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## The Extent to which the Land-Use Scheme relates to the Urban Development Plan.

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# The extent to which the land-use scheme relates to the urban development plan

## مدى ارتباط مخطط استخدام الأراضي بخطة التنمية المستدامة للمجتمعات الحضرية

Rania Badawy

### KEYWORDS:

*sustainable urban planning, land use planning, sustainable development*

**المخلص العربي:** تعد التنمية المستدامة أحد أهم ركائز تطوير المجتمعات العمرانية، من أجل تحقيق هذه التنمية، ويعتبر التخطيط المستدام عاملاً أساسياً يساهم في عملية التنمية. حيث يلاحظ أن سوء استخدام الأراضي وعشوائية انتشار المناطق العمرانية يهدر من المساحات والموارد المتاحة بالمدن. هذه العشوائية في استعمالات الأراضي ناتجة عن نقص التخطيط المنظم والفعال للمناطق العمرانية لتتناسم مع المخططات المطلوبة والإمكانيات المتاحة. لذا هناك احتياج قوى من أجل البحث عن مخططات مستدامة للتخطيط المستدام المطلوب، لذلك هدف البحث هو مناقشة موضوع التنمية المستدامة ويشمل ذلك (تعريفها - مستوياتها - التخطيط المستدام لاستعمالات الأراضي)، هذا بالإضافة إلى الدراسة التحليلية لأحد التجارب العربية والعالمية السابقة في تطبيقات الاستدامة التي تتناول النقاط السابقة والخروج بنتائج وتوصيات

**Abstract—** Sustainable development is one of the most important pillars for the development of urban communities, in order to achieve this development, and sustainable planning is an essential factor contributing to the development process. As it is noticed that the misuse of lands and the random spread of urban areas wastes the available areas and resources in cities. This randomness in land use is the result of a lack of organized and effective planning for urban areas to harmonize with the required plans and available capabilities.

### I. INTRODUCTION

#### "SUSTAINABLE URBAN DEVELOPMENT"

**S**USTAINABLE urban development addresses all aspects of life. It is an integrated set of elements in which people live (housing, economy, and healthy environment) to achieve a comfortable living life for man; urban development also includes economic, social and cultural development. All economic activity must occupy the local place, build on the resources of the city, and exploit it. Sustainable urban development is based on the balance of resources and energy, as well as financial input and output,

which play an important role in all future decisions for the development of urban areas [1, 2].

**Research problem** the random planning of land uses leads to many economic, social, environmental and planning risks as well. It also works on the aging and degradation of urban and rural areas, such as the overlap between rural and urban uses. Examples include urban expansion at the expense of the green belt surrounding cities

**Research objective** the research aims to clarify the extent to which the land use scheme is linked to the sustainable development plan for urban communities

#### 1.1 The concept of sustainable urban development:

Any development based on sustainability must combine all of the following [3, 4, and 31]:

- Proper and responsible use of non-renewable resources and how to conserve them.
- Waste- recycles in proper ways to prevent damage to the environment.
- Reduce wastes resulting from each consumption unit.
- Lessen the negative environmental impact of cities

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- Diminish the levels of urban out outspread and create more compact cities that rely on public transport services
- In order to achieve the above-mentioned requirements, the urban development processes should be applied within planned frameworks and dynamic policies at local levels (international, national, and regional levels). The local levels must include the following points [5, 35]:
- The infrastructure and services include water supply, Waste management, transport, communications and power supply.
  - Providing access to land or buildings in suitable locations, as well as securing tenure;
  - Financial institutions and markets capable of operating investments and sources of credit.
  - A healthy, educated and skilled workforce.
  - A legal framework that ensures competition, accountability and property rights standards.
  - Appropriate regulatory frameworks, which contribute to the identification and enforcement of minimum non-discriminatory standards
  - Comply with the local context in order to provide a safe and sound working environment, and to treat and eliminate

- waste and emissions
- 1.2 *The basic objective of sustainable urban development:*  
*After highlighting the above-mentioned problems and possibilities, the basic objective of sustainable urban development can be formulated to maximize the preservation of the natural and urban environment while exploiting the available resources and resources through several axes [6, 23, 24, and 25]:*
- *The first axis: not to damage the natural environment and to solve problems resulting from negligence and non-maintenance.*
  - *The second axis: the creation of elements or investment activities that are compatible with the nature of the region, and do not represent a burden on the environment.*
  - *The third axis: Intervention in the construction environment by building, it is necessary to be very aware of the nature of the new uses and the architectural character used.*

1.3 *Sustainable Urban Development Levels*  
 Levels of sustainable urban development can be classified into four levels. [7, 27, 28]:

TABLE (1)  
 SUSTAINABLE URBAN DEVELOPMENT LEVELS.

Urban planning level	Architectural level	Social level	Economic level
Creating new mobility axis and supply them with infrastructure. Providing necessary social services. Create open spaces as (parks-yards-path... etc.)	Removal buildings of collapse. Strengthening and rehabilitating living quarters. Complete exterior facades. Finding centers of interest in abandoned spaces. Make some possible architectural treatments.	Working on social service promotes the social level. Encouraging the citizens to participate on architectural and urban development.	Represented by professional and professional development.

1.4 *Challenges face the process of sustainable urban development*

- There are many challenges faces the process of sustainable urban development [5]:
- The inability to manage growth, and then control urbanization at the same rate of growth. Urbanization has always been "ahead of any planning that achieves the urban orientations necessary to achieve sustainable development."
  - Lack of awareness of the problem or the manner in which it is resolved and the extent to which they cannot be realized by the application of the imposed solutions.
  - Increasing differences in levels of social and economic development and distribution of productive forces in each governorate. In addition, the presence of a geographical distribution of the population is not commensurate with the economic, social and demographic potential.
  - Severe differences between the size of cities in terms of population, industrial facilities and public services, transport traffic, power plants, industries around cities and water pollution due to the use of pollutants (Chemical, especially agricultural pesticides, industrial waste, household and recreational waste). Education - Health –

- The decline of agricultural, irrigated, fertile and environmental land areas and the spread of pollution due to the increase in traffic, power plants and industries located around cities and water pollution resulting from the use of chemical pollutants, especially agricultural pesticides and industrial waste.
- Low level of infrastructure development and very uneven distribution (projects that need to be implemented in the fields of irrigation, electricity, communications and transportation).
- The need to explore and invest in natural resources

**II. SUSTAINABLE URBAN PLANNING FOR LAND-USE**

Sustainable land use planning is defined as a systematic assessment of land, its existing uses and natural, social and economic factors in a way that helps and encourages land users to choose sustainable use patterns that increase production, meet the needs of the population and preserve the environment. The process of sustainable land use planning is part of a comprehensive planning process that sets out future

perspectives for urban, administrative, social, cultural, economic, service and environmental development and future land use patterns.

The importance of this type of planning has increased because of population inflation in the world, with limited land and resources. This approach has led to the realization of social justice in the distribution of work, services, and housing, to improve the conditions of agricultural land and to preserve it and to guide urban growth by changing the status of uses and considering the following points. [10, 29, 30]:

- The constant growth of population, so to figure out how the population is growing and where they are growing is important for the Land Use Scheme.
- Land area is limited in different countries of the world.
- Preserve all-natural resources.
- Overcome many of the problems that arise from changes in land-use patterns such as competition between different uses.
- Dilapidation of agricultural land, water resources, and forests.
- The emergence of many urban problems due to urban sprawl.
- Increased pressure on public services and utilities, and the need for more to meet the needs of the population.
- Realize social justice in the distribution of jobs to all regions.
- Search for sustainable solutions to satisfy current needs and guide development.

### 2.1. COLOMBIA as an example:

From the above, achieving the plan for Sustainable land use planning at the structural level requires the identification of a range of activities at the physical, economic and natural level of the cluster, aiming to achieve urban growth that is consistent with the development of population needs in a sustainable manner to improve the standard of living of all citizens by improving management, services and infrastructure, including water supply, blower management, transportation, power supply and access to land or buildings at appropriate locations

to improve the functional performance of the area to be developed [15]

### *Eco City Planning Experiment in Colombia*

This experiment is one of the experiments that have been studied in an environmental and sustainable manner. The study was based on considering the privacy of the site in terms of the local environment (coastal) where the studied segment is located on the coast of the Caribbean and within the shores of Colombia. This area intersects the study areas as it is considered an agricultural area with regional urban characteristics. [16,31].

The study area is about 12 hectares and the population density is about 400 personnel per hectare. This area has a vital center that serves at the city level regionally. It is also characterized by a natural resource (gas sources) that has been invested in the development process.

The preliminary study of the area does not meet the environmental and planning standards. There are neither main axes nor adequate service centers for the community or shaded green zones. Note that the study area is coastal adjacent to a sea strip.

Construction process based on the local population experience, especially in the section of the maritime tape, which was created manually and randomly, and we do not see any kind of benefit from the elements of the site or environmental factors and alternative energies in the preliminary study. The new study is based on several levels to achieve maximum sustainability and benefit from environmental factors [16, 31, and 32]. :

- 1- The first level: the general location of the studied site and the application elements (water bodies, green areas, collective solar generator at the community level, wind generators, and the utilization of available resources).
- 2- The second level: the residential blocks and how to repatriate them and study the combined yards with a note of the emphasis on the orientation and green surfaces.
- 3- Third level: Attention to the study of vital and services centers in the study area



Fig. (1) Study area location in Colombia - Source:(google earth)



Fig. (2) Current residential communities of the case study in Colombia - Source: (Wikipedia)



Fig. (3) Current status of study area - Source: (google earth- (3d simulation))



Fig. (4) Current status of study area - Source: (google earth- (3d simulation))

The study was prepared to meet the population and human requirements by focusing on the environmental aspects and factors in the general plan as in figure (5)

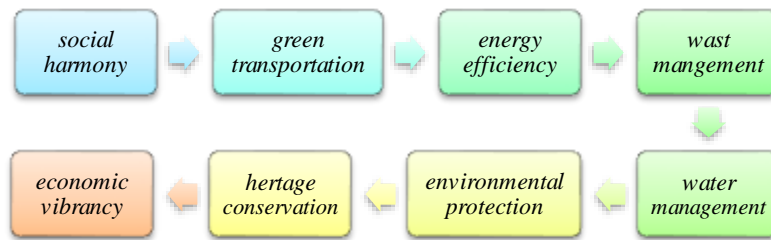


Fig. (5) Development hubs at the level of general plan of the case study in Colombia

The environmental study has not only reformulated the distribution of land uses and service centers in the study area, but also has been achieved at several levels that benefit from natural resources, renewable and non-renewable energies and available resources by improving infrastructure and public utilities and transport networks, and distributing Public spaces and green areas to serve the residential communities as follows [17, 32].

2.1.1 Transportation Networks Sector

The idea of the plan was to reduce the area of asphalt and rely on alternative and positive transport and encourage the use of public transportation through the creation of several starting points and linking them with all major and regional roads and distribute them in a balanced manner and serving community to reduce the movement of individual vehicles and encourage walking by studying the green pedestrian walkways.

2.1.2 Open Spaces and Green Areas Sector

The climate environment and the general environment have been utilized to obtain the solution of the master plan environmentally through adopting the principle of environmental ecological crossings points by:

- Pump the local water into the core of the residential community in a balanced and deliberate manner.
- Create green lungs in the residential areas in a balanced manner to serve all parts of the community.
- Append gardens and playgrounds in the main center of the community and link the area with a network of green and attractive corridors.
- Utilization of Available Resources Sector (Infrastructure and Facilities - Renewable Energies)



Fig. (6) Land-use plan of case study in Colombia Source:(google earth Source:(google earth)



Fig. (7) Plan of location of the main center and secondary centers of case study in Colombia - Source:(google earth)





Fig. (8) Plan of city center of case study in Colombia  
Source:(google earth)

### 2.1.3 Principle of Alternative Energies

The elements of utilizing the principle of alternative energies were added in the site, as the solar energy and study of the distribution of the solar panel on rooftops were used and linking them with secondary power supply units distributed in the site linked with main units serving the area with electric power.

The distribution of wind turbines on the community boundaries was also studied, as the area is open to the beach and is characterized by the suitable wind speed for generating electricity. The study does not only use the wind and solar energy but the exploration of natural resources in the site and utilizing them



Fig. (9) Transport and communication network  
Source: (google earth)

### 2.1.4 Residential Areas

The residential groups were studied in a sustainable manner as the green areas and the environmental factors were added to most of the studied sectors. These groups were characterized by a kind of randomness and simplicity, depending on the local expertise in their implementation.

In the new study, the residence was divided into three types in which most of the buildings and facilities that maintain the principle of environmental crossings, and that have well physical infrastructure were preserved. And they are:

- The population communities are in the form of groups so that they open up on inner courtyard added with green elements to each group.
- Residential strip distributed to the boundaries of the environmental crossings
- Residential blocks are adjacent to the maritime tape located near or on the water bodies.

The principle of multifunctional buildings: has been applied

to include commercial, educational, residential activities and green spaces



Fig. (10) Distribution of green area  
Source: (google earth)



Fig. (11) Distribution center of main and secondary feeding units for use in renewable energies  
Source: (google earth)

From the above: The basic rule of the study is to take into consideration the location, climate and environment data prevailing in that area, which is the basis of the elements of sustainability on the site.

The environmental factors were well adapted in this study, whether the water bodies that where been to the core of the residential community or the green areas added in a deliberate and balanced manner, as well as the renewable energies as using solar energy, wind energy and natural elements in the site (gas sources) And study the transport axes in an environmentally friendly manner.



Fig. (12) Solar collectors on rooftops  
Source: (<https://www.mersinsolarwind.com/solar-paketler>)  
(<https://www.hethongnangluong.com/>)

2.2 Major purposes of sustainable land use planning:

- ✓ Assess the current and future needs of the population and assess the ability of the land to meet them and find solutions to current and expected problems.
- ✓ Develop suitable solutions for competing uses between individual and public interests and between the present and future generations. [11]
- ✓ Solve the problems of urban settlements such as land use, distorted growth of some neighborhoods and sectors, problems of roads and traffic.
- ✓ Protect special areas, such as historical and archeological sites and nature reserves.
- ✓ The balance between residential communities and urban areas in terms of services and development plans.
- ✓ Take advantage of international experiences in such a field

2.3 Main principles of land use planning:

- The principle of optimal use: each piece of land must perform a certain function in the national economy to serve the

public interest and achieve maximum benefit possible with emphasis on modern planning, and sustainable, and this concept relative to what is optimal in an area may not be the same in another [12].

- The principle of multi-use: to multiply uses of one piece to deal right with the scarcity of good land and services.

2.4 Planning Factors Affecting Land Use Plans

Studies have shown that urbanization should be influenced by the surrounding factors. The industrial society has its customs, traditions, behavior, and values that differ from the customs, behavior and values of the agricultural community. It is no surprise that philosophers and thinkers have long recognized that cities and other urban communities are only vessels, and the rule that the contents of the container take the shape of the vessel. Therefore, the plan was to look at all the factors that affect the land uses, as the most important factors are illustrated in table (2). [13].

TABLE (2)  
MOST IMPORTANT FACTORS AFFECT LAND-USE PLANS.

Political factors	Social factors	Topographic factors
<ul style="list-style-type: none"> <li>▪Public administrations and institutions represent the executive arm of the state.</li> <li>▪Through which their development policies are formulated and implemented.</li> <li>▪Decentralization is applied in democratic systems.</li> <li>▪Citizen participation is active and clear in policymaking for cities and residential communities, unlike central systems.</li> </ul>	<ul style="list-style-type: none"> <li>▪Social factors affect the expansion of the urban periphery.</li> <li>▪There are trends of horizontal and independent construction away from apartment housing and residential communities.</li> <li>▪The emergence of slum housing, which divides cities into high-rise and poor neighborhoods.</li> <li>▪Heterogeneous societies and their impact on structural and organizational schemes and their evolution.</li> </ul>	<ul style="list-style-type: none"> <li>▪Urban activities tend to be located in shallow areas close to transportation routes in order to achieve the principle of accessibility.</li> <li>▪The soil and the structure of the site determine the nature of use. For example, buildings require excellent soil with a strong and durable structure.</li> </ul>
Economic factors	Cultural factors	
<ul style="list-style-type: none"> <li>▪The linkage between the value of the land and its uses is complicated.</li> <li>▪By time changes, land-uses subject to economic competition. Low-return uses still back down in favor of higher-returns uses such as agricultural use.</li> <li>▪ The high price of the land has led to an increase in construction density, building blocks, and contiguity of buildings.</li> </ul>	<ul style="list-style-type: none"> <li>▪Patterns of land use reflect the dominant culture in society.</li> <li>▪The more society is involved in formulating the land use policies and the application and modification of these policies the more they reflect the cultures, customs, and beliefs of society.</li> </ul>	

2.5 Random Land-Use Planning Effects on Achieving Sustainable Urban Development

The random planning of land uses leads to many economic, social, environmental and planning risks as well. It also works on the aging of urban and rural areas and their degradation, such as interferences between rural and urban uses. An example of this is urban expansion at the expense of the green belt surrounding the cities. [14, 30].

• The urban effects and distortion of the urban fabric

Non-compliance with well-thought-out land use policies leads to disfigurement of the city's urban fabric. The failure of decision-makers and planners to update the organizational plans of modern communities and implement them within specific time-bound and realistic time programs lead to the random extension of communities.

• Economic influences

When the plan defines building blocks for economic or construction reasons, and this prohibition is exceeded; society

and the state have an unavoidable cost. The citizen and the state have an additional cost to deliver the services or to provide the appropriate alternative if the city's services cannot be delivered to these areas.

• Healthy and environmental influences

The planning of land uses in general aims to provide the current and future human requirements in order to achieve optimal use of the land. In the field of agriculture, it will be necessary to carefully choose the species of trees, grasses, and grasses for the purpose of planting them and controlling the quantity and how to produce them for the purpose of reclamation and direct farming. In the industrial field, the sites should be chosen away from residential areas to protect the human from damage and choose the areas of residence in the mountainous area and preserve arable land.

• Security influences

When a particular use is prohibited or permitted, it must be based on conditions and laws set by the protection citizen

agencies, whether in terms of location, specifications or compliance with the safety and safety rules.

- *Social effects*

Social risks stem from citizens' lack of commitment to building and organizing laws, particularly with regard to the dimensions and limitations of each piece of land and others, and non-compliance with laws and regulations, which threatens social security and weakens the unity of society.

### III. ANALITICAL STUDY (ABO DAHBIA)

From the above, achieving the principle of sustainability and sustainable urban organization at the structural level requires the identification of a range of activities at the physical, economic and natural level of the cluster, aiming to achieve urban growth that is consistent with the development of population needs in a sustainable manner to improve the standard of living of all citizens by improving management, services and infrastructure, including water supply, blower management, transportation, power supply and access to land or buildings at appropriate locations to improve the functional performance of the area to be developed [15,37]

#### 3.1 Capital District of Abu-Dhabi

The 45 square kilometer project, which is expected to accommodate up to 370,000 residents, is among the most ambitious urban development projects being planned in the UAE. The main features of the site were its centrality in the region, ease of access to Abu Dhabi Island on the one hand, and new development projects in the mainlands, as well as its proximity to existing residential neighborhoods as planned [17].



Fig. (13) Structural plan of capital district in Abu-Dhabi  
Source:( The Abu Dhabi Urban Planning council)

The region is the largest collection of high-density and mixed-use office buildings and apartments outside Abu Dhabi Island that cater to residents of the capital and surrounding areas.

One of the principles for the Central Business District is land-use integration and transport systems supported by urban designs to enhance pedestrian traffic and open spaces aiming to establish high-activity, lively and active centers at all levels. [18].

The different areas of the land are flexibly and effectively

considered in order to ensure rapid development in the future as the master plan includes several integrated service facilities aimed at providing the required services to the residents of the capital area, including educational, health and social

Services, civil defense services and police, In addition, the entertainment and cultural centers.

The central business district (service center) was studied in the heart of the capital region. The area includes many office buildings and high-density apartments along with a range of service, social and cultural facilities distributed on the main axes leading to the heart of community



Fig. (14) Land-use plan of capital district in Abu-Dhabi  
Source:) The Abu Dhabi Urban Planning council, 2007)



Fig. (15) Link the main center to the main investment hubs  
Source: (google map)

#### 3.1.1 Transportation Networks Sector

The triangular shape of the site has been used to formulate development projects around high-capacity transmission lines, thus creating a set of symbolic axes that are visible and linking important squares and landmarks to a central urban square symbolizing the state.

The plan of the public transport network plays an important role in determining the land use, the size of the population density, the pedestrian movement and the nature of the area in general. The streets are designed in the capital area to maximize the use of the area located to the right of the road and to put some public services selected below roads, and the means of shading maximize protection of the street and pedestrian corridors in order to encourage walking, especially for short distances and establishing a comfortable and interrelated plan of streets according to the population requirements.

The streets were classified according to a sequence of major and minor streets (linking main streets with residential areas) as



well as local streets.

This classification was based on carefully developed models according to several factors including the expected traffic volume and the desire to establish a high-quality street design providing greater comfort to all street users



Fig. (16) Proposed main center in the general plan of capital district in Abu-Dhabi  
Source:) The Abu Dhabi Urban Planning council, 2007)






Fig. (17) Transportation Network  
Source:) The Abu Dhabi Urban Planning council, 2007)



Fig. (18) Preliminary conception of one of the transport hubs and linking it with the pedestrian hubs in the capital area of Abu Dhabi  
Source:(<http://www.abu-dhabi-metro.com/>)

TABLE (3)  
APPLICATION OF SUSTAINABILITY ON THE ROAD NETWORK  
"METRO STATION –TRAIN METRO"

The transport system also includes alternative means of transportation that minimize wasted energy, such as the high-speed train, metro and tram networks, as well as a network of streets and side roads connected to each other regularly, as shown in Table 4. [19].			
1- External Train Network	It connects the capital city of Riyadh with the city center of Abu Dhabi Maritime Center and offices and is suitable for pre-travel to Saudi Arabia. High density in the central business district.	2- Metro Network	The metro stations are located in easy reach places and close to the high densely populated areas, which ensures that the largest sector of the population receive this fast and sophisticated service and reduce depending on cars to move. The development projects at each metro station provide easy and convenient transportation services and meet a wide range of requirements and services such as housing, shops, shopping, office and community services.
3- Electric Train Networks (tram)	The extensive and interconnected tram network across most parts of the city provides short-term access to all transit areas for all residents. As well as the study of a new bridge towards Khalifa City (a) to the north and Mohammed bin Zayed City to the West relieves pressure from the city's middle street and secure the rapid connection between the two cities. These networks have been distributed so that they are balanced and serve the studied area		
1	2	3	
			

3.1.2 Open Spaces and Green Areas Sector

The Capital Region is designed to enable residents to enjoy the maximum quality environment through an open-area system

and interconnected green areas as the open squares and green areas in the city have been studied according to balanced explicit criteria taking into account the total land area and

population, the metropolitan area offers nearly one hectare of open spaces for every 1,000 person, which is a vital demand to a densely populated urban environment and offers a much better choice than is available in many of the world's most prestigious cities.

The conditions of the local environment and the scarcity of clean water were also taken into account, so the planners recommended the adoption of green surfaces with plants that consume little water.

Green areas are classified as low, medium and high-water areas, as each level linked to agricultural objectives and guidelines as outlined.

The integrated and unified planning model includes a variety of forms and patterns of open spaces and green areas to define the network of public squares connected to each other, which includes the pedestrian area to the right of the road and public transport corridors and bike lanes, parks and private open spaces that allow residents to access them easily and without any trouble. [19].



Fig. (19) Open Spaces and Green Areas Sector  
Source: (google map)



Fig. (20) Patterns of open spaces and green areas to define the network of public squares connected to each other.

### 3.1.3 Residential neighborhoods

Residential neighborhoods have been distinguished according to a special urban environment. These neighborhoods include a variety of housing options ranging from single-family villas, small houses and condominiums to residential complexes, providing multiple housing alternatives while preserving the character of the area as residential neighborhoods. The master plan also aims to show the lines of sidewalks of buildings on the sidewalk diversity in the role played by the facades of buildings in the embodiment of the various street patterns.



Fig. (21) services center - Source: (google map)

### 3.1.4 Utilization of Available Resources Sector (Infrastructure and Facilities - Renewable Energies)

The study considered the sustainability factor as one of the basic requirements for the design of the capital area. The basic principles of the engineering aspects of this plan were based on natural ventilation and reduction of the negative effects of heat through advanced integrated systems of canopies and ventilation units in all urban areas, in addition to providing natural ventilation entrances in the building facades, which are in turn a substitute for the mechanical ventilation system during the winter, the system of sustainability in the region has been strengthened in the following categories [20]:

(Sun protection - Surface Design-Wall systems- Mechanical ventilation- Solar power).

Renewable energies have been optimized to reduce energy consumption and comply with the performance standards of the buildings and reach the high-performance buildings according to a group of point:

- Conversion of solar energy received by the building facade into a useful energy such as light or electric power to optimize the use of renewable energy sources.
- Choose materials and colors as bright and radiant surfaces play a better cycle in reflecting sunlight, reducing the heat absorbed by the surfaces
- Increasing the insulation of surfaces and walls, and the windows made of glass capable of controlling the heat allows the infiltration of a large amount of light and letting fraction of solar energy.

Special waste collection and separation systems were also studied, and recycling centers close to service areas were established to encourage individuals and housewives to recycle [21].

From the above, the study covered all aspects of planning and design, including the definition, improvement of land use and the requirements of development and urbanization, as:

Emphasis on the standards and measurements of sustainability of transport models and infrastructure development and focusing on safety and security instructions through the study adoption of urban plan meets the requirements of mobility and pedestrian friendly to the environment and the optimal distribution of service and management centers, as well as study buildings require energy efficiency and cooling and advanced irrigation systems based on innovative way in using water to reduce the negative impact on the environment

**IV. CONCLUSION**

**SUSTAINABLE URBAN DEVELOPMENT PLAN AT THE LEVEL OF LAND-USE SCHEMES**

<b>The Sustainable Urban Development Plan</b>	
<b>Planning Studies and Services Distribution</b>	Observance of the privacy of the site and its connection with the regional proximity. Develop new urban systems that take into account population densities, environmental and climatic factors reduce distraction of land use schemes. Follow the central service methods, make them connected to secondary centers, and find high quality services. <ul style="list-style-type: none"> <li>Taking advantage of the main axes as an investment hub.</li> </ul>
<b>Transportation</b>	Connect the uses to reduce the transport mileage sort streets according to a hierarchy. Taking into consideration the climatic conditions in directing roads and traffic axes. Developing of both: mass transit system, pedestrian routes, alternative transportation and the creation of special bike paths. Create new transport models.
<b>Open and Green Space</b>	Linking the use of land and green areas to form a lung for residential communities and other uses. Classification of all urban spaces and green areas according to climatic conditions, site and social privacy. Linking the study of these areas using modern technologies to maintain them. Separate the residential buildings from the streets by green buffer to mitigate the negative impact to it.
<b>Available Resources (Infrastructure, facilities and renewable energies)</b>	Decrease the energy waste resulting from the violation of infrastructure facilities, periodic maintenance and integration of projects. Adapting all environmental elements and renewable energies to serve urbanization. Manage waste systems and find special recycling centers.
<b>Human needs</b>	Citizen participation in sustainable urban development events. Meeting the needs of citizens is an integral part of achieving sustainable urban development.

**Table (4)**

**Main factors that are based on sustainable urban development**

Through previous studies, the basic rule for any sustainable urban study at the land uses level and structural plans should take into account the following studies

- Location, climate and environment data.
- Then adapting environmental elements properly (green areas - water bodies - renewable energies).
- Then study the distribution of residential communities and ways to locate them, and focus on vital and service centers, and that requires drawing several directions can be taken from while developing any sustainable urban study at the level of

structural plans and land use schemes to form the starting point for that studies.as shown in table 3

**I. RECOMMENDATIONS**

In view of the above-mentioned study and analysis of the land use development strategy and the use of available resources, the following results can be reached:

- ✓ The marginalization of regional studies in the development of structural and organizational plans led to the study of each gathering in a single way and with the same criteria without taking into account the possibilities, opportunities and availability of resources for each location according to the privacy of the site and the assembly.
- ✓ Lack of flexibility in solving planning problems to cope with changes and developments to improve job performance according to the requirements of development and growth due to restrictions imposed by the land facilities and the current reality of each group.
- ✓ Interference of some of the conflicting uses that have a negative impact on the urban environment, for example, the existence of polluted industries within the residential communities; devour the areas of urban expansion of some agricultural land.
- ✓ Ignoring the role of popular participation in developing development plans and updating organizational plans and new expansion areas, making studies deficient and incompatible with the reality of development
- ✓ *By studying the results of the research paper at the level of analytical study and the possibilities of avoiding negatives, we find that to upgrade the current reality of structural and organizational plans and ways to develop them to be more sustainable and healthier*

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