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The Impact of Applying the Smart Growth Policy on Urban Development of Cities: (Sadr City in the center of Nasiriyah City as a Case Study)

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Abstract

Smart growth is one of the most important planning and development policies for cities, having emerged at the end of the last century. It is based on development that uses existing spaces effectively, limits sprawl and expansion towards agricultural lands and represents a significant approach to sustainability in the economic, social, environmental, and urban dimensions of urban development. The research will focus on two aspects: a theoretical side that will address the concept of development and urban development established the objectives, principles, and strategies of the smart growth policy, and identify key indicators to create a robust theoretical framework; and the practical aspect that will involve defining and analyzing a specific study area. This analysis will lead to a proposed plan for urban development based on smart growth principles and the derived theoretical indicators, culminating in a comparative analysis between the current and the proposed scenarios to demomstrate the positive effects of applying a smart growth policy.

The research problem is (**the cognitive deficiencies in highlighting the importance of applying the smart growth policy and determining its impact on urban development locally**). The research aims at introducing this policy and the effects of its practical applications on urban development.

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The research concluded that the adoption of intelligent growth in urban planning has a positive and significant impact on the urban development of it and the various economic, social and environmental aspects as well as the urban aspect.

Keywords: Smart Growth, Development, Dimensions of Urban Development, City.

1. Introduction

The Smart Growth concept emerged as a planning and developmental policy with clear goals: to limit urban sprawl and expansion onto the agricultural lands surrounding cities and urban centers. This phenomenon has caused negative environmental and economic impacts, evidenced by the excessive waste of resources, the disruption of ecological balance and biodiversity, and its urban effects, such as the scattering and fragmentation of the structural fabric of these cities.Therefore, this research aims to highlight the most important indicators of the Smart Growth policy that have a positive impact on the urban development of cities across economic, social, and environmental dimensions. The study will present the concepts of development and urban development, city development strategies, and the most important planning policies for city development. It will then focus on the Smart Growth policy, considering it the new global direction for the urban development of cities. The research will build the theoretical framework, select the key indicators, and then conduct a practical study, which relies on a comparative analysis between sprawl and Smart Growth policies, concluding with the extracted findings and key recommendations.

The **research objective** is to highlight the most important economic, environmental, social, and urban indicators of the Smart Growth policy and the extent of its positive impact on the urban development of cities localy.

The **research hypothesis** is that adopting Smart Growth as a planning policy in cities will have a positive impact on their urban development by activating its economic, environmental, social, and urban indicators.

2. The Theoretical Aspect of the Research:

The theoretical aspect of the research involves addressing the axis of Development and Urban Development, the concept of the City, and subsequently, the axis of Smart Growth as a developmental planning policy.

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2.1. The Development Axis:

2.1.1. Development Linguistically and Terminologically:

The concept of development differs between the Arabic and English languages. In , which means (نمى) is derived from the verb "Namma" (التنمية)Arabic, Tannmiyah increase and spread (1). However, Development in the English language is derived from the verb "Develop," meaning that when something grows, it becomes more advanced (12). Terminologically, Development in the English language means the comprehensive and radical change of a current system's reality and its replacement with a more efficient system (10).

2.1.2. The Concept of Development:

According to the United Nations, Development is defined as including both Growth and Change. Change here occurs in the social, cultural, and economic fields, and must encompass both its quantitative and qualitative aspects (8, p. 15). Economically, development aims to effect changes in the relationship between the production and service sectors and their role in the national output, as well as providing and preparing opportunities for citizens' work and staff development. Socially, it is represented by making changes in social, behavioral, and cultural relationships among society groups to improve the lifestyle. Organizationally, it is represented by implementing administrative and institutional changes to keep pace with the evolution of societies and their interaction with technological advancements, with high flexibility that ensures improved productivity and raises the efficiency of these institutions in the development process (2).

2.1.3. Levels of Development:

a- **Local Development:** This level is concerned with studying the development of a specific city or area without considering its regional surroundings (15).
b- **Regional Development**: This concerns studying changes with a regional impact and aims to improve the level, quality, and type of life for the inhabitants of the region.
c- **National Development**: This is concerned with studying the different sectors and exploiting the available resources and capabilities at the national level (9).

2.1.4. Urban Development:

It is one of the types of development and is defined as upgrading the environment through directing growth and making a change, development, or improvement to the built environment in urban or rural areas, by providing the basic needs for housing,

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represented in job opportunities and communal and technical services (infrastructure such as electricity, water, sewerage, and others), while taking into account the social and cultural values specific to the community and the spatial dimension, including its resources and investments, without clashing with the surrounding environment. Urban development is considered the basic driver for many investment and economic activities by stimulating the industries related to construction, building, and transportation (9, p. 60).

Successful urban development is predicated on a holistic planning framework that prioritizes the rigorous integration of its core economic, social, and urban elements:

- **Elements of Economic Development:** Includes resources and investments.
- **Elements of Social Development:** Includes communal services such as health, education, culture, and recreation.
- **Elements of Urban Development:** Includes sites, services, and investments (2, p. 6).

Therefore, urban development is the container that encompasses both the elements of social and economic development (Figure 1).

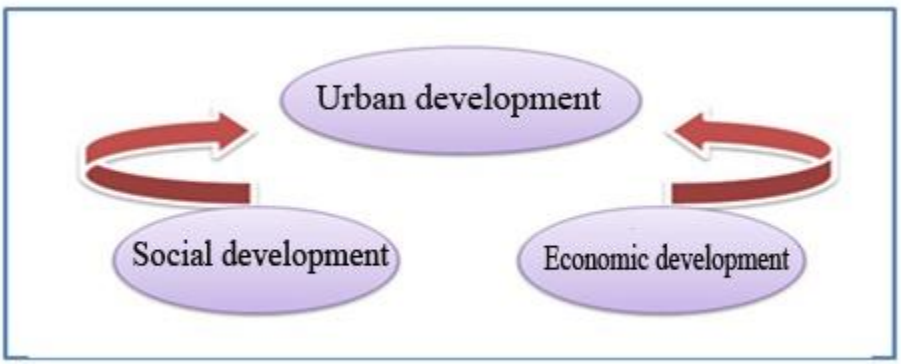

Figure (1): Urban Development is the Container that Includes Economic Development and Social Development - Source: Based on the Researcher's Work.b

2.1.5. Objectives of Urban Development:

The objectives of urban development center on upgrading along two main, inseparable axes:

- **Enhancing Quality of Life:** Improving the quality of life for residents by elevating the standard of services provided across all sectors.

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• **Involving the residents** in the upgrading plan and planning process.

Based on these objectives, urban development acts as the core driver and guide for development and resource rationalization through the following key mechanisms (7, p. 3):

- **Managing urban growth** in a balanced manner that aligns with resource availability and ensures the **efficiency of the urban structure**, thereby creating an environment characterized by high degrees of security and health.
- **Establishing a clear developmental vision** that actively supports the participation of both the public (governmental) and private sectors.
- **Achieving integration across various planning fields** at the local level and ensuring **coordination** between the different executing bodies (e.g., housing, transport, education, health, culture, etc.). This ensures efforts are rationalized and contradictions between sectors are avoided.
- **Actively contributing to clarity** by presenting developmental plans, investments, and projects in a simplified and transparent manner to beneficiaries and their representatives (from local and popular bodies/councils) to enhance their participation in decision-making and implementation.
- **Establishing a flexible framework** for executive cadres that can accommodate unexpected developments and emergency conditions that may affect project financing plans.

2.2. The Concept of the City (Concept of the City):

The city has several definitions, as it is described as a spatial geographical unit where a large number of inhabitants from various social and economic levels live. It is characterized by the presence of influences of urban civil life, and its people work in political and social functions in addition to trade and industry. Thus, it is not merely a spatial unit, but rather a cultural unit with social relationships represented by distinguished values, rules, norms, and an organizational model (5, p. 39). The city is also described as a human settlement with a large population cluster within a limited area, divided into sectors, neighborhoods, residential areas, and services, where services and institutions vary and multiply, and it is characterized by an administrative status and population density.

2.2.1. City Development Strategy:

This is about preparing an action plan for balanced growth in cities that is set and maintained through community participation and aims to improve the quality of life for all citizens. The city development strategy includes a shared and collective

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vision for the city that seeks to improve Urban Governance, increase investments to expand employment opportunities, and provide the best services and mitigate urban poverty in a regular and continuous manner. Most city development strategies focus on the need to activate improvements in three directly interrelated categories: Urban Governance, Local Economic Growth, and Poverty Reduction (4).
Operational Definition of Urban Development for Cities: Based on the foregoing, we can set an operational definition for the urban development of cities as: (A process of qualitative and structural change that aims to raise the standard of living and improve the quality of life—urbanly, economically, environmentally, and socially—in cities, through developing and improving the urban structure and enhancing the service level in a balanced, integrated, and continuous manner to achieve justice and equality among society groups, provide employment opportunities and investments, and encourage effective community participation while preserving and sustaining resources).

2.2.2. Development Policies in New Cities:

a- **Independent New Cities:** These are established according to prepared plans and usually arise gradually. Their economic basis is different from that of suburbs or satellite cities, and they possess the components to create employment and job opportunities. Some specialists have classified new independent cities based on their population size or according to the distance separating them from the mother city.

b- **New Satellite Cities:** This is a city that has no capabilities or capacities in terms of economics. It is referred to as a city that is a planning (subordinate/extension) to the central city, an extension of its natural growth, and adjacent to it. It aims to stop urban encroachment onto the suburbs. Its economic and urban growth is linked to the already existing central cities outside it. Functionally, satellite cities provide non-polluting industrial sites, commercial offices, and various jobs.

c- **Suburbs:** These are residential areas on the edges and outskirts of the city. They include housing units that are large in area and are mostly detached. They rarely include residential apartments. They are characterized by the availability of large, open spaces such as gardens or green areas, but their distance from the central cities makes their residents travel great distances in search of work and jobs, and this is considered one of the negative indicators for suburban cities.

2.3. Smart Growth:

In the early stages of the twenty-first century, and with the emergence of calls related to sustainability, new policies imposed by globalization appeared, and the ideas of community organizations shifted toward sustainable methods. Thus, a new planning

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approach emerged that adopts the Smart Growth policy, which is a policy aimed at limiting urban expansion. There are many definitions that address the concept of Smart Growth from several directions; the most important ones that relate to the field of urban development in the cities that are the subject of the research will be discussed.

2.3.1. Smart Growth as a Growth Management Movement:

It was defined as: (Growth that opposes urban sprawl and expansion and relies on redirecting a part of the growth inward toward the central area and moving away from outward expansion, as it is considered the least consuming of natural resources and material costs and achieves good developmental levels). It emphasizes that "Smart Growth originally appeared as a reaction to planning policies that were constantly heading toward growth and expansion in the suburbs" (14, p. 34).

2.3.2. Smart Growth as a Planning Policy:

It was defined by the American Planning Association (APA) and the American Institute of Certified Planners (AICP) as: (Smart Growth is the planning, design, development, and revitalization of cities, towns, suburbs, and rural areas for the purpose of creating and promoting social equity, a community sense of place, and the preservation of natural and cultural resources. It promotes environmental health in the short and long term, and improves the quality of life for all through the diversity of transportation means, and providing more options for jobs and housing in the area) (APA 2000-13, p. 21).

2.3.3. Smart Growth as a Development Policy:

Smart Growth was defined as development that supports economic growth, socially cohesive communities, and has a high health and environmental standard. Since "Smart Growth" (includes a set of development strategies that help protect community health and the natural environment and make communities more attractive, economically stronger, and socially more diverse) (17).

2.3.4. Smart Growth / Strategic Planning:

Told Litman (2016, p. 6) considers Smart Growth to be strategic planning with a comprehensive community vision that supports the maximum utilization of land uses and transportation movement to achieve (creating self-sufficient communities, enhancing community relations and increasing the sense of place, encouraging the development of urban villages, concentrating and grouping activities and developing them, encouraging development through infill, reducing taxes and public benefits, efficient management of squares, establishing an interconnected network of streets, designing sites and orienting buildings, avoiding and reducing travel by fuel-using

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vehicles, efficient management of mobility, diversity in housing patterns and providing them at affordable prices) (16, p. 6). The two most important strategies or mechanisms that Smart Growth relies on to achieve its goals are (**development of urban villages and urban infill for existing cities**).

2.3.5. Smart Growth Principles:

Ten key principles of Smart Growth were highlighted by theorists and specialized institutions such as the US Environmental Protection Agency (EPA) and the Smart Growth Network, which focus on limiting urban sprawl. These are: (mixed land uses, providing multiple housing patterns and providing several transport options, establishing walkable neighborhoods, enhancing the sense of belonging and spatial feeling, enhancing cooperation and community participation in development decisions, building cost-effective development at a lower cost, promoting development in existing communities, preserving agricultural lands while maintaining open spaces, natural beauty, reserves, and ecological areas, compactness and integrated buildings and uses to increase infrastructure efficiency)(11, p. 1).

2.3.6. Smart Growth Goals:

The vision of the Smart Growth policy was built to achieve the following goals:

a- **Prosperity of Cities and their Suburbs:** This is achieved by concentrating on development in existing cities and urban centers, and developing investments in various services that will enhance their financial resources.
b- **Healthier and Safer Communities:** The Smart Growth policy adopts an important goal, which is improving the quality of existing neighborhoods. Making them healthier, safer, more comfortable, more attractive, and affordable.
c- **Reduced Costs:** Because it is concerned with developing and improving existing services and infrastructure and providing multiple transport options, which will reduce financial costs and also lower fees.
d- **Social Equity:** This is achieved by adopting a comprehensive transport system and preparing job opportunities and obtaining and providing housing for all segments of society with their various incomes.
e- **Environmental Protection:** Through reducing the use of vehicles and mitigating their impact on the environment. And creating streets for pedestrians or cycling.
f- **Ease of Access:** This is achieved through blending or mixing land uses, concentrating development, and providing multiple transport options.

2.4. Deriving the Elements of the Theoretical Framework (Deriving the Elements of the Theoretical Framework):

Through the theoretical segment of the research, the most important primary and secondary elements and the effective and influential indicators that reflect the role of

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Smart Growth and its great and positive impact on the process of Urban Development can be crystallized, as shown in (Table 1).

3. The Practical Side of the Research:

The practical study aims to clarify and demonstrate the impact of applying Smart Growth strategies on urban development across its basic urban, economic, environmental, and social dimensions, after identifying the selected study location and analyzing its current situation for the purpose of testing the research hypothesis.

Table (1): Elements of the Theoretical Framework for the Impact of Smart Growth on the Urban Development of Cities (the author)

Primary Element	Secondary Element	Indicators		
Dimension of Urban Developme	Economic Dimension	Supporting Local Econor	At the Individual Level	Multiple Transport Options
				Shorter Daily Commute
				Facilitation of Housing
			At the Community Level	Lower Development Cost
				Availability of Job Opportunities
				Diversity of Uses and Activities
	Social Dimension	Social Interaction an Communicati	Integrating Uses and Improving Public Spaces with Social Activities	
			Encouraging Walking, Cycling, and Public Transit Policy	
		Social Equity	Balanced Distribution of Services	
			Limiting Class Differentiation through Diversity in Housing Patterns	
		Improving Quality of Lif	Providing Efficient Communal and Technical Service	
			Safer Life with Less Crime	
		Cultural Valu	Enhancing Sense of Place and Belonging	
			Preserving Heritage Sites	
			Encouraging Community Participation and Human Development	
	Environment Dimension	Improving Environmenta Quality	Reducing Polluting Gas	Adopting Pedestrian and Public Trans Corridors
				Energy Efficiency
				Increasing Green Fabric Areas
		Resource Preservation	Efficiency in Exploiting Resources and Agricultural Lands and Limiting Urban Sprawl	
			Preserving Ecological Diversity	
	Urban Dimension	Urban Structu	Cohesion of th Urban Fabric	Compactness, Intensification, and Fev Voids
				Gradation in Street Widths
		Design	Human Scale	Connectivity with the Surroundings

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		Characteristic		
		Land Uses	Integrated Mixed Uses	Diversity and Multiplicity of Housing Patterns
		Service Efficiency	Transportatio	Multiple Transport Options
				Ease of Access
			Efficiency of Buildings and Infrastructure	
Challenge	Administrati Challenges	Legislation and Laws		
		Technical and Engineering Standards		
	Implementati Challenges	Overlapping Land Ownership		
		Difficulty in Accepting Modern Ideas and Fears of Risks from Using Modern Technologies and Designs		

3.1. Requirements for Practical Study:

The research will rely in its practical study on conducting field surveys of the study area for the purpose of measuring the indicators of applying Smart Growth at the site through: aerial and satellite images and photographic images to analyze the area according to the indicators extracted from the research; direct interviews; previous studies; personal observations; and the Geographic Information System (GIS) program or system and the Drawing (AUTOCAD) program.

3.2. Reasons for Choosing the Study Area:

The most important reasons for selecting Sadr City (formerly Al-Bakr) in Nasiriyah City as the area for the practical research study are summarized as follows: its distance from the city center, which serves as a contributing factor in developing the site and promoting it as an urban center, thus alleviating the residents' daily commute to the city center; the high population density that is disproportionate to the number and areas of housing units, which resulted in some citizens encroaching upon public sites and uses and the formation of informal settlement areas in and around the center of the area; the distinctive location on the northern axis, which connects the most important cities in the north and east of the governorate to Nasiriyah City, making it a significant urban facade; and the presence of Brownfield areas, which provide a suitable foundation for development by adopting the Smart Growth policy.

3.3. Overview of the Study Area:

Sadr City (formerly Al-Bakr City) is located north of the city center and is 4 km away from it. It was established in the early seventies of the twentieth century, and its area is (89.303 hectares) "according to satellite images and using the GIS system" (6). It appears that the purpose of its establishment was to create a population cluster subordinate to the central city on the edges of the city's master plan and its northern entrance during that period (Image 1 in Appendix A). The area consists of three residential neighborhoods: (121), (123), and (125), as shown in (Image 2 in Appendix A).

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3.4. Current Situation of the Study Area: This includes an analysis of demographic reality and urban reality.

3.4.1. Analysis of the Study Area's Demographic Reality:

This includes a study and analysis of the number of housing units, population, and families in Sadr City. Based on information obtained from the Directorate of Planning in Dhi Qar Governorate, and according to the inventory and field survey in Nasiriyah City for the year 2010, the population of Sadr City was (23,930 people). The number of housing units was (2,650 housing units), including the number of houses built by encroachment or informal settlements, which amounted to (483 houses, given that the detailed plan for area (15), numbered (318), was designed to provide (2,167 housing units) (Figure 4). The number of families was (3,180 families), and the family size was approximately (7.5 individuals), with a growth rate of approximately (3%). Using the compound growth equation, the population of the area up to the year 2017 will be (28,026 people), and the number of families will be (3,737 families). Therefore, the number of double (or composite) families per housing unit, after subtracting the number of existing housing units from the number of families in the area, will be (1,087 families). We conclude that the current deficit in housing units up to 2017 has reached (1,087 housing units), which must be provided within the proposed development plan in addition to the previously existing units. Thus, the total number of housing units in the area generally will be (3,737 housing units), and the total population covered by service provision will be around (28,026 people).

3.4.2. Analysis of the Study Area's Urban Reality (Current Situation):

Based on the indicators extracted from the theoretical framework in the urban dimension, we can analyze the current situation of the study area, which includes (**land uses, urban structure, and service efficiency**). Relying on the special plans and aerial images of the area, as well as photographic images and site surveys, the following analysis can be presented:

3.4.2.1. Land Uses:

a- Residential Use: Based on the sectoral plans (3) and the satellite image, there is only one residential pattern in the area, which is the pattern of attached housing units. The area of the housing units in the neighborhoods ranges between (150-250 m^2), and the total area for housing reached (39.515) hectares. Relying on the data obtained about the area's residents, the population density recorded a very high rate, reaching (710 persons per hectare), and the housing density was also at a high rate, reaching

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(67 housing units per hectare) (38), as is clear in Images (3) and (4) in Appendix (A) and Table (2).

b- Commercial Use: Commercial use in the area was limited to the spaces allocated as markets within local services, and their total area was (8,650 m²).

c- Social Services: This includes Health Services, as there is only one health center in the area for healthcare, occupying an area of (2,000 m²). Educational Services occupy an area of (4.74) hectares distributed among the three residential neighborhoods, with only one kindergarten, 4 primary schools, and two secondary schools built, and there are three undeveloped sites. Religious Services occupy an area of (6,000 m²). As for Municipal Services, there is one site for a municipal department in the area occupying an area of (8,800 m²). Public Services occupy an area of (12.167) hectares, which was a military site, with only (1.10) hectares being utilized.

d- Gardens and Green Spaces: These occupy an area of (2.5) hectares and include gardens and green spaces.

e- Transportation: Roads and sidewalks occupy an area of (26.16) hectares of the total area of the region.

f- Infrastructure Services: The area suffers from the deterioration of technical infrastructure in general, including sanitation, electricity, and water services. As for industrial use, there is no area dedicated for industrial purposes, but it is spread in the market area and commercial axes in a limited manner.

Table (2) Clarifies the Areas and Percentages of Land Uses as the Current Situation of the Area

Area in neighborhood 121 (hectares)	Area in neighborhood 125 (hectares)	Area in neighborhood 123 (hectares)	Percentage of land use to the total site area	Land uses
14.095	12	13.420	44.24%	**Residential Use**
2.655	3.645	2.655	10.3%	**Local Services**
-	-	12.167	13.63%	**Sector Services**
-	-	2.5	2.8%	**Green Spaces**
7.300	7.285	11.581	29.30%	**Roads and Streets**
24.050	22.930	42.323	100%	**Total**
89.303				

Source: Prepared by the author, based on field surveys and the satellite image.

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3.4.2.2. Urban Structure

The urban structure consists of the physical blocks and the voids forming the city and the relationship between them. The urban fabric of Sadr City, through maps and satellite images, was characterized by orthogonal geometric regularity and a single residential pattern, which is the attached pattern. This is clearly evident in the area's plan, where there is monotony in the distribution of blocks and housing units, most of which were of the same area and dimensions (10x15) meters for a single housing unit. This repetitive nature causes the area to lose the required privacy. Furthermore, the building blocks are very similar due to the widespread small-sized housing units, mostly constructed from bricks and cement, with roofs built using the "aqada" system (brick and steel joists) for the housing units constructed during the seventies and eighties of the twentieth century. As for the movement voids and streets, they were characterized by gradation; the streets connecting the residential neighborhoods were 20 m wide, and then they graduated to 15 m and 10 m, respectively, for the secondary streets.

Summary of Features and Problems

From this analysis, we can summarize the most important features and problems of the study area as follows:

The area is characterized by a high population density that exceeds the approved standards, as it consists of three residential neighborhoods and its population was supposed not to exceed (12,000 people according to the approved standards in Iraq), while the current reality indicates that the population reaches more than (28,000 people according to Dhi Qar Statistics Directorate data). The area suffers from a dense spread of residential construction and informal encroachments that significantly affect other uses. It also suffers from a shortage and weakness in various infrastructure services, as well as educational, health, recreational, and commercial services, and the area lacks green areas and playgrounds for children, which could be an important factor in population gathering and supporting social integration and interaction among them. This is coupled with the deterioration of the structural condition of most residential homes in the neighborhoods, reflecting the modest economic and living standards of the area's residents. Furthermore, there is a failure to utilize the distinctive location at the northern entrance of Nasiriyah City and showcase its facade in a proper urban manner, as well as the lack of organized vehicle parking, especially in commercial areas, and the absence of a distinctive architectural style for buildings in the area generally, lacking any architectural characteristics or features that reflect its specific character or identity.

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3.5. Urban Development Proposals for the Study Area:

Based on the analysis of the study area and after identifying its main problems, the researcher proposed an alternative plan for the urban development of the study area, relying on the principles of Smart Growth.

Idea of the Alternative Plan: The plan relied on implementing the principles and strategies of Smart Growth, particularly infill, by adding a new and diverse pattern of vertical housing in the service area, which is approximately (12 hectares), and adding mixed uses (residential, administrative, and commercial) in the commercial axes, along with developing local service areas, without affecting the existing residential use except for some minor treatments, as is clear in Image (5) in Appendix (A). The proposed alternative for the area's development fundamentally relied on the infill strategy in the Brownfield areas.

3.5.1. Analysis of the Proposed Plan's Urban Structure: Based on the architectural indicators in the theoretical framework of the research, the development plan proposed by the researcher can be analyzed.

3.5.1.1. Land Uses: As is clear in Table (2), these include:

a- Residential Use: The infill strategy was adopted to apply the Smart Growth policy at the site by adding the vertical housing pattern in the service site (the Brownfield area available at the site, which was used as a military location) in different forms and areas, aiming to create diversity and thus facilitate housing for different segments of society in a fair manner commensurate with their financial incomes. In the vertical housing complex, there are two types of residential buildings with (six floors): some housing units were Type (A) with an area of (150 m^2) per unit and a total of (4) housing units per floor, while Type (B) apartments had an area of (120 m^2) and a total of (4) housing units per floor. The total number of apartments prepared in this complex reached (720 housing units). It should be noted that this number of housing units is consistent with the limitations and standards of residential density adopted in urban housing, which indicates that the residential density for high-rise buildings ranges between (60-120 housing units/hectare). Since the existing deficit in the site's housing units, as previously indicated, reached (1087 housing units), the remaining number required, which is (367 housing units), will be provided through mixed use in the commercial axes, which are approximately (1700 m) long and (20 m) wide, and which will be (six floors) high, consistent with the master plan limitations of Nasiriyah City.

b- Commercial Use: Regarding commercial uses, they were at two levels: At the neighborhood level, areas were allocated for local markets in the center of both

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neighborhoods (125 and 121), with an average of (1000 m²) as a horizontal area for each market to meet the daily needs of the residents. At the area level, the commercial axes were adopted to be the main commercial center and will be for trade purposes (wholesale or retail) with diverse commercial offices on the ground and first floors of the mixed-use buildings, with a horizontal area of (34,000 m²). As for the vertical housing complex, two multi-story commercial centers (malls) (three floors) were allocated with a horizontal area of (500 m²) for each center for this purpose.

c- Social Services: The proposed development plan worked on improving these services, as the area of social services in the plan reached (11.20) hectares, an increase of (2.5) hectares compared to the current situation of the area. This included:

- **Health Services:** Health services occupied an area of (6,725 m²), with one main health center of (3,725 m²) and three subsidiary health centers in the residential complex and neighborhoods, each with an area of (1,000 m²).

- **Educational Services:** These occupy an area of (8.7) hectares of the total area of the region, an increase of (4 hectares) over the area allocated in the current situation, following a study of the population increase and the significant shortage in the current number of schools. They were divided into Primary Schools with a number of (8 schools), whose horizontal areas range between (3,500-5,000 m²) per school; Intermediate Schools with a number of (3 schools), whose area ranges between (6,000-8,000 m²) per school; Secondary Schools with a number of (2 schools), whose area ranges between (8,000-11,000 m²) per school; and Kindergartens with a number of (4 kindergartens), with an area of (2,500 m²) per kindergarten. The educational service sites were designed safely with easy access via walking or cycling, as they are close to the residential areas.

- **Religious Services:** These were represented by an area of (4,800 m²) allocated as mosques in the residential neighborhoods, provided they are close and easily and safely accessible by walking or cycling.

- **Other Municipal and Administrative Services:** These occupy an area of (13,450 m²) and represent various other services (such as a police station and a municipal center for each residential neighborhood, a fire station, a cultural center, and a filling station).

d- Green and Open Areas: These include gardens, squares, green playgrounds, and vehicle parking, and collectively occupy a horizontal area of (15.88 hectares), an increase of about (12.5 hectares) over the current situation. This included:

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- **Gardens**, which occupied an area of (13.31 hectares), represented by an area of (7.54 hectares) in the residential neighborhoods, while in the residential complex the area was (5.77 hectares), an increase of about (11 hectares) over the current situation. The gardens and green squares established in the neighborhood plans, which were previously encroached upon for housing by informal settlements, were recovered.

- **Playgrounds and Squares** were represented by an area of (5,100 m²), representing a central playground for the area.

- **As for Vehicle Parking**, it was concentrated in the residential neighborhoods near local services and markets and occupied a horizontal area of (8,460 m²). In the vertical residential complex, parking was located on the outer boundaries of the complex, connected to the surrounding streets, and occupied a horizontal area of (12,100 m²), allocated at a rate of two car spaces for every three apartments, by allocating an area of (25 m²) for each car space. In the mixed uses within the commercial axis, the underground floor (basement) can be utilized as parking for car owners of commercial stores and residential apartments.

e- Transportation and Streets: Several solutions were developed to solve the problem of transportation and traffic congestion in the area and the negative impacts they have on the environment on the one hand and the health of the residents on the other, in addition to their effect on hindering easy access to various services and workplaces frequented by the resident, through:

- **Concentrating vehicle movement** on the area's ring roads, and then transitioning to the secondary streets of the residential neighborhoods without passing through the commercial center.

- In the residential complex, vehicle movement is restricted only to the perimeter of the site, and there is no vehicle movement inside the complex except for emergency cases.

- **Adopting walking** as a movement policy, with the possibility of using bicycles to reach the commercial center and local services, providing safe and quiet movement for students within their neighborhoods.

- Also, the possibility of benefiting from public transportation to travel between Sadr City and the governorate center by linking residents' movement to the proposed (tram) line in the Nasiriyah City master plan studies, if implemented (6).

f- Technical (Linear) Infrastructure: These services and sanitation networks must be improved, developed, and maintained to ensure they provide the required services at the best level, and the sewage and rainwater drainage services for the residential

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complex must be connected to them. Regarding drinking water networks, since the water source supplying the governorate center is near Sadr City, a direct connection can be established without the need to rely on another source. For electrical power, maintenance and improvement of the power transmission networks can be carried out to utilize the thermal power generation station, along with the possibility of using available energy alternatives such as solar energy on the roofs of houses and buildings for various uses.

g- Industrial Use: Non-polluting industrial use will be focused by allocating a small area for it within the market areas for the purposes of small workshops for the maintenance and repair of household appliances or vehicles.

Table (2) Clarifies the Allocated Areas According to Land Uses in the Plan .Proposed by the Researcher

Land Uses	Residential Use		Social Services	Green and Open Areas	Roads and Streets
	Horizontal	Vertical			
Area (in Hectares)	37	5.2	11.2	15.88	20.2

3.5.1.2. Urban Fabric and Character

a- Urban Fabric

The urban fabric of the proposed plan was characterized by being more compact and cohesive through reducing voids and effectively utilizing spaces, especially in the service area, which constituted a large gap in the current fabric. This was achieved along with recovering some open spaces and areas within the residential neighborhoods that were previously encroached upon for housing purposes, creating a degree of balance between the constructed building blocks. Furthermore, the heights of the mixed-use buildings and the residential apartment blocks provided building density and compactness, as shown in Image (6) in Appendix (A).

b- Architectural Character

This represents the most important architectural characteristics and features of the area generally. The movement axes, particularly the commercial axes or those leading to local service areas, were distinguished by the use of a continuous arcade in front of the buildings and pedestrian paths to provide shade on the one hand and to achieve the human scale with the high-rise buildings on the other. High-rise buildings were also distributed on both sides of the commercial axes. As for the service areas, they will be

two stories high to be consistent with the heights of the housing units and the human scale. At the level of housing units, there was a renewal of building facades using local materials and adding architectural elements and symbols that integrate with the symbols used in various buildings in the area to create a distinct identity for it.

3.6. Comparative Analysis Between the Current Situation and the Proposed Plan

To conduct comparative analysis between the area's original plan, its current situation, and the plan proposed by the researcher, the effective economic, social, environmental, and urban indicators impacting the urban development process will be applied to these plans, and the results of the practical study will be extracted from them, as outlined below:

3.6.1. The Economic Dimension of Urban Development

The comparison is made through the indicators for the economic dimension of urban development extracted from the theoretical framework, which included (supporting the local economy for the individual and the community through the facilitation of housing, lower development cost, diversity of economic activities and events, provision of job opportunities, and shorter work commutes), as clarified in (Table 1 in Appendix B).

3.6.2. The Social Dimension of Urban Development

For the social dimension of urban development, the comparison is made through the elements extracted from the theoretical framework and determined by four indicators: (social interaction and integration, social equity, improving quality of life, and cultural values), as is clear in (Table 2 in Appendix B).

3.6.3. The Environmental Dimension of Urban Development

The environmental dimension indicators are compared between the current situation plan and the proposed development plan, as is clear in (Table 3 in Appendix B).

3.6.4. The Urban Dimension of Urban Development

The comparison is made through the elements specific to the urban dimension extracted from the theoretical framework, as is clear in (Table 4 in Appendix B).

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Based on the preceding results, a table can be created showing the comparative analysis between the indicators achieved in the (study area's original plan – the area's current situation – and the plan proposed by the researcher) and their respective percentages, according to (Table 5 in Appendix B), and this can be graphically represented as in (Figure 1 in Appendix B).

4. Conclusions

We conclude that the application of the Smart Growth policy has a positive effect on the urban development of cities, which can be summarized as follows:

- **Urbanly:** Achieving compactness and densification will create a cohesive urban structure with aesthetic urban scenery, contrary to leaving large voids in cities which creates a fragmented and distorted urban formation, along with efficiency in service provision.
- **Diversity:** Diversity, especially in housing patterns, will facilitate the availability of several housing models for citizens with various economic incomes, and will also create an aesthetic urban and architectural scene.
- **Economically:** Mixed uses achieve easy access and economy in daily commutes, and concentrating development will significantly contribute to reducing the cost of development and taxes on residents, not to mention providing agricultural land in neighboring areas that will support the city's economy.
- **Environmentally:** It achieves a healthy environment due to the focus on afforestation and the preservation of resources and environmental diversity, while reducing emissions by adopting public transportation and lessening reliance on personal vehicles, along with encouraging energy alternatives.
- **Quiet and Safe Housing:** Achieved through adopting pedestrian paths in centers and separating the movement of transport vehicles from pedestrian movement.
- **Socially:** It will provide many job opportunities due to concentrating development, social contact and interaction, and improving the quality of life in the area through integrating uses, adopting public transportation and pedestrian paths. Diversity will create a homogeneous society far from class differentiation. Moreover, the focus on cultural values and creating a unique identity for the city through distinct services and giving it a special architectural character will enhance the sense of place and belonging.
- **Community Participation:** Any development or upgrade plan must be presented transparently for community participation to avoid any obstacles or challenges during implementation.

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Generally, using the indicators specific to Smart Growth in the proposed development plan will reflect positively in achieving a socially harmonious, environmentally sound, and structurally cohesive urban living environment at a low economic cost.

5. Recommendations

1. The process of adopting the Smart Growth policy requires the assistance of the competent authorities responsible for setting development plans in the country, such as the Ministry of Planning and the Ministry of Housing and Public Municipalities.

2. The competent authorities must enact new legislation and laws that help and facilitate the application of the Smart Growth policy.

3. The possibility of forming joint committees from relevant ministries, universities, and planning-oriented academies to set a set of acceptable standards that rely on the community's specificity.

4. The necessity of moving towards adopting a decentralized administration system in the urban management of cities and the necessity of integrating urban development plans with regional plans.

5. The necessity of moving towards supporting community participation in decision-making, especially those related to development.

6. Urging and obligating municipal institutions to re-study the master plans, identify Brownfield sites, and present them for investment based on Smart Growth principles.

7. Encouraging and engaging both the governmental and private **sectors** in implementing development plans and investments, and preventing any one sector from monopolizing, to ensure non-monopoly.

8. Since the Smart Growth policy is a product of global trends toward sustainability, it is necessary for the state, across its various sectors, to aim for achieving sustainability and optimal investment of resources.

6. References

Al-Tanmiya (The Development), Al-Baheth Al-Arabi (The Arab Researcher) - Arabic-Arabic dictionary from *Mu'jam Lisan Al-Arab*: http://www.baheth.info.

Al-Wakeel, Shafaq, *Urban Planning: Principles - Foundations - Applications*, Part One, Cairo, 2006.

University of Thi-Qar Journal

ISSN (print): 2706- 6908, ISSN (online): 2706-6894

Vol.21 No.1 Mar 2026

Detailed Plans for the Neighborhoods of Nasiriyah City – Directorate of Urban Planning, Dhi Qar – Republic of Iraq.

Arab Urban Development Institute (AUDI), *What is the City Development Strategy?*, www.araburban.com.

Bouzaghaia, Bahia, *Complementary Thesis for the Degree of Doctor of Sociology on the topic: (Expansion of the Urban Sphere and Sustainable Development Projects)* - Algeria, 2016.

Studies for the Strategy of Developing and Updating the Master Plan for Nasiriyah City (2009-2011) - Directorate of Urban Planning in Dhi Qar – Republic of Iraq.

Farahat, Ismail Baher, *Doctoral Thesis in Urban Planning and Design, The Impact of Decentralization of Administration on Urban Development in Egypt*, Misr International University, 2006.

Qashou, Manal Mohammed Nimr, *Integrated Rural Development Strategies in the Palestinian Territories*, Requirements for the Master's Degree in Urban and Regional Planning, College of Graduate Studies, An-Najah National University in Nablus, Palestine, 2009.

Hadi, Inas Diaa, *The Effect of Technological Advancement on Sustainable Urban Development*, Master's Thesis, Urban and Regional Planning Center - University of Baghdad, 2014.

Media Production Center Series, Issue Eleven, University Agency for Higher Literature and Scientific Research, King Fahd National Library Cataloging in Publication, Jeddah, King Abdulaziz University, 2006 (1427 AH), *Sustainable Development in the Arab World: Between Reality and Aspirations*.

A Guide to Developing and Implementing Smart Growth Greenhouse Gas Reductions Programs U.S. ENVIRONMENTAL PROTECTION AGENCY 2011.

Chance, Michael: Recovering a Sense of Place in the Edge City, Anthropology These.

March -16-2015 - www.smartgrowth.org. Smart growth online – What is Smart Growth.

University of Thi-Qar Journal

ISSN (print): 2706- 6908, ISSN (online): 2706-6894

Vol.21 No.1 Mar 2026

if 'Smart' is 'Sustainable'? An analysis of smart growth policies and- its successful practicest- Fei Yang Iowa State University.

PLANNING FOR SMART GROWTH STATE OF THE STATES - American Planning Association- Making Great Communities Happen2002

Smart Growth America – Making Neighborhoods Great Together - Smart Growth Audit Summary Version 1.0 | December 1, 2007.

Victoria Transport Evaluating Criticism of Smart Growth, Policy Institute- By Litman2016.

Appendix (A): Plans and Maps for Practical Study

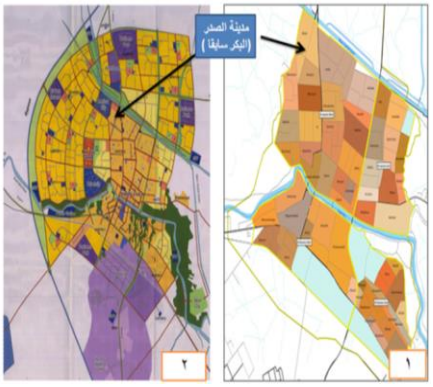

Figure (1) illustrates the location of the study area within the Master Plan (Comprehensive Plan) before and after the update.

Figure (2) shows the three residential neighborhoods (or districts) within the study area.

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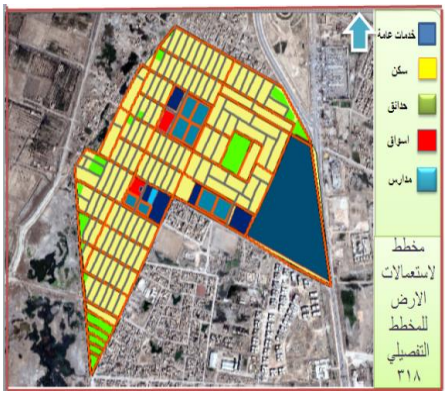

Figure (3) illustrates the land use map according to Detailed Plan 318.

Figure (4) illustrates the existing land use map for the area.

Figure (5) illustrates the proposed plan by the author.

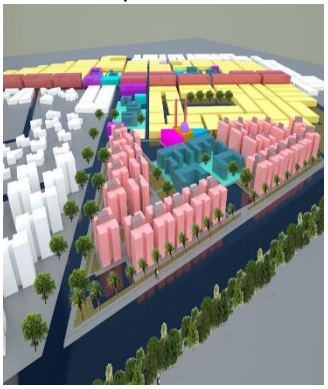

Figure (6) illustrates an aerial perspective (or view) of the proposed plan and the surrounding neighborhoods.

Appendix (B): Tables and Data for the Practical Study

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The proposed plan for development	Existing plan	Study area plan	Secondary indicators	Main indicators
✓	×	×	Housing facilitation	Support the economy Individual and community level
✓	×	×	Low cost of development	
✓	✓	✓	Diversity of economic activities and events	
✓	×	×	short business trip	
✓	×	×	Providing job opportunities	
5	1	1	Regional indicators	

Table (2) illustrates the application scores of indicators related to the social dimension of urban development.

The proposed plan for development	Existing plan	Study area plan	Secondary indicators	Main indicators
✓	×	×	Mix and match uses	Social interaction and communication
✓	×	×	Adopting public transportation and walking policy	
✓	×	✓	Reducing class discrimination and fair distribution of services	social justice
✓	×	✓	A safe community and efficient services	Improving the quality of life
×	×	×	Belonging to place and achieving identity	cultural values
4	0	2	Achieved indicators	

Table (3) illustrates the application scores of indicators related to the urban dimension of urban development.

The proposed plan for development	Existing plan	Study area plan	Secondary indicators	Main indicators
✓	×	×	interconnectedness, solidarity and adaptation	**urban structure**
✓	✓	✓	Gradient in street view	
✓	×	×	Integration of the urban space network	
✓	×	×	Multiple and diverse residential patterns	
✓	✓	✓	Human scale	**Characteristics and architectural character**
✓	×	×	Contact the ocean	

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✓	×	✓	Balance in land uses	**Land uses**
✓	×	✓	Integration and interconnectedness of activities	
✓	×	✓	Ratio of the number of housing units to the number of inhabitants	
✓	×	×	Ease of access	Service efficiency
✓	×	×	Efficiency of buildings and infrastructure	
11	**2**	**5**	**Achieved indicators**	

Table (4) illustrates the application scores of indicators related to the environmental dimension of urban development.

The proposed plan for development	Existing plan	Study area plan	Secondary indicators	Key vocabulary
✓	✓	✓	Public transportation	**Improving environmental quality**
✓	×	×	Pedestrian paths	
✓	×	×	Afforestation and green spaces	
✓	×	×	energy efficiency	
✓	×	×	Efficiency in exploiting agricultural resources and lands	**Conserve resources**
5	**1**	**1**	Regional indicators	

Table (5) illustrates the achieved indicators and their percentages in the Study Area Plan, the Existing and the Proposed Plan.

percentage	Number of indicators achieved	plan type
34.6%	9 out of 26 indicators	**Study area plan**
15.4%	4 out of 26 indicators	**Existing plan**
96%	25 out of 26 indicators	**Proposed plan**

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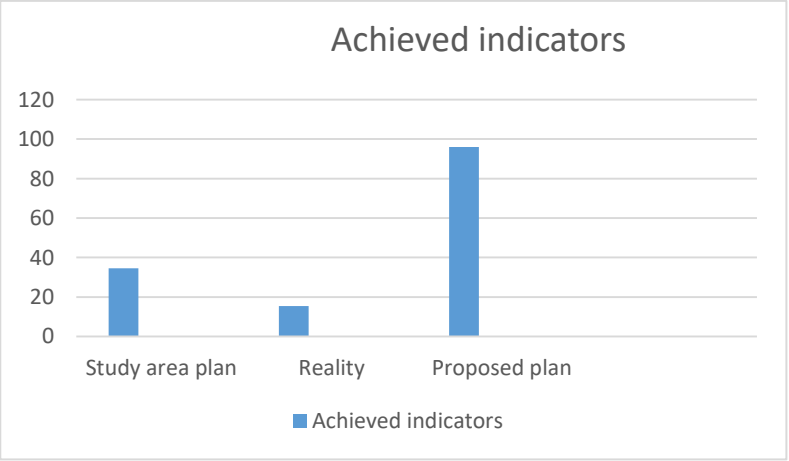

Figure (7) graphically illustrates the percentages of achieved indicators in the Study Area Plan, the Existing and the Proposed Plan.