

Exploring the urban spatial structuring of new fourth-generation city sites for Delta region development: New Mansoura city, the Delta tourism capital

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Abstract:

Land ownership is crucial, especially if the projects being developed are government-funded development projects. The establishment of new cities is one of the state-sponsored projects that have an impact on urban spatial reorganization. During the Corona crisis, Due to their low urban density, these cities gave shelter to certain inhabitants. The study focused on the projects of establishing new cities. The vision and goals of urban renewal and shedding light on the variables in the urban spatial restructuring of the Delta region in Egypt. Also, modifying the urban fabric of the built environment in light of future strategic plans. Certainly, spatial structuring is linked to the choice of project sites, where the sites of new cities are what determine the success or failure of the city for its residents. The purpose of this study is to explore and monitor the fourth generation of new cities by considering: First, the reasons and motives that support the creation of new cities. Secondly, the criteria for selecting city locations, as well as how closely they relate to existing cities. Third, determine the extent to which the design of cities affects residents and their sense of place. Fourth, the different ways in which urban transformation can affect societal identity, as well as the social, cultural, and health repercussions of this transformation, particularly during a pandemic. Fifthly, are there new design criteria for new cities as a result of epidemiological urbanization (the Corona pandemic)? Finally, the use of the new city of Mansoura as a case study.

Keywords:

Spatial transformation , new cities ,urbanization , urban density ,urban transformation, epidemic urbanization.

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1. Introduction

Cities have lost many of their characteristics related to the quality of human life due to the high rate of pollution, the lack of green spaces, and the increase in traffic resulting from the increase in population. This may affect the person, his behavior, and his social relations. The plan of these cities is related to the role of the state, planners, and the Urban Planning Authority, which is to set the considerations that must be taken to solve these problems. Any defect in the planning process causes the failure of the renaissance of society.

Countries constantly consider contemporary urban policies that have taken place in specific places, as it is a social and political process that depends on local ideas and ideas that have been implemented in other places ([Siahooei, 2013](#)). Therefore, we see many attempts made by the state and taken upon itself in an attempt to achieve balanced urbanization and raise the quality of life for it. However, upon investigation, we see that urbanization reflects the reality in

which man lives. In the last five years, the Urban Planning Authority has had a role in developing communities and establishing new cities, as transformations in planning practice. Also, as an attempt to create contemporary urban policies that led to raising the quality of life for citizens, whether in terms of housing, economic projects, or reducing unemployment, as well as recreational areas, a good road network linking parts of the city for ease of movement, the provision of good health and social services.

These practices try to regulate land use through a strategy that boosts competitiveness, as a solution to the aforementioned issues and addresses the challenges of urbanization and sustainable development concerns that many countries face. Many projects by the public sector and private investors are included as state assistance, participation in urbanization, and promotion of urban development for economic growth goals. From the 1970s to the present, the state has prioritized spatial reorganization through

the creation of new cities that play an important part in the development process. The new cities established by the state still suffer from the problem of citizens' unwillingness to live and reside in them. But with the existence of a new generation of new cities in an attempt by the state's efforts to take into account the reasons and increase the services that help the success of these cities. This is in addition to an attempt to develop spatial reforms through projects and investments and to understand the ongoing spatial transformation in urban areas.

This paper investigates the urban spatial structuring through the fourth-generation projects for new cities, which require a systematic framework to explore the various mechanisms, whether spatially, socially, or physically. In addition, adopting an analytical approach to understanding how and why new cities are generated is required. It also assesses the criteria related to the selection of the sites of new cities, as well as the strategy followed for the development of the delta region, the motives by the governance framework, and the reasons that are updated and that are carried out through various processes that lead to the spatial restructuring of the establishment of new cities with their different generations. Finally, an evaluation of one of the fourth-generation cities in the Delta region, which is the city of New Mansoura.

1. Reasons and motives for supporting the establishment of new cities.

Cities can be represented as dynamic, dynamic entity that changes according to the continuous challenges of change, the characteristics of cities, and their location (Riham Salah Mohamed, 2022). When countries adopt urban development plans, they adopt urban development models characterized by modern, smart, and world-class visions of cities through the development of national plans for the establishment of new sustainable and flexible cities for various reasons.

According to the Central Agency for Public Mobilization and Statistics, we find that the population growth rate continues at what it is currently at 2.56% annually, which will lead to a population number reaching 131.7 people in 2030. This will require providing more than 42 million

job opportunities, and about 218.3 million in 2050. It requires providing more than 70 million job opportunities. Therefore, the population growth rate must be reduced to 1.5%, to reach the population of 115 million in 2030 and about 154.9 million in 2052 (Statistics, 2017), as shown in fig 1.

Therefore, there are many reasons and motives when planning these cities:

- 1- One of the solutions for urban expansion,
- 2- Increasing the area of the built-up areas,
- 3- Accommodating the increasing population density,
- 4- Solving the housing problem and reducing overcrowding in the old cities.
- 5- It also absorbs human energies and establishes governmental or private bodies to reshape the economic, cultural, and political map. There is a direct relationship between three factors that must be taken into account when developing a model for urban development, which are the following: increasing the area, maximizing the uses of the site, and improving the quality of the built environment, fig. 2.

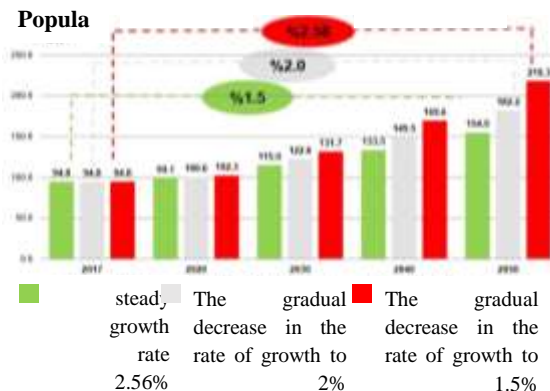


Figure 1: Population Challenges: The population will double over the next 35 years, Statistics, 2017.



Figure 2: Factors represented in urban development. Source: Author

1.1. Establishing new cities in Egypt
In Egypt, the idea of constructing new cities dates back to the 1960s, when urban expansion was based on two main axes:

- 1- Creating new development axes in unoccupied areas with inhabited that have natural ingredients that can be used to rebuild these areas and attract population.
- 2- Establishing a series of new cities and villages all around the delta in successive generations to serve as development centers and new urban centers that achieve stability, social balance, and economic prosperity to help attract people and reduce population density in existing cities to preserve agricultural lands.

The plan to construct new cities in Egypt spanned three generations, from the mid-seventies to the early nineties, until the introduction of the fourth generation, which is now being executed as depicted in **fig. 3**. These cities were classified as either independent or dependent.

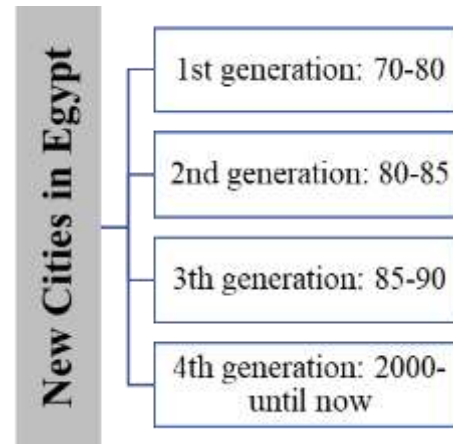


Figure 3: Timeline for new cities generations in Egypt, Source: Author

We can see that development was initially restricted to the construction of cities to satisfy the increase in inhabitation density. With the passage of time and progress, new cities have been established for the fourth generation of smart cities, which adhere to some new principles to achieve energy sustainability and waste recycling standards to become green cities by increasing the area of per capita green spaces. Here, another definition and description of the new cities become clear as large urban projects that were planned and built-in order to become independent outside the vicinity of the established cities (**Murray, 2015**). It can also be considered the arena through which neoliberal initiatives appear (**Watson, 2014**). Also, spatial initiatives such as establishing new economic and logistical zones in different places enhance competition between the different regions of the country (**Theodore, 2002**).

2.1.1 Fourth generation cities in Egypt

The fourth-generation cities are a new generation that changes the lifestyle, and they are called smart cities, as they are cities with multiple activities and uses, that promote entrepreneurship and the participation of the private sector in the implementation of projects, and provide reliable mobility. It adapts to climatic changes, by increasing green areas, and public spaces, and exploiting new and renewable energy resources, especially solar energy (**Service, 2022**). Egypt has 37 fourth-generation cities, with the Ministry of Housing deciding to execute them in three phases: 17 cities in the first phase, 14 cities in the second,

and five cities in the third. The state is responsible for fourth-generation cities and the construction of dwelling units in the housing sector, as well as several projects in the service, road, and utility sectors.

The following are some of the objectives for the construction of fourth-generation cities: Creating new civilized hubs; redistributing the population away from the Nile Valley's limited strip; building new attractions outside the cities and extending urban axes to the desert and distant locations. Apply energy sustainability standards and waste recycling to become green cities. Establishing smart cities in which all services are provided electronically and covered by the global information network so that these cities become a center for entrepreneurship at the national and regional levels. A new design principle for cities, a concept that keeps pace with the changes of time represented in cities of a new type, smart cities that excel in meeting the needs of citizens in all aspects of life through technological technologies and an environmentally friendly digital that contributes to providing a sustainable environment.

The European Union defined smart cities as bringing the city, industry, and citizens together to improve life in urban areas through a more participatory approach and the use of information and communication technology, and a joint interaction between the economic sector, governance, green transport, environment and life with conscious citizens and independence. The goals of smart cities are to increase sustainability, improve citizens' lives, and economic growth, and

create global cities. For example, the Economic City of Egypt (ECE), one of the fourth-generation cities, is located in the north of Egypt and is the result of a partnership between the public and private sectors. It is a center for the main economic activities in Egypt besides tourism, industry, and commercial centers. It is characterized by the presence of a transportation network and railways to connect it to the surrounding area. It also has a university campus, as one of its goals is to achieve partnerships with international educational institutions to develop scientific research (Cutts, 2016).

1.2. Ingredients spatial space

Urban sprawl is a more compact form of urbanization that includes mixed land use and a defined urban density. The value of the land is of great importance, as some countries do not own the lands that allow urban expansion, so when the state sets a strategy for development, it sets some priorities for the use of lands, according to Egypt's strategy for development, three priorities have been set to deal with the lands as shown in the table 1.

The lands suitable for development represent approximately 69% of the area of Egypt (164 million acres), excluding the inhabited part. The future urban development of Egypt for the year 2052 has been planned so that the lands and the distribution of the population are dealt with so that the balance is achieved between the population and its distribution across the state as a whole, as it is clear to us the distribution of the population in the fig. 4.



Figure 4: The future map for the stages of urban development in Egypt, Statistics, 2017.

The development here is not only by the state, but different poles of investors with companies of the

private sector intervene, the elements of the different actors unite to achieve common goals for

development (the state, international companies, investors, local government, traditional authorities, and so on). In addition, there are partnerships between the public and private sectors to support urban entrepreneurship and enhance investor confidence. Diversity in showing the different options and achieving the largest degree of keeping pace with the future of cities is more embodied in the design of new cities by the private sector and international companies.

There is a big difference between the design and realization of modern technology represented in smart cities that are implemented by the private sector, and that attract a certain category of the population due to the high prices of housing units and between cities that are established by the public sector.

The state's strategy changed when it began designing the fourth generation of new cities. It determined the development centers and poles at the level of the Republic by defining the first set of priority development areas at the national level. The state has started to take executive steps for the projects supporting each domain according to the studies and projects that have been prepared for each of the ten regions, namely: New Port Said City, New Mansoura City, El Alamein, Ras Al-Hikma, the New Administrative Capital, West Beni Surf, West Minya, Nasser, West Qena. As planned, these areas will be linked to the regional road network that has been proposed to ensure the success of these cities and to connect all parts of the country.

2. The locations of the new cities and their connection to the current cities.

Urban spatial restructuring is considered one of the strategic goals of urban development, which can be achieved by increasing the area of the globe and defining the scope of spatial development that can accommodate the expected housing increase in the future. Achieving balance in the population distribution in the current and future built-up areas and maximizing the returns of development in the new areas are among the important goals to ensure that the population increase is attracted and contained. The National Strategic Plan for Egypt 2052, for example, was intended to maximize benefits and develop

important regions at the national and regional levels through the involvement of investment projects with economic returns. The state believes that sustainable development can only be achieved by preparing plans at different spatial levels in the state. Optimizing the existing capabilities through a serious development vision on several levels (sectoral and spatial) and plans to implement many projects.

In 2017, the General Organization for Urban Planning prepared an urban plan for the Egyptian

7%	Inhabited space	
24%	Valid lands according to resources without limitations	Priority
16%	Valid lands according to resources and some limitations	Second priority
29%	Valid lands with terms and conditions	Third priority
25%	Lands that are difficult to develop	
100%	Total	

Table 1: Validity of land for development in Egypt, Statistics, 2017.

coastline (planning, 2017) as shown in fig. 5. The priorities of spatial development were determined by defining the various service and urban investment projects that will be implemented during specific periods, and among these projects is the establishment of new cities.

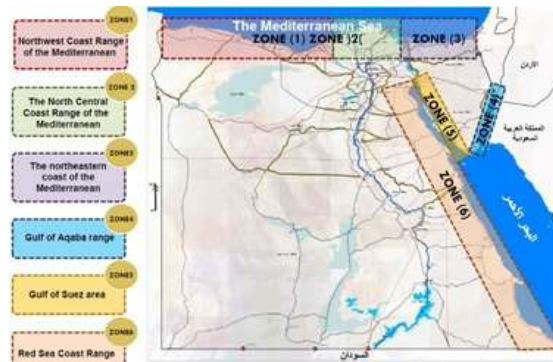


Figure 5: Urban plan for the Egyptian coast façade, , Ministry of Housing, 2017.

Planning thought for the establishment of new coastal cities as coastal backs for the current cities and commitment to the current and future development directions of the national plans. Cities must be placed in better positions to meet

the challenges of our time, improve natural resources and harness future possibilities. Which makes cities a place to treat future crises, so the state seeks to establish good cities capable of attracting people and prosperity and providing some facilities such as universities and good ports called for by UN-Habitat to enhance the competitiveness of the city area, sustainable and smart cities in which there is less Energy use (Tuts, 2011).

Cities are centers of prosperity, attracting

Spatial Distribution	Suggested Distribution of over Population
Great Cairo	4 million people
Alexandria urban district	4 million people
Suez Canal and North Sinai	7 million people
West Delta	million people4
Northwest Coast (West Gate)	5 million people
West North Upper Egypt	5.3 million people
East North Upper Egypt	1.7 million people
Red Sea (East Gate)	5 million people
Southern Egypt (South Gate)	3 million people
existing gatherings	15 million people
Total	52 million people

Table 2: Suggested Distribution of Population in new development areas, Statistics, 2017

1.3. Criteria for selecting and designing sites for new cities

The state's regional development strategy dictates how to get to the city's site and if it can be developed. When problems emerge, the city's site must have the infrastructure (electricity, sewage, gas, water, and roads) with the option of having alternatives to the new city's site. The fourth-generation locations for the new sustainable Egyptian towns are chosen based on several criteria, some of which are planning criteria and others of which are political, and they are divided into the following categories:

First, planning criteria: 1-The new cities

people to achieve their needs balanced with the requirements of the modern era of social development balanced with economic activity (UN-Habitat, 2013). To achieve this goal, the plan relied on supporting the connection between Egypt's coastal entrances and gates in-depth for urbanization and the transfer of population from densely populated areas to new development areas and a proposal for distributing the population increase as shown in the table. 2.

should be located far from the existing cities so that the urbanization does not coexist, 2-The new city should not be within agricultural lands or the lands of future agricultural expansion, 3-The extent of the importance of the city's location in it's service to the close areas to it and less densely populated, 4-Ease of access to the regional highway network, 5-Easy access to it by car, 6-City capacity, 7-Seeing the site and it's the relationship to the main roads, 8-The extent of the potential for future growth, 9-Location and it's the relationship to traffic congestion, 10-Proximity to production centers (employment), 11-The distance between the site and other cities in the region, 12-climatic and environmental factors, 13-Appropriate access to water resources.

Second, political criteria: 1-Security and military considerations, 2-Attracting entrepreneurs to invest.

In other words, the new cities offer an opportunity to address all the mistakes that exist in the current cities and direct urbanization by providing high-quality services and good and sustainable infrastructure.

3. The effect of city design on residents and their sense of place.

People relate to places emotionally, whether positively or negatively, through their experience of a particular place in the urban environment, meaning that there is an interconnection that occurs between individuals and their environments. This interdependence stems from the presence of a positive evaluation of the place because it meets the needs of individuals and allows them to achieve their goals, and thus individuals settle in this place, especially if it is a new city that has all the needs and services that meet the desires of the residents. Three factors influence the sense of and attachment to place: the

social, physical, and socio-demographic environment. The physical features are represented in the architectural, urban, and natural features (Atousa Ghannad, 2021).

Therefore, when designing the city, there must be an incentive that attracts the population to it, as shown in **fig. 6**, this incentive is an important issue for the continued success of this city. As a result, you must consider the following:

- The city must have some places and centers with appropriate services, such as the establishment of a special administrative body for the city and educational buildings such as schools and universities, which attract a certain segment of the population and enhance their connection to and attachment to their place of residence.
- Visual richness: It is considered one of the most influential material factors in enhancing the relationship of the individual with the place, in addition to the availability of human needs such as the need for beauty, comfort, communication with nature, and crowding so that the city becomes more attractive.
- Safety: The lack of material factors and services for individuals and the social variables represented in the feeling of safety is among the reasons that make them more inclined to leave the place, and some cities, especially new ones, become deserted and empty of their inhabitants. Safety can be achieved by the availability of attractive and short walking spaces in public places with different functions of urban spaces.
- Ensuring the quality of the city as a vitality (Irene van Kamp, 2003). This can be achieved by promoting attention to pedestrian and cycling areas, and attention to public places.
- Achieving sustainability for the city can be represented in transportation for individuals, whether by cycling or walking or public transportation "green transportation", to reduce consumption of natural resources and reduce pollution and noise.
- The desire for a healthy city enhances the pattern of daily activities (Nieuwenhuijsen, 2021), by providing natural areas integrated with daily activities such as exercise and walking.

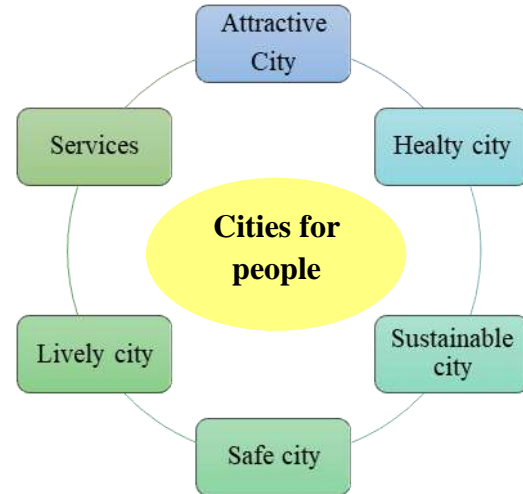


Figure 6: A vision for the quality of life in the city, Source: Author

1.3.1. Urban transformation and the social identity of cities

Social justice is achieved through regional development, which aims to restructure spatial development through sustainable development and redistribution of population and focus on the development of poor areas and enhance the integration of the role of new cities. Social factors are among the important factors for the establishment of new cities, which are based on the system of improving living conditions and raising the level of social welfare for the population. Cities are a gateway to the spread of diseases to increase population density and public transportation, but they have a large number of health care that can be accessed, unlike rural areas. The urban transformation affects societal identity. This is in addition to the cultural and health repercussions of this transformation, this effect was shown, especially during the Corona pandemic.

Society has had a great impact, not only on the health awareness of citizens, but also on the psychological aspect, and this resulted in divisions in urban communities within cities between rich and poor citizens, as well as the division between large and small cities with megacities and large capitals that attract them in many. Sometimes-huge investments and constant attention and support is given to them at the expense of small centers. The design of cities has become an important role in attracting citizens, especially during the pandemic, as citizens resort to moving to places with low densities. These

places were represented either in rural areas or new cities, especially in Egypt. There are many projects for new cities outside the major cities with special specifications far from urbanization or the villages of coastal cities on the coastal road, which are characterized by their location on the Mediterranean.

Coastal cities are characterized by high population density, especially in the summer, unlike the winter season, which most of the time becomes empty, but the societal and cultural identity differed according to different circumstances and this became clear during the Corona pandemic, where many residents of these villages resorted to going to them as a kind of Protection due to the intensity of the urban density, in addition to the distinction of some of them with new design and green spaces that help with social distancing.

1.3.2. Are there new design standards for new cities as a result of epidemic urbanization (Corona pandemic)?

Do you prefer to live in places that are far from the present cities? During the discussions concerning future cities, locals frequently pose this question. With all of the advancements that have occurred thus far, the question is renewed and different, particularly during the Corona pandemic. This leads to the second question: given the current global situation, do people still believe in moving to new, distant cities after the calamity of the Corona pandemic? The answer is that people have a new perspective on new cities, especially after the Corona pandemic.

Many beliefs and behavioral dimensions differed. At first, the population resorted to going to devoid population areas as a kind of protection, which made and caused the formation and organization of societies on new foundations and principles. This principle is based on social distancing, which was defined and imposed by the Coronavirus pandemic, meaning there has become societal isolation and isolation from the areas where the virus is transmitted within cities. The concept of the place was focused on and differed, and it became necessary to interact with nature more, that is, to increase the growth of the built natural environment to face such global natural disasters. It has become necessary to have standards that depend on the various aspects of design, such as art, interior design, architectural design, urban design, and also urban planning.

The epidemiological urbanization of the Corona pandemic, the collapse of public health, and the failure of health care mean to address the many numbers. It made planners reconsider improving urban areas, planning transportation by different means, and setting the standard for social distancing towards the eye. Setting design and planning standards by not focusing on the use of public transportation and the use of cars and following the means of transportation that depend on following walking and cycling to reduce the degree of infection and strengthen immunity as shown in **Fig 7**.



Figure 7: Optimal planning pyramid with pedestrians on top and cars at the bottom, Source: Author.

This requires planning cities that depend on infrastructure with safe places for walking, and cycling paths, as well as places for daily exercise such as parks and beaches.

New cities are more vibrant, sustainable, and healthy, and adopting the principle of health as a design and planning principle for cities to manage them (**Nieuwenhuijsen, 2020**). Some cities have already provided more spaces for pedestrians and cyclists, such as Boston and Philadelphia in European cities, the increase in the use of bicycles is due to the ease of providing spaces that allow the use of bicycles and walking, due to the presence of an infrastructure equipped with these capabilities. (**Nieuwenhuijsen, 2021**)

4. Discussion

As previously stated, the new cities were built by Egypt's 2052 sustainable development policy. The spatial structuring that occurs in the country is inextricably linked to the location chosen. In addition to some of the other criteria discussed previously, it is considered one of the most crucial variables that contribute to the new city's success. The locations of these cities are chosen based on specific criteria to be linked to development axes and compete regionally. In addition to its

relationship with the state's big projects and the aim to keep these cities away from rural lands to minimize urban sprawl.

1.3.3. Tracing the making of fourth-generation cities in the Delta region of Egypt

The state follows the development strategy in all regions. The urban context is a process that varies from one region to another depending on spatial considerations, size, and economy. Therefore, when reconsidering the planning process and starting development, the diversity in the urban context must be understood (**Riham S. Mohmed, 2017**).

1.3.4. The spatial importance and location of the Delta region

The Delta region is the fourth region of the seven regions of Egypt and is considered one of the important regions at the state level, and part of it is located on the central north coast, which includes the governorates: Damietta - Kafr El Sheikh - Dakahlia - Beheira, it represents 21.7% of the total population and 1.2% Of the total area of the state (**Ministry of Housing, 2017**). The importance lies in the area that is located in the Delta region in the northern part of it, which is a distinct location in terms of its location on the Mediterranean Sea and its extension to two main branches of the Nile River (Damietta in the east and Rashid branch in the west).

The region possesses an area characterized by a diversity of land resources between clay, sandy, and lime lands, in addition to the existence of an excellent network of regional roads linking the parts of the republic. Despite the limited lands

suitable for urban expansion, the region possesses the capabilities of directing the axes of population growth to desert lands and expansion towards Damietta Governorate. The international coastal road is a strong determinant that connects different parts of the new cities and the current cities, which allows the establishment of regional and marketing services for different products, whether agricultural or industrial.

1.3.5. Development issues in the Delta region

The establishment of a series of new cities and villages in the delta and valley region, a group of which were established, including the new cities in successive generations, for them to become development centers and new urban centers that achieve stability, development, and population attraction. New Damietta City, New Mansoura City, and other cities are among them. The development was based on the creation of new cities to serve as coastal backstops for existing cities. It was also founded on the differentiation of its geographic location and the partitioning of the Mediterranean and the Red Sea coasts into three zones as follows:

- 1- Northwest Mediterranean region (from the borders of Alexandria Governorate to the borders of Matrouh Governorate) 550 km.
- 2- Al-Mostahida area of the Mediterranean coast (from the borders of Damietta Governorate to the borders of Beheira Governorate) 215 km, as shown in **Fig 8**.
- 3- Northeastern Mediterranean region: (from the borders of North Sinai Governorate to the borders of Port Said Governorate) 230 km.



Figure 8: Land uses and road network for the central north coast of the Delta, Ministry of Housing, 2017.

The delta region is within the middle region of the

Mediterranean coast, despite the fame of the delta region and its being one of the most important

regions in terms of agricultural production, this region abounds with industrial production. As a result, the region's development topics included: (natural hazards and the preservation of environmental resources - lack of production and economic return - poverty and marginalization - the weak role of small and medium cities in the region - the imbalance of the urban pattern of the region and its governorates).

Therefore, the importance of the site lies in the points that focused on the development of the delta region, by promoting the spatial development of coastal areas with projects and investment programs and designing a plan for this. Integrating the coastal governorates with the strategic development of the national and regional level of the state, and the state's expansion in the region by establishing new cities provides an opportunity to establish new services similar to the new city of Mansoura, these services are represented in educational and industrial services.

1.3.6. Features and opportunities for development in the region

As an integrated and spatially uniform urban structure that supports the development of border regions, the region is characterized by a development vision for the urban sector. The Delta region has important regional urban centers such as the cities of Damietta and New Damietta, which have a role in the industrial sector, in addition to the fact that the Delta region is located near areas with investment potential, such as the Suez Canal with its industrial component and national projects. This is in addition to the new city of Mansoura as a tourist service center for the region. By strengthening regional and local link networks and limiting horizontal growth and encroachment on agricultural lands, development aims to restore urban and rural balance, as well as relying on urban development by focusing on some major industries, such as the timber industry in Damietta and the New Damietta city.

1.4. The New Egyptian Cities in the Delta Region: A Case Study "The New Mansoura"

There are some problems facing the development of new cities. One of these problems is the absence of evaluation and follow-up systems, in addition to the lack of criteria for

measuring the success or failure of the city. Therefore, some criteria must be set that help solve these problems.

The research here helps to set the criteria that evaluate one of the new cities on the north-central coast of the Delta region. The new cities located within the northern central coast of the Delta region are the cities of New Damietta and New Mansoura, where the international coastal road is considered an urban development limiter that links these cities to each other, **fig. 9**.

New Damietta City: It is an industrial, commercial, and service city with an export capacity and a population of 33,234. It was designed on the basis that it complements the existing city of Damietta to achieve competency in the field of industry, especially the furniture industry, because of its reputation in that industry, to serve the north and east of the Delta. And some supporting projects have been done, for example, the Damietta port project.

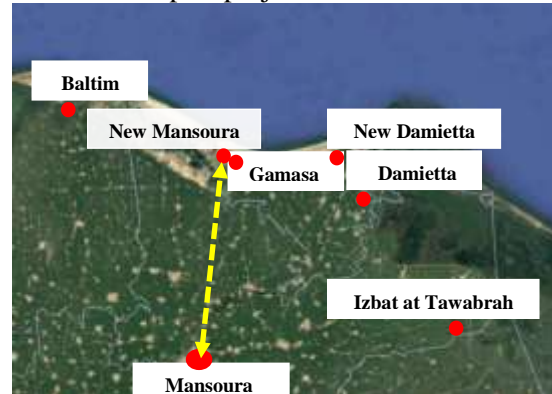


Figure 9: The location of the new city of Mansoura, Ministry of Housing, 2017.

New Mansoura City: The tourist capital of the Delta. Its function is as a tourist service city. It is among the cities of Dakahlia Governorate, but it is administratively affiliated with the New Urban Communities Authority. It is located at a length of 15 km on the international coastal road in the heart of Dakahlia Governorate, next to the city of Gamesa, as an extension of it to the borders of Kafr El-Sheikh Governorate, its depth reaches 2 km. Its goal is to establish an economic base based on recreational and service activities, the western part of which is up to Baltim, areas for oil and natural gas extraction, to be implemented in four phases.

1.4.1. Evaluation of criteria for selecting and designing the site of the new city of Mansoura

The location of any new city is linked to the spatial structure that has been planned for the Delta region, so the site selection factor is of great g and political criteria, **table. 3**.

importance in the success of any city that has its function and goal in development. Therefore, the evaluation of the site of the new city of Mansoura according to the criteria for selecting and designing the sites of the previously mentioned cities, which are divided into plannin

	Criteria	Evaluation
Planning	The new cities should be located far from the existing cities so that the urbanization does not coexist	New Mansoura is located in an intermediate location between Gamesa and Baltim. As shown in fig. 9 .
	The new city should not be within agricultural lands or the lands of future agricultural expansion	The city was chosen far from farmland, on the Mediterranean coast.
	The extent of the importance of the city's location in its service to the close areas to it and less densely populated	The city has good recreational, tourism, and educational capabilities that help the nearby areas, for example, the New Mansoura University, which was opened and provides educational services for young people serving the areas close to the city. The city is designed as a regional service provider.
	Ease of access to the regional highway network	The city is located on the international coastal road linking Alexandria, Kafr El Shih, and Damietta, and up to Port Said.
	Easy access to it by car	The city is located on the international coastal road, which is easy to reach by car directly.
	City capacity	The target population is 680 thousand people, the total area is 7100 acres
	Seeing the site and its relationship to the main roads	The city directly overlooks the international coastal road.
	Location and its relationship to traffic congestion	There is no traffic congestion due to its location on a highway.
	The extent of the potential for future growth	Unknown
	Proximity to production centers (employment)	Its proximity to the new city of Damietta as an industrial, commercial, and service city with an export capacity
	The distance between the site and other cities in the region	It is also considered the coastal back of the old city of Mansoura, which is 54 km away
	climatic and environmental factors	The nature of the site is of moderate climatic nature and overlooks the Mediterranean coast, which makes it a distinct area for tourism and recreation.
	Appropriate access to water resources	It has a transformer and water desalination plant. This plant is the first desalination plant in the Delta region that operates with a capacity of 160,000 cubic meters per day.
political	Security and military considerations	The city is a safe area far from important military points and has an administrative apparatus. And a police station.
	Attracting entrepreneurs to invest	It has educational services, a hospital, and a research center, which makes it a point of attraction for investors.

Table 3: Evaluation of the criteria for selecting and designing the site of the new Mansoura city, Source: Author

1.4.2. Environmental and Technological Capabilities

The new Mansoura city is one of the fourth-generation cities that the state implemented and placed within the development of the new spatial restructuring of the state. It is distinguished by its location in Dakahlia Governorate, overlooking the Mediterranean coast with a length of up to 15 km, and its proximity to the governorates of Damietta and Kafr El-Sheikh. It is considered one of the 14 new cities that have been started to be established at the state level (the new administrative capital - New Alamein - New Mansoura - East Port Said - Nasser in West Assiut - West Qena - New Ismailia - New Rafah - City of Galala - New Farafra - New Obour - Toshka New - East Owainat). It has an entire area of 380,000 feddans, targeting about 14 million people while providing job opportunities for up to 6 million.

New Mansoura was established as one of the first smart cities in the Delta region. It is characterized by smart systems to serve its citizens, represented by an application on the mobile for all its citizens that specializes in the services that exist in the city. This is in addition to smart electronic meters for residential units, air conditioning, electricity, and lighting control systems, in addition to a central control unit for monitoring the entire city. That is, it was designed on the element of sustainability, but not with all its assumptions. The design of the city and its presence in the Mediterranean gives an environmental and health advantage, and the new principle of social distancing imposed in the Corona pandemic can be achieved.

1.4.3. The urban structure of the new Mansoura city

The goal of establishing the new Mansoura city is to establish a new urban community with investment projects exceeding 60 billion pounds, as it is one of the cities affiliated with the New Urban Communities Authority, the decision of its establishment was issued in 2017 ([communities, 2022](#)). New Mansoura, the target population is 680 thousand people, and the total area is 7100 acres. One of the basic elements that govern the extent of the success of this city is the achievement of the target population size to reach, in addition to the extent of the success of the uses of the lands on which the city has been planned and the extent to which it meets the needs of the population, as well as the extent of attracting businessmen and planned investments. The design of the city, being of the fourth generation, and the availability of services that are not found in most of the current cities, makes it a center for attracting residents, but for a specific group.

These cities are to attract citizens to new areas, each new city has its coastal back, for example, in the old Mansoura city, and the coastal back has the new Mansoura city, which is 54 km away from it.

The two cities will be connected by establishing an electric train that connects them in less than 15 minutes. The train will serve the residents of the city and many students of the Egyptian universities located in the city, as well as the universities surrounding it.

New Mansoura is like some new cities such as Songdo City near the west of Seoul, Bonifacio International City with the title of Metro Manila, also King Abdullah Economic City near Jeddah, all of them are characterized by integration between commercial, residential, entertainment, educational and economic programs ([Murray, 2015](#)).

The city plan is shown in [Fig. 10](#), reinforced with a highly efficient infrastructure for sewage and electricity networks, a transformer, and a water desalination plant. This plant is the first desalination plant in the Delta region that operates with a capacity of 160,000 cubic meters per day. Similar to the previously mentioned cities, it was designed based on being considered a service and logistical area. When evaluating the design of the city, we find that there is an incentive that attracts residents through:



Figure 10: The master plan for new Mansoura city, communities, 2022.

The services sector in the city has (educational services - commercial and administrative services - sports services - cultural services - nursery - religious services - health services), in addition to industrial complexes represented by 56 industrial workshops.

The city has services represented in pedestrian areas and public squares for reading, and there are specific paths for cycling, as well as places for sports, playgrounds, and areas for children's play, making it one of the healthy cities, as shown in [fig. 11](#).



Figure 11: Public spaces in new Mansoura city, communities, 2022.

The existence of a regional university comprising 14 colleges in line with the local labor market and the regional and international levels (**Service, 2022**). It also contains a private university affiliated with Mansoura University, research and medical centers, as well as schools, commercial markets, and technological industrial zones. These centers work to increase people's connection with the city, as people are emotionally connected, as we mentioned earlier, a factor in the city's success. This is in addition to the housing units that fall under social housing, the housing project, and a luxury housing project, and the number of 2,200 villas, 4 mosques, and a church, **fig. 12,13,14**.

Visual richness: communicate with nature through the city's location on the Mediterranean Sea.

The city's safety component: represented in a central control unit to monitor the entire city, as well as a police and fire station and the city's apparatus center.

- Intelligent future growth: There is no clear vision, as the development and adoption of an approach to change have not been announced.

- When developing a plan for the strategic development of the delta region with spatial restructuring and improvement of the urban environment, future climatic changes were not taken into consideration. These new coastal cities are subject to drowning as a result of the change in sea level, so these cities are considered to be in the future threatened with continuity.

- On the other hand, the new Mansoura city allows the work of urban developers, whether local or foreign.



Figure 12: New Mansoura International, University, communities, 2022.



Figure 13: Distinguished housing buildings, communities, 2022.



Figure 14: villas, communities, 2022.

5. Results

The tourist capital of the Delta, the new city of Mansoura, with all that, has been accomplished so far in terms of implementing projects, whether for housing or educational services, and evaluating them, starting with the selection of its distinguished location, which is linked to the spatial structuring of the development of the Delta region and its strengthening as a center of attraction for all the different poles. We discover that the city has numerous advantages, as evidenced by:

Its location makes it one of the recreational and tourist coastal cities located on the international coastal road, a specific and valuable development, which connects a large number of cities.

The availability of many service centers, whether recreational, residential, or medical, in addition to the educational services, such as universities of a distinguished level, which have already been opened and attract a large number of students to study there.

The visual richness of green areas, public squares, and the Corniche.

Applying the principles of smart cities for the fourth generation of new cities to serve the residents of the city through electronic services.

It is an economic base and a magnet for investors.

Establishing the first desalination plant in the Delta region.

But she has some defects:

- High prices for housing units.

The design of buildings and colors is not based on modern design principles that befit the highest levels of design, even the colors give a sense of monotony.

It was designed on the principle of smart cities, but compared to cities designed by the private sector, it is far from far away and the difference is clear.

- It was designed as a coastal city, but the climatic changes that occur were not taken into account, and it is prone to drowning as a result of erosion and rising sea levels.

- The coastal international road needs a lot of services and continuous maintenance.

6. Conclusion

This article evaluates the extent to which modern

spatial transformations in Egypt's urban governance are understood, with a focus on new cities and development in the Delta region, hence the research focused on understanding why and how new cities exist. The extent to which state institutions play a role in planning systems, zoning, and construction, as well as their influential role in determining the conditions and rules that define spatial projects based on societal importance and attempting to reduce the spatial effects that previous generations created for new cities.

The Delta area, particularly its central coastal hinterland, will play a significant role in Egypt's future urban growth. As a result, new services have been linked to the region's new cities to enhance and expand the scope of growth. The extent to which spatial organization and development are tied to selecting a location for the construction of services. The site selection factor is one of the most critical aspects that determine whether these services succeed or fail, as it relates to the formation and construction of projects and new cities.

As a result, it was critical to assess the sites of one of these cities that had recently been constructed, New Mansoura, one of the fourth-generation cities. Assess it from a variety of perspectives, beginning with the site selection, environmental and technological capabilities, and knowledge of the urban structure and services. It turns out that it has a lot of ingredients for success, including key regional services. The educational and medical services that serve the existing city of Mansoura and play a vital role in the medical sector are the most important of these services. The recreational services it provides to the rest of the neighboring cities. The importance of the coastal road's role as a strong development determinant for all cities located within the northern central coast of the Delta region. However, it lacks innovative thinking on climate change, as well as design that is based on the notion of social distancing and the need to strengthen smart city design principles.

7. Recommendations

Policymakers must define precise circumstances while designing 5G new cities, as follows:

- Making health the design and planning principle for new cities to make them sustainable and healthy cities in light of crises and disasters "Corona".
- Raising the design bar to attain smart cities that compete with the private sector to attract various demographic groups.
- Any city's success or failure is determined by its ability to achieve sustainable urban growth and citizens' participation in improving their quality of life.

Dealing with coastal cities while taking climate change into account.

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