Urban upgrading and its role in Sustainable urbanism

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Abstract. One of the biggest problems in the modern urban environment is the phenomenon of the spread of slums, which are threatening the future of the Iraqi city, and this phenomenon has become increasing over time and has become a danger spread in most Iraqi cities. The problem of research is in the knowledge gap related to the role of the urban upgrading of the slums and the knowledge of the integration of these neighborhoods with the mother city to achieve the process of sustainable urbanization of this city. The research assumes that achieving sustainable urbanization is through the urban upgrading of slums. Therefore, the aim of the research is to reach a theoretical framework that shows the indicators of the spatial organization of the random neighborhoods and the detection of the treatments of the negative characteristics of these neighborhoods to achieve the quality of life which achieves the sustainable urban form. In order to test the hypothesis of the research, theoretical framework indicators were applied to areas of random neighborhoods in the city of Baghdad.

Keywords: Slums, upgrading, Slum upgrading, Urban development, Sustainable development, Sustainability, Housing, Informal Settlement, Low-income Settlements.

1. Introduction
About 60% of the world's urban population is expected to be in two decades. Population growth in urban areas is faster. The lack of urban planning policies, the rapid growth of urban centres and the inadequate political and economic conditions do not respond to regulatory frameworks for progress[1]. "Living conditions may vary in slums between countries and even among the population within the same country or city. Some settlements may have low employment prospects for the population",[2]. "The challenge is therefore to improve governance, productivity, efficiency and equity in order to provide safe and secure living environments, sustainable livelihoods and better quality of urban life for people living in poverty. Informal settlements have become a constant feature of the urban landscape. In fact, there is a general consensus among those studying the urbanization and economic situation that informal settlements will continue to evolve."[3]

1.1. Related (The Sustainable Development)
Goal 1: "End poverty in all its forms everywhere". Goal 3: "Ensure healthy lives and promote well-being for all at all ages ". Goal 6: "Ensure availability and sustainability management of water and sanitation
1.2. Definition of slums:
"Upgrading the slums on the site, at its basic level, includes improving the physical environment of the area, such as improving and installing basic infrastructure such as water and sanitation, solid waste collection, electricity, stormwater drainage, access to roads, pedestrian walkways and street lighting, as well as home improvements and secure land tenure" [5]. "Slums are informal housing settlements commonly found in urban areas of developing countries which are characterised by poor shelter, low service provision and lacking in security of tenure. Slums are growing and new slums are forming. The international development community has been actively working to improve the living conditions of slum-dwellers and to reduce poverty via slum upgrading methods. There are various slum upgrading delivery models and approaches to tackle the urbanisation of poverty in developing countries."[6]. The problem of lack of adequate housing is one of the problems that lead to the emergence of slums. The lack of housing, especially among poor or very low income groups and large families, or due to emergency problems such as displacement, earthquakes or floods, leads to the absence of adequate housing. So that people can try to provide adequate housing on their own as one of the basic needs of the human being, but the phenomenon of random growth can not be separated from the social and economic conditions of a society. Low-income to severe overcrowding in a population of popular neighborhoods and empty land within cities as well as extreme areas outside.[7]

As a slum can be defined in simple terms as a squalid, overcrowded section of a city, characterized by inferior living conditions (Collins 1994). The essential characteristics of slums cover physical, spatial, social and behavioural criteria; high densities and low standards of housing (structure and services) – physical and spatial; and ‘squalor’ – social and behavioural. “The spread of associations is typical, not just for the definition of slums but also of our perceptions of them.[8]. Slum dwellers are usually squatters without property rights or bonds, preventing them from taking advantage of these slums . Slums divide into two part:

a. less hopeful slums: characterized by new structures, and be self-built, and these neighborhoods are part of the process of improvement and development.

b. hopeless slums: which are going through bad conditions at the level of services or environmental level or healthy settlement[8]

1.3. Characteristics of slums:[8]
1. Lack of basic services.
2. Substandard housing or illegal and inadequate building structures.
3. Overcrowded and high density.
4. Unhealthy living conditions and hazardous locations.
5. Insecure tenure; irregular or informal settlements.
6. Poverty and social exclusion.
7. Minimum settlement size.

A slum is an area that combines to various extents the following characteristics:

a. Inadequate access to safe water
b. Inadequate access to sanitation and other infrastructure
c. Poor structural quality of housing
d. Overcrowding
e. Insecure residential status
"Living conditions may vary in slums between countries and even among the population within the same country or city. Some settlements may have low employment prospects for the population, while others may do so by providing a wealth of formal and informal income earning opportunities. Rapid population growth, rural-urban migration, urban management failure is the main contributing factor to slum development." [2]

1.4. What is an upgrade:
Upgrading or improving slums as they are called in low-income urban communities are many things, they mean a package of basic services like clean water supplies and the disposal of sewage, social communication. But the primary is the codification and "regulation" of property in cases of lack of possession or lack of clarity. [9]

1.5. Slum Upgrading:
Is the process of improving the slum sites in terms of physical environment and infrastructure such as water, sanitation, electricity and solid waste down to footpaths and street services and improve private homes[5]

2. Slum Upgrading as Urbanization Policies:
during the 1970s in the cities of Latin America was (policies of exclusion and deportation) during the 1970s, especially in Brazil's major cities where the first policy of urbanization emerged, thus finding solutions to infrastructure. Law played No. 6766, which regulates land-cutting land and penalizes promoters for irregular cutting. A major role in absorbing rural-urban migrants. Return to democracy in the late 1980s reoriented public policies to consider the slums as merging into the city and the breadth of interventions to include an intersectoral view along with improved infrastructure. Several municipalities, such as Rio de Janeiro, Recife, Diadema, and Belo Horizonte have adopted this approach[3]. "However, as the Expert Group Meeting (UNCHS, 1977) emphasized, informal settlements Consists of people, not just housing. Thus, the physical upgrade of the environment, without Promoting self-esteem for the population and helping them to achieve sustainable livelihoods will not Produce permanent improvements." hypothesizes that spatial organization and location of stabilizers, in particular, "the way in which the site is united with the network of surrounding streets and the spatial characteristics of this network is an important variable in the process of integration." This hypothesis is based on the idea that spatial organization can be a social process Economic development through its influence on patterns of street traffic and the possibility of generating economic activity[10] studied the Chilean city of Santiago, which contains 17 informal settlements around the city. The study focused on identifying measures for the integration of stabilizers. The task of detecting the complex process of integration of marginal stabilizers was done by testing a set of variables. The variables related to the merger process were identified represent (18) variables "subject to four social, economic, formal and land uses.

| Table 1. Integration process variables [10] |
|------------------------------------------|
| 1. The time of stay in the stable.   |
| 2. Family size.                       |
| 3. Type of family in terms of its components. Social variables |
| 4. Type of family in terms of parents. |

Is the process of spatial organization of the stability of the transgressors and the way they are applied to the structure or the larger spatial structure of the mother city. This is either an event that happens successfully or remains a poor neighborhood characterized by isolation.) [10]
5. Family Cycle.
6. The level of education.
7. Type of settlement.

8. Family owner
9. Family stability.
10. The amount of income.
11. Stable design.
12. Integrity score.
13. Linkage.
14. The nucleus of totalitarian integration

15. Infantry movement.
16. Passenger traffic.
17. Commercial development.
18. Type of use: residential, commercial and other.

### 3. Sustainable urbanism:
Sustainable urbanism is defined as: “walkable and transit-served urbanism integrated with high performance buildings and high-performance infrastructure”[11]. Sustainable urban development: is the design, diversification and density that contribute to the improvement of the standard of living. Sustainable urbanization includes the application of the principles of sustainability in the design and planning of cities and promotes mobility through the design of high-density and compact communities[10-13]. The three basic aspects of sustainable urbanism are listed as environmental, social, and economic. Environmentally, the urban form should enable users to walk within short distances and/or without the use of private vehicles to fulfill their daily needs. Mixed-use developments allocate residential, retail, leisure, and commercial areas all together within a short walk and provide access to public transportation modes. In social terms, sustainable urbanism consists of suitable spaces and buildings of distinctive sizes and kinds that have a variety of community activities. Economically, in a sustainable community, developments should have business activities that create job opportunities for many users.

| Urban development       | Environment development                      | Social development                       | Economic development               |
|-------------------------|---------------------------------------------|------------------------------------------|-----------------------------------|
| Availability of services| Efficient waste management                  | Social integration                       | Increase economic activities      |
| Ease of transition      | Rational management of resources            | Safety in the community                  | Increase annual income            |
| Provide adequate housing| Improve water quality                       | Lifelong learning                        | Reduce the unemployment rate      |
| Land Use Consensus      | Improve air quality                         | Good health                              | Providing job opportunities       |
4. Urban modernization:
Involves improving the informal physical environment of settlements. This, according to the World Bank, includes improving and or installing the basic urban areas Infrastructure such as water, sanitation, waste collection, rain drainage, roads, access, Street lighting. But the upgrade also requires regulation of security of land tenure and housing Improvements, as well as improved access to municipal services and facilities and social support Programs, health and education. The focus is on developing initiatives in general on infrastructure and material Improvements, and to a lesser extent economic development. Interest was significantly less Paid for community development and social upgrading, although these are equally important.[12]

"However, as the Expert Group Meeting (UNCHS, 1977) emphasized, informal settlements Consists of people, not just housing. Thus, the physical upgrade of the environment, without Promoting self-esteem for the population and helping them to achieve sustainable livelihoods will not Produce permanent improvements."

4.1. Urban development, in order to be sustainable, and the strategic dimensions of planning should include:
1. Protection of the natural environment and the ecology ensuring clean air and water.
2. Provision of basic health services, housing and environmental sanitation for all.
3. appropriate and quality education, adequate employment opportunities and income
4. Facilities for recreation and cultural growth.
5. A system of democratic and participatory process of planning involving all segments of population. "Clearly, the strategic areas of focus necessary for ensuring sustainable urban development listed above are ecologically aware, economically more rational, and socially more responsive. And as such should be considered as a point of departure from what is currently being practiced in many countries" [12, 15]

Is strongly impacted by the availability and closeness of public transportation and public amenities, such as workplaces and schools. [16]

4.2. Elements of sustainable urbanism.
1. Sustainable Neighborhood
2. compactness
3. connectivity
4. High performance Buildings
5. High performance infrastructures.[17]

Congestion, sprawl, lack of open spaces, air pollution, and green-house emissions are the factors that have distinguished the importance of urban sprawl. In addition, the rise of housing prices in downtown areas has limited residential choices and opportunities to homeownership for most people. Consequently, this theory seeks to provide creative, friendly, and environmentally responsible societies. It defines professionals from all disciplines to house growth

"Establishing mixed land uses allows people to meet their needs through walking and without using cars. This leads to creating healthier neighborhoods that are pedestrian and bicycle friendly that promote urban connectivity. These neighborhoods should be safe and easy to move around in, and the local economy should support the smart community movement. High-density developments encourage the principle of smart growth. Smart growth offers accessibility to facilities and social and educational services within walkable short distances ".[18]

4.3. Urban growth and sprawl could be well controlled through these specific strategies:
1. managing growth;
2. encouraging compact growth through transit, linking mixed-use societies within walkable distances;
3. streets that are liveable and integrate the use of various transportation systems and are walkable, increasing social equity.[14, 18]

Table (3) Prepared by the researcher

| criterion                          | Integration process variables                                           | criterion                                         |
|------------------------------------|------------------------------------------------------------------------|---------------------------------------------------|
| Urban development                  | • Stable design                                                        | Availability of services                          |
|                                   | • Integrity score Linkage                                              | Ease of transition                                |
|                                   | • The nucleus of totalitarian integration                              | Provide adequate housing                          |
| Environment development            | • infantry movement.                                                  | Efficient waste management                        |
|                                   | • Passenger traffic.                                                  | Rational management of resources                  |
|                                   | • Commercial development.                                             | Improve water quality                             |
|                                   | • Type of use: residential, commercial and other.                      | Improve air quality                               |
| Social development                | • The time of stay in the stable.                                     | Social development                                |
|                                   | • Family size.                                                        | Social integration                                |
|                                   | • Type of family in terms of its components.                          | Safety in the community                           |
|                                   | • Type of family in terms of parents.                                 | Lifelong learning                                 |
|                                   | • Family Cycle.                                                       | Good health                                       |
| Economic development              | • Family owner                                                        | Increase economic activities                       |
|                                   | • Family stability.                                                   | Increase annual income                            |
|                                   | • The amount of income.                                               | Reduce the unemployment rate                      |
|                                   |                                                                        | Providing job opportunities                        |

5. practical part:
Iraqi society witnessed a natural increase in population due to the progress of medicine on the one hand and the increasing flow of rural people to cities, particularly to the city of Baghdad, on the other. In its various extremes following the improvement in the level of relative recovery within a decade. The seventies of the last century, and then after entering the country in the war came. Living conditions, social and cultural deterioration, and the absence of procedures. Planning and development, the problems of society have become more complex and complicated to come the era of the nineties to live the society where the worst social and economic conditions.

With the change in 2003 and the absence of law, Baghdad and other Iraqi cities were seen. The phenomenon of the spread of slums in an unprecedented manner, which has been accompanied by an increase in numbers. Urban poor who lack the most basic necessities of life as well as lack of basic services resulting from the migration of rural or some urban dwellers. The other Iraqi to the city of Baghdad resulting in the influx of urban population, which it appears that this exceeded the possibility of the Baghdad Municipality to integrate newcomers into the city. Due to the weakness of the industrial sector and increase the proportion of unemployed, rising. Notable in the value of real estate and rent allowances has been greatly affected. The revival of the old urban phenomenon and became a source of concern for its inhabitants. Especially in the spread of some aspects that are incompatible with the manifestations of urban life. Such as the emergence of further abuses on the adjacent lands.
The problem of slums grew significantly after 2003, significantly until it was formed Until the year 2014 is more than (7.3%) of the total number of housing in Iraq, And (6.9%) of the total population, economically and security of the society and the state and grew up. The phenomenon is due to several reasons, the most important of which is the negligence of the relevant bodies, poor control, the factors of poverty and the situation Security and society, and one of the most important ways of confrontation is cooperation between all ministries and stakeholders And conducting a comprehensive survey of housing and residents in slums, and take economic and security, The cooperation of society in all its measures categories[19] of these areas in the city of Baghdad, in AL Adhamiya district, use of the basic design of the city of Baghdad is to be a land free of construction, but built by the residents of random housing return to the Municipality of Baghdad, but built as slabs of brick and cement, the proposed added them and integrated to the parent city after the application of research indicators[20]
Figure 1. Exploitation of random housing in the municipality of Adhamiya

6. Conclusions:

6.1. Results of the practical part

• At the urban level, this random housing is stable and can be linked to achieve comprehensive integration and easy to provide services and ease of transition and land use compatibility

• At the environmental level, traffic is available, there is strong momentum, there is commercial development, and there is residential, commercial and other use. Effective waste management, rational management of resources, improvement of water quality and improvement of air quality
At the social level, these settlements are somewhat stable and the size of these families is normal. Families are composed of fathers and mothers and their level of education is low and the level of settlement is by owning them, achieving social development, social integration, achieving safety in the community, providing lifelong learning and ensuring good health for them.

At the economic level, owning this role for these families will help stabilize the family and determine the amount of monthly income, increase economic activities, increase the annual income, reduce unemployment rates and provide job opportunities. All this makes it easy to integrate these settlements with the city of Baghdad.

6.2. Results of the theoretical part

- Knowledge of the role of urban upgrading of slums and the integration of these neighborhoods with the mother city to achieve the process of sustainable urbanization of this city.
- Application of theoretical framework indicators for research, which are indicators of spatial organization of the random neighborhoods and the detection of the treatments of the negative characteristics of these neighborhoods to achieve the quality of life which achieves the sustainable urban form.
- The upgrade requires regulation of "security of land tenure and housing improvements, as well as improved access to municipal services and facilities and social support programs".
- The elements of sustainable urbanism. 1. Sustainable Neighborhood, 2. Compactness, 3. Connectivity, 4. High performance buildings, 5. High performance infrastructures.
- The low income level of the family, high unemployment and high urban prices housing, all contributed to the existence and expansion of the phenomenon of informal housing.
- Security and political conditions and the weakness of the official authorities in the application of the laws that deal with the transgressors have contributed significantly to the emergence of these complexes.
- Highlights the solution to the problem of housing within the big cities themselves as the high prices housing fees and rents are among the most important reasons for the inflation of these cities and exacerbate its population crises.

7. Recommendations:

- Utilize the application of theoretical framework indicators to other areas in Iraq.
- Implementation of the provisions of the Report on Sustainable Development Goals for (2018).
- Knowledge of the variables of the process of urban integration and its role in achieving urban sustainability.
• Full awareness of the dimensions of the problem of random housing and what it can mean serious repercussions and waste on the urban environment and contain it by trying to adopt ways modernism contributes to the integration of the community of squatters with the mother city.

• Develop new planning and design mechanisms that adopt root solutions and treatments for regions from the allocation of funds and the financial resources necessary to improve the environment of the inhabitants. As an initial solution that improves the level of the region on the road to a decent standard of living (According to a developmental time plan) to adopt sustainable design plans and solutions that ensure continuing the success of the development plan and adapting it to the surrounding urban environment, both locally and temporally.

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