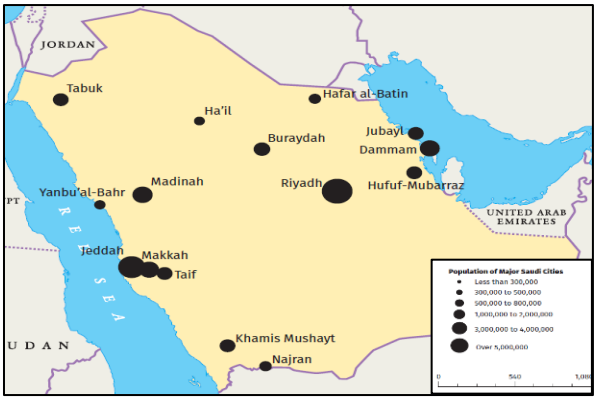

Figure (2) the principality of which the Hail region administrative divisions is based

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formed of these three governorates: Baq'a, Al Shanan, and Al Gazala [14].

Approximately 100 km is the extension of the city of Hail from the north to the south. The city is witnessing a fast urban development from north to south along its longitudinal developmental axis off the ring road. Urban sprawl or suburban sprawl is the fast expansion of the extension on land in cities and towns, low-density residential housing is a profile of residential housing. The single-use zoning, and the increased dependence on private means of transportation. Urban zone is the land zoned under the planning scheme. In Hail City studies concluded that as from 2013 and according to the recommendation of the United Nations Habitat, it takes over 100 years to reach 150 persons per a hectare as the recommended density by United Nations Habitat, amounts to 150 people per hectare. The number of people living in each unit of area, in a mile square for example is termed as the Population density, meanwhile urban density describes the degree of concentration or compactness of people or development in a certain urban setting. In eight years to come, the population within the ring road is expected to reach 600,000 inhabitants, by 2030. Within the Hail region lands use will be focused on not on the bases of white lands but on the notion of building renovation to counterbalance all defaults encountered by the aspects of urban sprawl to reach the targeted population density recommended by United Nation Habitat. There is a vast horizontal land area extension in all directions especially towards the north and south axis of the Hail City. The ever continuing and costly Hail city land area fast speed extension if compared to what is presented here in this research as a substitute for it, the renovation of the already existing obsolesced buildings, will eventually be a preferable better option to the land area fast speed extension to meet up with the recommended density by United Nations Habitat, amounts to 150 people per hectare. Areal views of the Hail city, Figure 3 showing its significant urban sprawl. (David Vogel et al., 2019) [14].

Plate (1) Areal views of the Hail city, showing its significant urban sprawl [14].

Hail City Land Use

More than 56% residential areas increase of the total area dominating the used lands, in reference to the approved land use plan. These residential areas distributed in 1450 urban zone, reaching the airport surroundings leading to a noticeable urban sprawl increment. About 25% of the urban area is occupied by governmental institutions. The third largest proportion of the urban zone occupied by the public utilities is positioned all over Hail city, basically in the southeast part of the Hail City inside the ring road. As the use of the internet is increasing the area that the public utilities occupy will decrease to 5% in the near future. The approved land use scheme promotes industrial uses proposing the establishment of a large industrial city outside the ring road at the South-eastern side of the city covering an area of about 16% of the Hail City. Mixed use and multiple use constitute merely 5.5% of the city. The United Nations Habitat international standards, calls for at least 40% of the land areas ensuring that the city becomes enticing and a flourishing settlement. This 40% land use preserved for economic and commercial uses, including residential areas, encouraging local jobs, activating local economic chances to assist in the reduction of social differences. (David Vogel et al. , 2019) [14].

Hail City white land areas

A very large percentage of areas free of construction, termed as white land areas are available in Hail, representing more than 50%

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of the land area inside the ring road area indicated in the Hail City map, constituting over 4 hectares, Figure 4.

Plate (2) White land areas are available in Hail, representing more than 50% of the land area inside the ring road area indicated in the Hail City map [14].

The white land accommodates up to almost 65,000 more people recommended by the United Nation Habitat density of 150 people per hectare. According to the United Nation preservation of almost 90% or 95 hectares of

Plate (2) White land areas are available in Hail, representing more than 50% of the land area inside the ring road area indicated in the Hail City map [14].

vacant land to accommodate 14 million people. Habitat density proposed recommendation the 2028 land area preposition recommends the availability of vast vacant land within the urban area has a negative impact on the city's structure, leading to city administration and services costs increment, negatively affecting the environmental, the economic and the social structure of the city and increasing levels of pollution through the creation of car-dependent societies as the necessity of the availability of enough cars to take people living in distanced areas cause so much smoke emission causing air pollution. People as well dump cabbages in the vacant land within the urban area adding visual pollution to air pollution as well causing infectious diseases like COVID-19, tuberculosis, dengue, Zika, Ebola viruses and diarrhea thriving in poor waste management environments.

In regard to the United Nation Habitat recommendation, the city requires an area of about 4000 hectares to the present number of inhabitants, which is less than 5% of the future proposed land area. More than 4,000 hectares of vacant land area within the built-up area reached at shows that it is unnecessary to make any developments in regard to new land areas outside the urban zone suggesting the implementation of strategic government interference supporting to facilitate the condense already built-up areas, to providing the best quality of life and well-being for the inhabitants in the most affordable means, ways, and cost. The United Nation Habitat recommends the use of a density standard of 150 Person per hectare as a model, as the advantages of high density are numerous for example, it lowers the costs of the essential infrastructure, such as the streets, and the sanitation utilities. From a design perspective, the dense urban areas and close building blocks provide adequate shade for pedestrians in the streets, besides, living in such high-density built-up areas ease the living cost, as many people per one hectare will share the costs of the various services.

Concluding from all previous studies and analyses of Hail city most especially the previous paragraph in which numerous examples of the advantages of high density are stated. In reference to the urban zone density, the urban intensity and the urban sprawl in response to United Nations Habitat inhabitants per area proposal of 150 persons per a hectare, the Hail city is not found to be in line with this proposal as most of its districts far less to reach this ratio. For the purpose of this research the Al-Amal neighbourhood district being part of

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Sedian district, of a larger scale, when taken as a case study to help exemplify the whole city of Hail and eventually the whole kingdom already built urban zones, (David Vogel et al., 2019) [14]. Hail city inhabitants were found to be about 400,000 by 2020 census, with the

growth rate reached at of 1.75% by the year 2021 census the total population is anticipated to be close to 407,000 inhabitants positioning Hail as the second Kingdom's most populated city. The population of Hail City is presently 413,000 in 2022. Hail, Saudi Arabia Metro Area Population 1950-2022. [15]. The research is going to look at the Al-Amal neighbourhood of Sedian Al-Sharqi district residential, commercial and their mixed used obsolesced buildings renovation and the much this renovation does to reduce the rapid population growth. The City of Hail, Sedian Al-Sharqi district, Al-Amal neighbourhoods are shown using google map in, figure (3) [16], figure (4) and figure (5) [17], respectively.

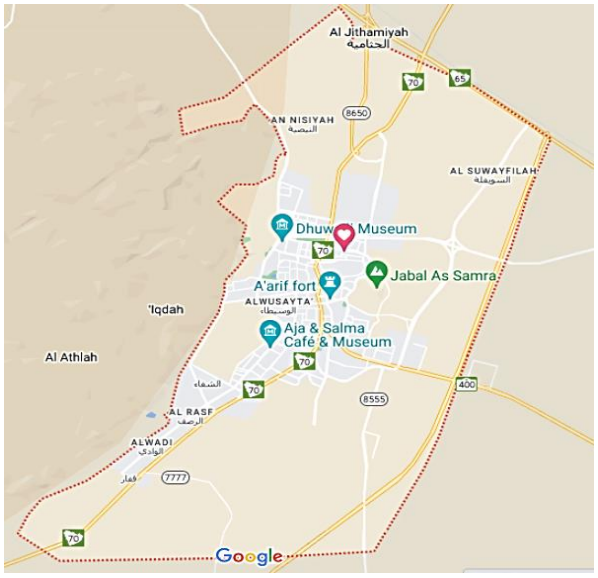

Figure (3) the map of the City of Hail [16].

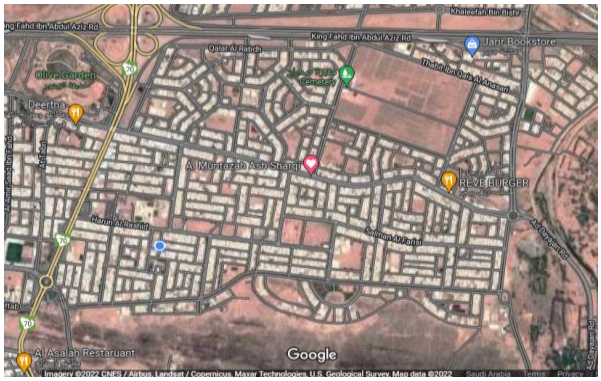

Figure (4) the Sedian Al-Sharqi district google map [17].

Figure (5) the Al-Amal neighbourhood google map [17].

Al-Amal Neighbourhood Obsolesced Buildings Renovation

3.1 Utilities Necessary Serving the Al-Amal Neighbourhood

The best exemplar of neighbourhood characterized of an integrated multiple land uses and balanced mix of components such as residences, shops, workplaces, civic uses, and recreational utilities all inside the confines of the neighbourhood to enable residents to easily get more of their daily needs within shorter distances not exceeding five to ten minutes' walk at an easy speed. To meet up with the characteristics of the Al-Amal neighbourhood of Sedian Al-Sharqi district of Hail City integrated multiple land uses and balanced mix of components needs to be studied and analyzed. These studies and analyses were carried out to see the much Al-Amal neighbourhood abides with these ideal neighbourhood characteristics. (City of Austin Texas Traditional Neighbourhood District

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(TND), 1979) [18]. For the Al-Amal neighbourhood to satisfy the United Nation Habitat recommendation that uses a density standard of 150 person per hectare there are two solutions; first is the renovation of Al-Amal neighbourhood residential, commercial and their mixed used buildings, then second is the development of the white lands. Based on the researcher's field survey to make an inventory of the residential, commercial and their mixed used buildings in Al-Amal neighbourhood the filed survey reached at a total number of the already existing diversified residential buildings as 45 and the diversified commercial buildings as 86 and the diversified mixed used buildings as 23.

The Al-Amal neighbourhood total area amounts to 605,300 m2. Referring to the United Nation Habitat density standard recommendation of 150 person per hectare (10,000 m2), meaning to say one person needs 66.7 m2. Dividing the Al-Amal neighbourhood total area, 605,300 m2 divided by 66.7 m2 per each person (house owners) then the total number of people assumed to live in the neighbourhood are 9,075 inhabitants (house owners). The inhabitants (house owners) of Al-Amal neighbourhood part of the Sedian Al-Sharqi district of Hail City as of May 2022 are 7,213 (house owners) according to the Kingdom's General Authority for Statistics (KGAS). The researcher contacted the KGAS via email to gratefully reply supplying the researcher with this information. The Kingdom's General Authority for Statistics [19]. This number is far less than the required number recommended by the United Nation Habitat density standard. The number required to complete the number recommended by the United Nation Habitat density standard is 5,862 people (house owners). However, when the Al-Amal neighbourhood obsolesced buildings were counted; their total number was 28 diversified types of houses of an average of 500 m2 (at the ground floor level) inhabited by an average of four people per house. When giving each person (house owner) 66.7 m2 based on the United Nation Habitat density standard recommendation of 150 person (house owners) per hectare (10,000 m2). Therefore, the 28 Al-Amal obsolesced buildings accommodate about 1,868 m2. The total number of the people (house owners) who, if the obsolesced buildings renovated, assumed to occupy is 112 (28 multiplied by 4) to be left with 603,432 m2 (605,300 m2-1,868 m2), a land area spared for both the buildings that are at good conditions and the white lands together. The white lands when measured, amounts to 402,288 m2 constituting two-thirds of the overall Al-Amal neighbourhood's total area. The number of the newly anticipated diversified houses, if the white lands developed it would mount to 90 (6,031 divided by 66.7) as (402,288 divided by 66.7) gives us 6,031 m2 total land area for the newly anticipated diversified houses.

By adding up 28 Al-Amal obsolesced diversified buildings to newly anticipated diversified houses 90, their total number becomes 118 diversified houses altogether other than the already existing diversified residential buildings. To derive at the number of the already existing diversified residential buildings, the 1,868 m2 accommodated by the 28 Al-Amal obsolesced buildings inhabitants when added to the 402,288 m2 of the white lands total area that overall total becomes 404,156 m2. When deducting the 404,156 m2 (obsolesced diversified buildings and the total white lands area) from the Al-Amal neighbourhood total area, 605,300 m2, the reaming will be 201,144 m2, which will be left for the already existing diversified residential buildings. However, there is the public utilities total area, which is 1,234 m2. The already existing diversified residential buildings would be the difference between the Al-Amal obsolesced buildings and the white lands total area, which is 201, 144 m2 out of which the

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public utilities total area, 1,234 m2 is deducted. To be left with 199,910 m2 (201,144 m2-1,234 m2) constituting the already existing diversified residential buildings which are 45 (2,997 m2 divided by 66.7 m2). The Al-Amal neighbourhood Counted or Measured Items, Population/Inhabitants, Areas and Building Units, Table (2).

Table (II) The Al-Amal neighborhood Counted or Measured Items, Population/Inhabitants, Areas and Building Units.

No.	The Al-Amal neighborhood			
	Counted or Measured Item	Population/Inhabitants	Area	Building Units
1	The United Nation Habitat density standard.	Number of people (house owners) based on the recommendaction of the United Nation Habitat density standard is 5,862.	Total area amounts to 605,300 m2.	Number of people (house owners) is 5,862.
2	The Al-Amal neighborhood inhabitants (house owners).	Inhabitants (house owners) are 7,213 as of May 2022 according to the Kingdom's General Authority for Statistics (KGAS).	Inhabitants (house owners) are 7,213 as of May 2022 who assumed to occupy 481,107 m2.	Present total inhabitants (house owners) 7,213.
3	The Al-Amal neighborhood Obsolesced buildings.	Obsolesced buildings were counted; their total number was 28 diversified types of houses of an average of 500 m2 (at the ground floor level) inhabited by an average of four people per a house, which is 201, 144 m2.	28 Al-Amal obsolesced buildings accommodate about 1,868 m2 to be inhabited by	28 diversified types of houses.
4	Land area spared for both the buildings that are at good conditions and the white lands.	Number of people inhabiting both the buildings that are at good conditions and the white lands is 9,047.	The land area spared for both the buildings that are at good conditions and the white lands together is 603,432 m2 (605,300 m2-1,868 m2).	137 (9,047 divided by 66.7) diversified types of houses.
5	The white lands	6,031 people (house owners).	The white lands when measured, amounts to 402,288 m2 constituting two-thirds of the overall total area.	6,031 people (house owners).
6	The already existing diversified residential buildings	3,015 people (house owners).	The area of the already existing diversified residential buildings is 199,910 m2 .	3,015 people (house owners).
7	The public utilities total area.	-	The public utilities total area, 1,234 m2.	10 (5 Mosques, 2 Parks, 2 Elementary schools and 1 Fuel Station).

When reached at the renovation to be the best buildings repairment method out of the nine building repairment methods already discussed, and if this repairment method is employed for the Al-Amal neighborhood obsolesced buildings the high density is avoided lowering the costs of infrastructure, as the streets, and the sanitation facilities as well as all other public facilities. From a design viewpoint, the dense urban areas provide appropriate shade for passers-by in the streets, besides, easing the living cost. Urban sprawl or suburban sprawl, therefore, is limited and shrink making the Hail City planning scheme, working under the Kingdom national planning scheme's urban zone plans shouldering fewer public facilities. Planning schemes on the other hand will be having the opportunity to concentrates on already urban zones, as that of the Al-Amal neighborhood; the government already spent a lot of fortune in their establishments and their periodical repairments.

The development of the white lands, the second strategy that could assist in meeting the united nation Habitat recommendation to come out with a density standard of 150 person per hectare needs to be carefully followed-up and implemented to eventually satisfy the United Nation Habitat recommendation density standard when the whole neighborhood is fully built. The difference between the Al-Amal neighborhood's 605,300 m2 total area and the Al-Amal neighborhood obsolesced buildings total area of 75,238 m2 is 530,062 m2 regarded as the white lands. These white lands if developed would have been enough to accommodate 7,947 people (530,062 m2

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divided by 66.7 m2 for each person) satisfying the United Nation Habitat density standard recommendation of 150 person per hectare.

There five mosques referred to them in the Al-Amal neighborhood as the Eastern Mosque, (Jameel Mosque), figure (3).

Plate (3) the Eastern Mosque, (Jameel Mosque), photographed by the researcher on Sep 19, 2022.

The middle mosque, (Aid Hindi Mosque) towards the North at the Hatim Tai Road), plate (4), There are as well the middle mosque, (Arrakab Mountain Mosque) towards the

Plate (4) the middle mosque, (Aid Hindi Mosque), photographed by the researcher on Sep 19, 2022.

South by the Amal Park side, plate (5).

Plate (5) the middle mosque (Arrakab Mountain Mosque) towards the South by the Amal Park side, photographed by the researcher on Sep 19, 2022.

The Sothern Mosque, (Ibrahim Alkhaleel Mosque) towards the Southern side, plate (6).

Plate (6) the Sothern Mosque (Ibrahim Alkhaleel Mosque) towards the Southern side, photographed by the researcher on Sep 19, 2022.

The Sothern Mosque, (Alkhair Mosque) towards the Arrakab Mountain at the Southern side, plate (7).

Plate (7) the Sothern Mosque (Alkhair Mosque) towards the Arrakab Mountain at the Southern side, photographed by the researcher on Sep 19, 2022

The Western Park, (the Alrayan Playing Park), towards the West, plate (8).

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Plate (8) the Western Park, (the Alrayan Playing Park), towards the West, photographed by the researcher on Sep 19, 2022.

The Middle Park at the Hatim Tai Road (the Amal Park), plate (9).

Figure (9) the Middle Park at the Hatim Tai Road, (the Amal Park), photographed by the researcher on Sep 19, 2022.

Al-Amal neighbourhood's residential, commercial and their mixed used buildings necessarily renovated.

After all previous reviews and analysis renovation becomes the most appropriate task necessarily required for urban development in the context of this research. The most common urban development method is the erection of new buildings but other form of urban developments as renovation is rarely considered if not even traditionally discouraged. Residential, commercial and their mixed used building types are the ones considered in renovation, a limitation regards these building types as the majority and most significant building types, necessary for people's well-planned settlement as well their importance for social and economic growth.

To come out with well-studied plan and recommendations for the renovation of residential, commercial and their mixed used buildings, in this research Al-Amal neighbourhood in the Sedian district of Hail city chosen as a case study in which only one exemplar is chosen out of these three building types that necessitate renovation studied and analyzed. One exemplar out of each of the three Al-Amal neighbourhood residential, commercial and their mixed used buildings shown in, plate (10), plate (11) and plate (12).

Plate (10) Al-Amal neighbourhood residential building, photographed by the researcher on Sep 19, 2022.

Plate (11) Al-Amal neighbourhood Commercial buildings, photographed by the researcher on Sep 19, 2022.

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Plate (12) Al-Amal neighbourhood mixed used (Residential and Commercial) buildings, photographed by the researcher on Sep 19, 2022.

Al-Amal neighbourhood's Educational and Commercial Utilities:

Neighbourhoods, which are necessarily having full range of activities such as parks, housing of different types, lower-level educational institutions, worshiping places, and shopping centres are the ones that are called comprehensive neighbourhoods. The Al-Amal neighbourhood is one of these types to have in addition to all the above-mentioned components in addition to educational and commercial utilities such as the Sixth Elementary School for Girls at the Eastern side, plate (13).

Plate (13) the Sixth Elementary School for Girls, phogrphed by the researcher on Sep 19, 2022.

The Alfatah Elementary School for Boys at the Western side, plate (14).

Plate (14) the Alfatah Elementary School for Boys, phogrphed by the researcher on Sep 19, 2022

These are all together, two lower-level educational institutions and Alshabramy Fuel Station as the only one commercial utility, plate (15).

Plate (15) Alshabramy Fuel Station, phogrphed by the researcher on Sep 19, 2022.

The significance of developing Al-Amal neighbourhood's white lands:

The overall total white lands area is 6,031 m2 an area that if not developed the Al-Amal neighbourhood will remain far less land use wise in regard to the United Nation Habitat recommended standard of one fifty person per hectare. Exemplars of Al-Amal neighbourhood's white lands, plate (16).

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Plate (16) exemplars of Al-Amal neighbourhood's white lands, under deployment or not yet developed, photographed by the researcher on Sep 19, 2022.

Research problems and objective

The identified research problems-Out of the research literature, the problems identified are firstly, unnecessary Hail city urban or suburban sprawl. Secondly, difficulty in fulfilling the targeted population density recommended by United Nation Habitat, of 150 persons per a hectare in the city of Hail and the whole of the Kingdom exemplified by the Al-Amal neighbourhood. Thirdly, the negative impact of vast vacant lands or vast white lands areas within the urban area leading to social misadministration and financial services costs increment in the city of Hail as a whole. Four, demolishing of obsolesced buildings within inhabited areas in the city of Hail causes environmental, circulation disturbance, and visual pollutions to the neighbouring inhabitants and passersby's economical waste by turning the valuable building materials into rubbles, which also in line with worldwide advocacy of environmental sustainability, therefore their rehabilitation is more advisable and recommended.

The main objective of this research is to; firstly, stop the urban or the suburban sprawl in the city of Hail to new urban areas costing the government more fortune in making available the various costly city services and call for and encourage the development of white lands instead. Secondly, making the targeted population density recommended by United Nation Habitat, of 150 persons per a hectare possibly employed in the city of Hail. Thirdly, reducing the negative impact of vast vacant lands or vast white lands areas within the urban areas in the city of Hail, which in turns leading to city better administration and services costs increment. Fourthly, hindering the demolishing of obsolesced buildings within inhabited areas in the city of Hail by encouraging white lands development. This is to help in the reduction of environmental and circulation disturbance and visual pollutions to the neighbouring inhabitants and passersby as well as boosting the economic boom by stopping the demolishing of the costly valuable building materials out of which the obsolesced buildings are built, which also in support of the worldwide advocacy of environmental sustainability.

The statement of the research problem

Urban or suburban sprawl to new urban areas in the city of Hail costing the government more fortune in making available the various costly city services. By hindering the demolishing of obsolesced buildings within inhabited areas in the city of Hail to help in the reduction of environmental and circulation disturbance and visual pollutions to the neighbouring inhabitants and passersby as well boosting the economic boom by stopping the demolishing of the costly valuable building materials out of

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which the obsolesced buildings are built. This also in support of the worldwide advocacy of environmental sustainability the negative of impact of vast vacant lands or vast white lands areas within the urban area leading to city administration and services costs increment in the city of Hail. This will eventually make the city of Hail to reach the targeted population density recommended by United Nation Habitat, of 150 persons per a hectare to ultimately balance up the population density to for the desired well-being and state of health not only the Hail city inhabitants, but also the whole of the kingdom inhabitants deserve to enjoy reflecting in the betterment of the availability of jobs, housing units, total floor areas of buildings, and of some other measures of human occupation, activity, and development.

The precise objective of the research

This research is aiming at renovating the Al-Amal neighbourhood in Sedian Al-Sharqi district of Hail city reaching to the fact that renovation is the most appropriate urban development method instead of erecting new buildings as renovation is rarely considered if not even traditionally discouraged. Limiting renovation residential, commercial and their mixed used building types as they are the majority and most significant building types, necessary for people's well planned settlement as well their importance for social and economic growth, especially as already seen in the Hail city as when renovating abiding with the United Nation Habitat recommending the use of a density standard of 150 Person per hectare as a model, as the advantages of high density are numerous lower the costs of the essential infrastructure, as the streets, and the sanitation services. Besides from a design perspective, the dense urban areas and close building blocks provide adequate shade for pedestrians in the streets, besides, living in such high-density built-up areas eases the living cost as the costs of the various services will be shared by many people per one hectare.

Conclusions and recommendations

The expected results could be utilized in; Firstly, the rationalization of government expenditure in making available the various costly city services in the already inhibited and populated urban areas instead of wasting it in the urban or the suburban sprawl in the city of Hail. Secondly, by renovating obsolesced buildings, the city administration and services costs sustained and preserved. Thirdly, preserving the vast vacant lands or vast white lands areas within the urban areas of the city of Hail outskirts, for future generations. Fourthly, reducing the environmental negative impacts and reducing disturbances, which in turns reduces transportation cost and energy consumption. Fifthly, the reduction of visual pollutions to the neighbouring inhabitants and passersby as well boosting the economic boom by stopping the demolishing of the costly valuable building materials out of which the obsolesced buildings are built, which also in support of the worldwide advocacy of environmental sustainability.

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