

City-region as a Regenerative Development Level in Egypt's Planning

System

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Abstract The city-region in Egypt is experiencing regenerative growth, which goes beyond sustainability to preserve the entire ecosystem and natural resources, whilst other emerging nations struggle with unsustainability. The main issue is that there isn't a framework that emphasises the planning aspects needed to accomplish regenerative development in Egypt. These aspects are meant to serve as examples of concepts such as water management, regenerative tourism, renewable energy, sustainable transportation, sustainable agriculture, and smartness promises. Twenty-four experts tested the framework; while they all agreed that it should be applied generally, their assessments of its key components varied. Based on SPSS software, the relative significance index (RI) is applied. The RI result showed that aspects like controlling urban growth and legislative amendments for incorporating the city region as a planning level are very important, in addition to aspects like reviewing the linked regional strategies, analysis of spatial relationships and determinants, the proposed city-region's vision, and adding the norms of sustainable agriculture, while others are unimportant, like smartness promises. Some recommendations were given to make the framework more cohesive, such as identifying special indicators to follow up on the outcomes of the proposed plans in the city region and supporting rural development by promoting urban-rural links with city regions, and those recommendations were linked with the sustainable development goals to measure its suitability for the proposed framework.

Keywords: City-region, regenerative development, Egypt's planning system.

1 Introduction

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The importance of city-region as a planning level was booming, especially after Christaller's developed the central place theory, which concentrated on the local hierarchical links between urban regions and distant places. The significance of the city-region has become apparent [1]. But according to many complications in the act of demarcating the boundaries of a city-region, the concept is decaying for implementation, but a new wave of ideas starts to give attention to how much the city-region is important, especially in new regionalism, and how it can take place in the economic space, playing a vital role in distinct development levels as it has become not only the heart of the economy and organiser between the city and the surrounding rural areas but also an engine of innovation [26, 27].

According to [28], there are those who view the city-region as a crucial level for effectively constructing collaborative governance. City-regions should be interpreted as socioeconomic and socioecological environments, highlighting the interdependencies between urban and rural areas and surpassing the "economic reductionism readings of agglomeration" [29]. A city-region is the best unit to plan when trying to determine how the labour market is organised, according to [30, 31]. This is especially true when urban and rural areas work together, which promotes the growth of entrepreneurship and new firms [35].

City-region through a clear definition of urban linkages can create the base for the Polycentric Urban Region, which seeks intra-regional spatial clustering patterns of towns and cities and well helps in establishing multifunctional, multinuclear spatial structures' [10, 32]. In addition to the study of city-region, in some cases, it opens the path to understanding how the economic agglomerations are formatted and the use of smartness in developing the economic processing and solving the challenges of being a metropolitan city [33, 34]. Following the COVID-19 pandemic, the city-region gained prominence due to the health system's collapse in many areas, particularly in developing nations. This prompted greater attention to the planning of health

service locations within the city-region to ensure that people could continue to access hospitals and clinics in a safe and timely manner [36, 37].

1.1 Research problem

Since the revolution of July 23, 1952, Egypt has seen a long history of unequal development, redevelopment, and geographical disparity. In general, this has resulted in most of the economic growth and power being concentrated in the nation's capital and large cities. In an experiment to transfer power from the central government to local communities, individuals, and independent providers, the current administration presents a new strategy for local growth. The term "city region" refers to specific geographic areas where socioeconomic and sociocultural relations can be effectively developed and contained; however, in Egypt, these areas are plagued by issues such as deforestation, drought, freshwater scarcity, soil erosion, loss of biodiversity, urban growth on agricultural lands, and elevated atmospheric carbon concentration, and there is no focal point to help the city-region be regenerative and go beyond the missing sustainability.

1.2 Research goal

This study intends to present a framework that unifies the concepts of regenerative development within the city-region as a spatial level that sits between governorate plans, city and village plans.

1.3 Research importance

Human demands continue to change as the world continues to progressively urbanise. Energy production, transportation, industrialization, and urbanisation were the primary drivers of environmental deterioration, climate change, and biodiversity loss, which in turn led to the depletion of natural resources and global warming [22]. In order to guarantee that cities and its regions not only become resource efficient but also surpass this goal by improving their ecosystems, thereby meeting their demands, a new urban agenda is unavoidable [23]. City-regions must now be both regenerative and sustainable; sustainability alone is no longer sufficient. It is stated that sustainability paradigms have reached their limits because they encourage modernity, which obstructs meaningful engagement in a changing environment, especially in developing countries that are missing the successful application of sustainable and regenerative development and this research will illustrate a framework to embed the city-region as regenerative development level in Egypt's planning system.

1.4 Research method

The study used a deductive approach to find a framework with sectoral aspects to be addressed in the planning of a city-region. To direct this level to be regenerative, an expert questionnaire has been conducted. Using a sample of 24 experts representing all working in the field of planning, the study sample data were evaluated using the Relative Importance Index through an equation in the statistical analysis software SPSS. To demonstrate the degree of integration of the framework's main elements and collect experts' recommendations, all will be linked with the sustainable development goals (SDGs) to enhance the incorporation of city-regions into planning levels.

2 City-region Concepts

Functionally, the city-region is the area that represents the choices made by its citizens regarding where to live, where to work, and how to commute to work. Additionally, it is the region where the city demonstrates its economic clout by concentrating economic activity that mirrors that of businesses and investors. The social environment forges connections between the locals and the region's economic and service components, which is the city-region's social dimension. Administratively, they are the boundaries that the local administrative body uses to represent itself, establish rules and laws, and oversee their application in relation to population, economic, and urbanisation activities [1, 2].

Those in charge of planning the region face many challenges due to the difference between the administrative and functional definitions resulting from the dynamic relations of the city region both inside and outside the administrative borders. This is because the administrative definition remains the same within its borders despite the observed demographic change [3]. Only in certain circumstances may the functional borders match with the administrative borders since the city-region translates the city's numerous relationships outside of its jurisdiction. The administrative definition of limits does not convey the true functional extent of the city and its core; rather, it defines boundaries to control the allocation of federal and municipal programmes, whether they are financial, basic services, or political representation. In the same way that villages within administrative boundaries can play a role of equal size and importance in the administrative boundaries of the region's city, testing the boundaries of interactions for cities with small populations and economies may fall within the boundaries of

interaction of larger cities [2, 4].

3 City-region Importance

3.1 As planning level

Even though the city region is crucial for maintaining its essential area, it is now crucial to research and define it in order to maintain the sustainability of all sectors—environmental, social, and economic—as well as their urban reflection. Many nations have disregarded this, though, in an effort to prevent potential overlap between administrative and development borders. This is now a simple problem to resolve because of the advancements in information technology and the ease with which flows in a variety of industries, including banking, technology services, communications services, and many more, can be tracked. The concept of the economically advanced global city region has become urgent for most countries that want to join the global network and contribute to the global economy. This is because, in the pre-globalization era, the city region relied primarily on internal borders, most of which represented local economic sectors. However, in the current globalisation era, the city region has taken on new dimensions, and its inclusion as a planning level in systems to investigate capabilities that can compete globally has become necessary. This highlights how crucial it is to use city regions as a planning level in national and regional strategies [10].

3.2 Achieving spatial development balance

The approach based on equality of priorities between city-regions increases development gaps, especially in poor regions that require different participation rates between the state and the private sector than regions with competitive opportunities. Experience has shown that planning cities within their region reduces the gap between regional growth rates, and this requires identifying city-regions that can be stimulated with appropriate plans that require enhancing their economic competitiveness [5, 6].

3.3 Support local development administration

The lower levels that comprise city regions are not the only places where local administration plays a role. Local development strategies call for collaboration between local and regional community institutions through the creation of joint associations between the two levels. Local development management requires an institutional structure that reflects the local situation due to the variations in social and economic conditions between

regions; however, since localities and municipalities within a region lack institutional structure that includes all forms of administration, the role of the regional level emerges in providing cooperative networks (such as business associations or government departments). Equal access to infrastructure for sustainable development is ensured at the regional level by centralization, which has the ability to mobilise the resources needed for local development projects. In order to expedite the processes of localising economic activities, decentralisation to the city-region level is crucial for the transfer of powers, particularly legislative powers to control land exploitation for commercial companies' advantage. can draw in investments, but only if a strategy is in place to guarantee the effective use of land in both urban and rural settlements [3].

3.4 Enhancing the regional economy

The city-region's role has expanded economically, particularly in developed nations, to include a technological periphery (such as universities and development and research centres) where entrepreneurship projects are settled. This serves as a mechanism for revitalising the city's economy and enhancing its influence at both the local and higher levels. The city-region's role is no longer limited to providing the city with the agricultural production needed for industrialization [3]. Beyond the "economic reductionism readings of agglomeration," city-regions emphasise urban-rural interdependencies and are conceptualised as socioeconomic and socioecological areas [12]. As "motors of the global economy," city-regions ought to strive to expand and develop into competitive agglomerations [13]. Progressive regionalists have often expressed a clear concern for sustainability and governance challenges [14].

3.5 Controlling urban growth

The issues associated with unchecked urban growth in the rural periphery are exacerbated by focusing solely on the city plan and growing its boundaries without taking into account the relationships that exist between villages and cities. Therefore, by dividing the region into development areas for which densification limits are set and areas open to urban growth in which the urban estates are used according to the needs of growth, the city region plan plays a crucial role in controlling growth on the lands in the inter-community areas. Rather than proposing initiatives at the individual level, the regional impact of development can also be assessed to ascertain whether urban entities are appropriate for physically, economically, and socially localising projects in the plan. This lessens the consequences of reverse polarisation of the population

in rural regions by helping to control the equal distribution of projects that are spatially suitable with the features and priorities [2, 3].

3.6 Engine for innovation

Since city-regions are an ideal scale for governance to gain a competitive advantage in the global knowledge economy, they have gained popularity as a means of strategic spatial and political restructuring, piquing the interest of politicians, practitioners, and academics alike [15]. This, in turn, fosters relationships between all development partners and encourages investments in innovation, as some academics have argued under the banner of new regionalism and declared city-regions to be engines for innovation [7].

4 City-region in Egypt

Due to Egypt's current economic transformation, which have reversed the significance of the regional level in the growth process, the process of creating strategic plans for the regional levels is booming there. The General Organisation for Physical Planning, "GOPP," is in charge of preparing urban development strategies and plans from the national level to the level of cities and villages. Building Law No. 119 of 2008 introduced the levels for which strategic plans are prepared, from the governorate and national levels, and strategic plans for cities and villages. The Law did not mention the level of city-region as considering the plans of cities and urban estates regulating the urban growth of villages, and proposals for local projects are sufficient to bring about development [3]. Egypt's NUP highlighted how city-regions are crucial to foster urban-rural connections in order to assist rural development [18].

4.1 The importance of applying the city region as a planning level in Egypt

In Egypt it is challenging to define and apply the concepts of Regional Innovation, Global Functional Agglomeration, Regional Polycentricism, and Cities Clusters networks in light of the significant changes in rapidly evolving development concepts and the emergence of numerous terms to which the state must pay greater attention and work to develop cities in its regions. This is because it is important to ensure that the driving forces in the city and its region are well-planned and that the various assets and components are exploited, as well as to make it easier to deal with potential negative effects of entering global and regional networks. Strongly emerging nations like Egypt should first establish regional city

network integration at the national level in order to participate in international economic and technological networks. This integration occurs in the specific sectors between cities at the national and regional levels, with the goal of maximising benefits from the components, promoting development in all of its dimensions, and achieving Its primary engine is sectoral integration. Since many resources and components are generated within a city's regional boundaries, how can such networks be constructed if cities are not defined by their regions? The integration of small units will inevitably lead to the integration of large units, and eventually units at the global level.

4.2 Difficulties facing the application of the city-region as a development level

The most significant obstacles are the technical ones related to defining and measuring the city-region. These challenges are exemplified by the difficulties in carrying out various studies, such as those on labour flows between the city-region and other regions, flows of goods and resources, and the causes of community urban sprawl as inferred from satellite maps. Every technique for defining city regions needs technology to track changes over time, but this technology isn't as good at measuring indicators or gathering high-quality data. Because of this, it can be deduced from certain features of the administrative markaz by using primary data that has been derived from official censuses [3]. [16] states that there are 208 Markaz in Egypt, which correspond to 244 cities (both existing and new). These markazes could be utilised as an equivalent level for a city-region to address the challenge of defining city-region boundaries in Egypt.

According to [17] Egypt's Markazes, despite their diversity, suffer from low sustainability and several sectoral issues related to the urban, environmental, economic, and social domains. These issues will likely cause further manifestations of unsustainability in the near future, so regenerative development as an approach will be a good trial to achieve missing sustainable development and ensure the success of development plans.

4.3 Unsustainability in Egyptian city-region

As stated below, [38] states that the Egyptian city-region is experiencing issues with unsustainability due to an imbalance between the demands of society and the planning process and methodology: I. The population's constant growth without proper urban structure design, II. Insufficient communication between rural communities and service locations, III. Government organisations break the law by offering services on rural property and beyond the limits of an urban area, IV. Insufficient funding for

worthwhile initiatives that respect the rural environment and resources, V. Reductions in the scope and magnitude of farming operations, VI. Garbage collection system and persistent waste burning are not yet available in the village, VII. A misallocation of land that overlaps some polluting uses inside the urban block is the outcome, VIII Cooperation gaps between the capable local urban planning bodies.

5 Regenerative Regional Development

The idea of regenerative development transcends sustainability. It is the application of resources to enhance societal well-being in a way that increases the ability of the support networks required for further expansion. According to [8], regenerative development is what sustainable development is to traditional economic development. To achieve beneficial ecological and social outcomes, regenerative development offer a framework for developing, utilising, modifying, and incorporating a combination of contemporary and antiquated technologies into the management, design, and ongoing evolution of sustainable built environments [9]. The regenerative regional development aims to achieve the next:

- Incorporate regenerative ideas into regional planning to build resilient and sustainable regions.
- Create regenerative systems that emulate natural ecosystems in order to enhance both human and environmental well-being.
- Establish resource-efficient, climate change-resistant, and self-sufficient regions.
- Creating waste-free, water- and energy-efficient public areas, infrastructure, and natural systems.
- Farm in ways that not only leave roughly the same amount of soil after harvest but increase the quantity and quality of soil after harvest.
- It seeks ways to produce mutual benefits for all social, technical and ecological systems [9].

5.1 Why City-region as regenerative development level

The distinction between the rural and urban is reexamined by the regenerative development paradigm. Cities continue to be the engines of progress, but the fuel is sourced elsewhere. So, the countryside is increasingly readily visible as it undergoes processes of urbanisation with afferent economic functions and environmental modification, transforming it into an operational landscape that fosters urban growth elsewhere [8]. As the regenerative development necessitates nurturing and

mending the connection between urban areas and their hinterlands, whether they are localised or global [20]. A regenerative city-region continuously cultivates positive relationships with its environs while attempting to rely as much as possible on its own resources and assets [21].

The regenerative development framework could be implemented in the following fields since the city-region level enables planners and decision-makers to analyse the relationships and linkages between urban and rural areas to determine the strengths and weaknesses and throw these relations. The following fields like controlling urban growth, green infrastructure, renewable energy, sustainable transportation, sustainable agriculture, regenerative tourism and water management.

The city-region concept is the most appropriate level to achieve the goals of sustainable development as it allows the identification of urban and rural areas links and serves as the focal point for building institutional capacity, which in turn creates adaptive capacity [38], in addition to meeting basic needs like waste management and access to clean water and sanitation (see figure 1).

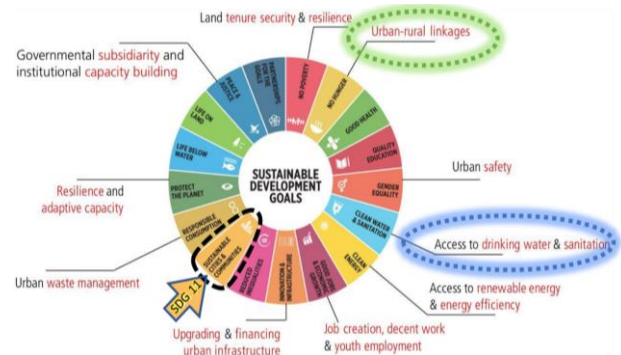


Fig.1 Potential of NUPs for SDGs (UN-Habitat)
Source: [11]

5.2 The features of regenerative city-regions

By reducing the environmental effect and addressing the ongoing depletion of urban ecosystems by enabling the city-region to operate efficiently for the benefit of both people and the environment, a regenerative city-region maintains a mutually beneficial relationship within its hinterland [25], and should have the next aspects:

I. Responsibility: The city-region doesn't transfer its issues to the following generations [24]. II. Living: city incorporates natural resources from the region [8]. III. Participation: highlights the involvement of citizens. IV. Livability: regenerative cities may significantly raise their residents' happiness by leveraging urban growth to enhance quality of life [7]. V. Equity: empowering the workers and providing reasonable salaries will lead to stability. VI. Ecologically-friendly: city-regions should

adapt to their inherent limitations [24]. VII. Waste-free: city-region contributes to reducing environmental impact by minimizing waste generation. VIII. Accessibility and mobility: redistributing the focus of mobility options from cars to people's movement. IX. Resilience: city-regions should be adaptable enough to deal with several problems right away [24]. X. Efficiency in Natural Resources and Energy: cease using natural resources more quickly than they can be replenished, diversify the sources of power, and rely on renewable, cleaner energy sources [7, 9]. XI. Smartness: city-regions improve urban activities and amenities, quality of life for residents, and aesthetic appeal using information and communication technologies [24].

6 A proposed Framework to Embed the City Region as Regenerative Development Level in Egypt

As there is no plan at the city-region level in Egypt, the lack of effective development projects, the continued depletion of agricultural lands, the decline in productivity in the absence of economic revitalization policies [38], and the continued exacerbation of environmental, urban, and social problems led to a decrease in the economic outcomes of agricultural lands, resulting in high rates of conversion for construction and urban development

Table 1 Proposed framework for city-region as regenerative planning level in Egypt

Making Outcomes Phases	► Inputs	Sectorial stages & Main aspects	Main analysis (Ask questions)	Planning goals linked with SDGs in different sectors						
	Evidence and Requirements			Regional strategies	Sociodemographic	Infrastructure	Organizational Institutional	Economic	Technology	Urban
1- The Outcomes of Planning Process	Extensive Survey / Updated, Valid, and Accurate Database/Mobilizing Public Opinion / Link with regional observatory and GIS regional centres	Legislative framework	What are the constitutional amendments needed to incorporate the city region as a planning level?	The constitutional development goals.						
		Institutional framework	What are the weaknesses and strengths of the current local administration?	Alternatives to the institutional framework. Restructuring the powers of local administration.						

works[19] (Figure 2).

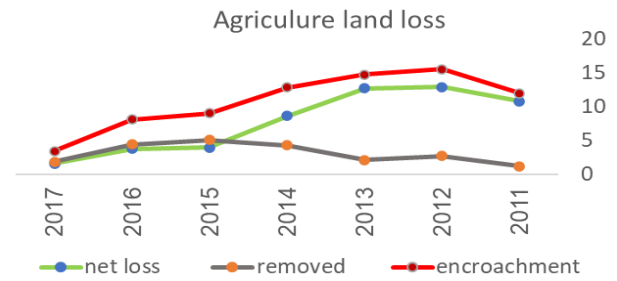


Fig.2 Evolution of farmland loss in Egypt
Source: [19]

The lack of a clear plan at the city-region level for rural development and directing the development of urban areas under the city’s control over services and activities also led to planning villages in isolation from the city, which greatly harmed the effectiveness of the proposed plans. So, embedding the city-region as a planning level will help to create sustainable relationships between the city and the rural settlements, control urban growth, and keep agricultural land from regular degradation in area and value.

		Regional data	Reviewing the linked regional strategies. Analysis of spatial relationships and determinants.	Are there any regional strategies? Find out (Goals, roles, and development projects)	Projects proposed in the plans and their economic structure. The functional weight and current level of development of the city region. Proposed roles from different regional strategies.
		The urban and population dynamic	Controlling the urban growth	What are the rates of population growth and demographic changes?	Population and urbanization trends in the city and rural settlements. Analysis of the composition of land uses and land allocations. Settlements distribution pattern. Areas of local urbanization and population densification. Analysis of the population carrying capacities of rural settlements. Economic opportunities and components for integration between economic sectors.
		Green infrastructure		Is there any possibility to apply the green infrastructure?	Define infrastructure networking capabilities. Areas of environmental degradation. The rural communities have low connectivity to infrastructure. Possible ways for waste recycling and minimizing waste generation.
		Renewable energy		Is the city-region engaging in any renewable source?	A program to improve and raise the capabilities of current and proposed energy networks.
		Sustainable transportation		Exist any environmentally friendly transit options that tackle both rural connectivity and urban congestion?	Accessibility analysis for rural and urban communities. A program to improve and raise the standards of main and secondary roads. Plan to make public transit more efficient. Find routes to encourage cycling and walking.
		Sustainable agriculture		Which farming systems are used in the arable land of the city-region?	Agricultural land consumption rates. Decreases the recent rates of Fertilizers and pesticides. Proposed economic projects to develop the agricultural resources.
		Regenerative tourism		Is the community engaged in tourism activities?	Devise a mechanism to encourage tourism that will help local economies, restore ecosystems, and promote cross-cultural interactions.
		Water management		Is there any previous plan for efficient water management?	Examine the policies and governance frameworks to improve water security. Find out both artificial and natural systems to efficiently manage water resources.
		Smartness promises		Is there a plan in place to use intelligence in the city-region?	Observe an improvement in the degree of cooperation, communication, and information availability.
	2- Outcomes of Implementation	Proposed vision for the city-region		What are the driving forces affecting the presentation of the vision?	Future projection of the size of the urban and rural population Future dealing strategy. The developmental and functional role of the city with the countryside. Local development approaches are required to improve the relationship between the existing city and the countryside. Evaluating rural communities and their ability to play a service role as rural development centers. Dividing the city-region into local development units.
	3- (Results & Impacts)	Policy Evaluation	Quantitative and qualitative assessment (indicators)	Projects evaluation Efficiency And Effectiveness	The planning incentives required to achieve the strategy goal. Set the group of indicators to follow the developmental impacts.

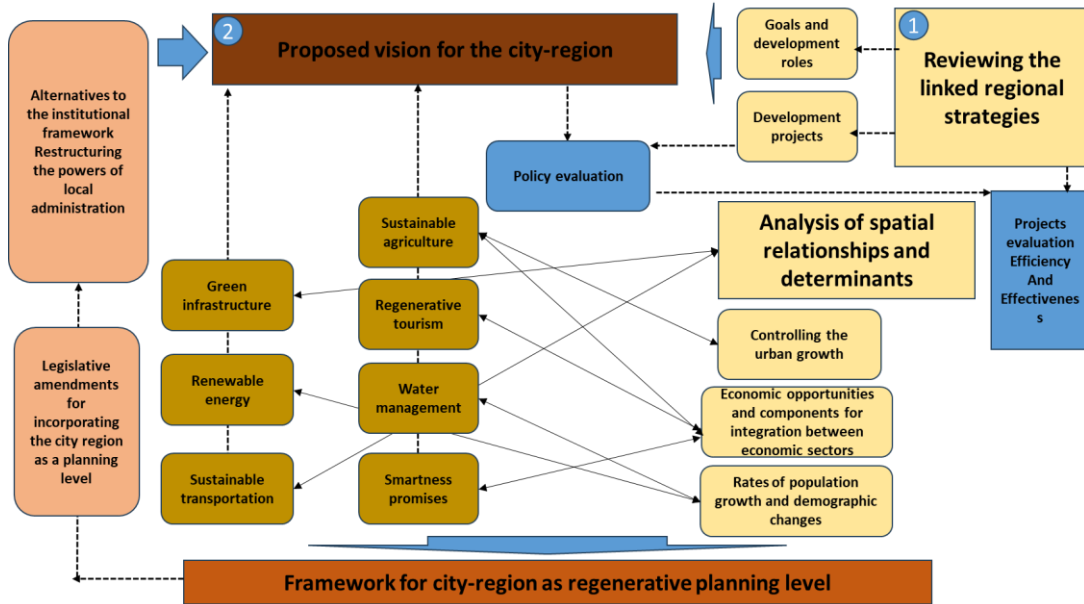


Fig.3 Linkage between the main aspects of the proposed city-region framework as a regenerative planning level

Source: Author

6.1 Framework test

In order to ensure that the city region is included as a level for achieving development in Egypt, this section of the research includes the results of an expert questionnaire that demonstrates the degree of integration of the main elements in the proposed framework. It also determines the relative importance of each sub-criteria of the proposed framework in order to activate the city region level as a planning level in Egypt. Utilising the Relative Importance Index through the equation $RI = \sum \frac{W}{A*N}$, the data of the study sample were analysed using the statistical analysis software SPSS utilising the Relative Importance Index through the equation, the data of the study sample were analysed using the statistical analysis programme SPSS.

where N is the total number of samples, A is the biggest evaluation value, which is (5), W is the relative weight of the sample's responses on a five-point scale, and RI is the relative importance value, The categories are as follows, in order from least to highest importance: (0-0.2) (0.2- 0.4) (0.4- 0.6) (0.6- 0.8) (0.8-1) The value of (RI) runs from (0 - 1), where zero is the least important and one is the most significant [17].

(24 experts) interacted, each with a diverse background and area of expertise. These experts included academics, representatives of executive bodies like the General Authority for Physical Planning, or "GOPP," and experts from the engineering consultant category. Of these, 78.2%

were faculty members, 11.3% were engineering consultants, and 10.5% were executive bodies. 8.6%). Regarding years of experience, the distribution was as follows: over 20 years (49.2%), between 15 and 20 years (31.7%), and under 15 years (19.1%) (see figure 3).

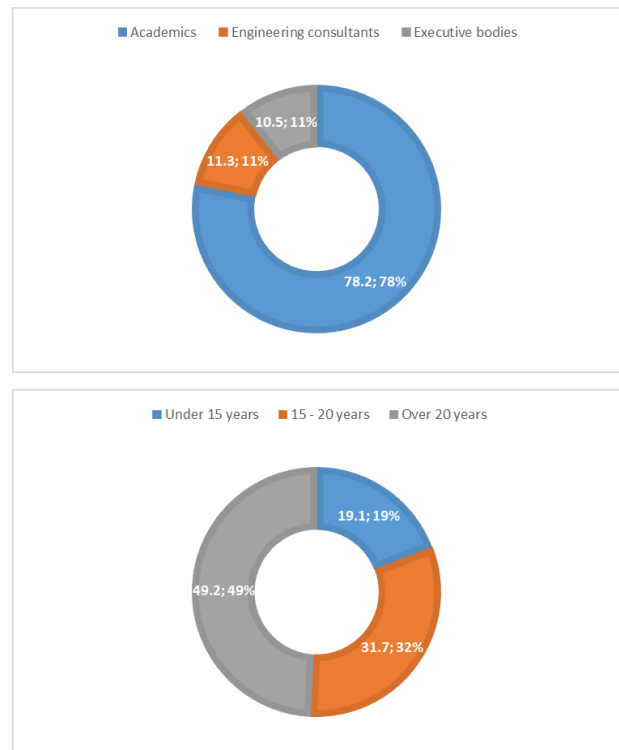


Fig.3 Field of expertise (up panel), and Years of experience (down panel)

Source: Author

7 Results and Recommendations

According to the analysis of the relative importance of all aspects for implementing the city-region as regenerative development level, however, to guarantee planning continuity at the city-region level, it requires a legislative framework amendment especially of Building Law No. 119 of 2008 to ensure more efficient and effective governance to include the city-region level in planning levels in Egypt and this came first in RI rank. The experts also concurred that controlling urban growth is priority as ranked 0.83 and this will be better through coordination between individual planning proposals in the city and the villages by development at the city-region (see table 2).

Table 2 The relative importance of the main aspects of applying the city region framework as seen by experts

Aspects	unimportant	Little	Average	Important	Very important	RI
Legislative amendments for incorporating the city region as a planning level	3.1	7.7	11.3	36.2	41.7	0.81
Reviewing the linked regional strategies	4.6	8.2	19.5	38.0	29.7	0.71
Analysis of spatial relationships and determinants	3.4	7.2	18.1	42.8	28.5	0.72

Controlling the urban growth	0.0	0.0	13.5	39.0	47.5	0.83
Applied the concept of green infrastructure	14.6	32.7	24.9	15.5	12.3	0.65
finding out the possibility of renewable energy	2.2	27.9	38.5	29.3	2.2	0.67
Encourage the implementation of Sustainable transportation	5.7	19.8	44.2	22.4	7.9	0.65
Add the norms of Sustainable agriculture	0.0	5.1	16.8	47.1	31.0	0.71
Adding the principles of regenerative tourism	19.8	34.3	20.8	14.3	10.8	0.65
Water management plan	9.3	18.4	39.6	26.6	6.1	0.65
Smartness promises	29.9	23.2	19.9	14.3	12.7	0.62
Proposed vision for the city-region	0.0	1.4	41.1	36.2	21.3	0.71
Policy Evaluation	0.0	0.0	21.6	42.4	36.0	0.79

A series of recommendations were presented by the experts with the goal of enhancing the incorporation of the city-region into planning levels. To confirm recommendations harmony with the proposed framework aspects, table 3 illustrates this matching.

Table 3 The aspects of proposed framework linked with SDGs and expertise recommendations

Recommendation	Main aspects
11 sustainable cities and communities	Legislative requirements for incorporating the city region as a planning level
2 Food security and sustainable agriculture promotion	Add the norms of Sustainable agriculture
6 Clean Water Supply and Sanitation availability for All	Water management plan
13 Protect the planet	Applied the concept of green infrastructure
11 sustainable cities and communities	Controlling the urban growth
7 Clean energies with affordable prices	finding out the possibility of renewable energy
13 Protect the planet 15 Life on land	Encourage the implementation of Sustainable transportation
8 good job and economic growth	Adding the principles of regenerative tourism
12 Reasonable consumptions 13 Protect the planet	Reviewing the linked regional strategies
2 No hunger	Analysis of spatial relationships and determinants
4 Quality education 8 good job and economic growth	Smartness promises
8 good job and economic growth	Proposed vision for the city-region
11 sustainable cities and communities	Policy Evaluation

9 Conclusion

The Egyptian city-region is experiencing regenerative growth, which goes beyond sustainability to maintain the entire ecosystem and natural resources, while other developing countries struggle with unsustainability. The biggest problems Egypt's city-regions have been defining and quantifying the area as indicators or obtaining high-quality data that is unavailable, particularly on labor-related commuters. The second obstacle is the absence of a framework that highlights the aspects of planning that are necessary to achieve regenerative development in Egypt. These aspects are intended to function as illustrations of ideas like smartness promises, regenerative tourism, renewable energy, sustainable transportation, and sustainable agriculture. The framework was assessed by twenty-four specialists, who all agreed that it should be used generally but had different opinions about some of its main aspects. The relative significance index (RI) is used and is based on SPSS software. In addition to aspects like reviewing the linked regional strategies, analysis of spatial relationships and determinants, the proposed city-region's vision, and adding the norms of sustainable agriculture, the RI result demonstrated which aspects are very important, such as controlling urban growth and legislative amendments for incorporating the city region as a planning level, while others, such as smartness promises, are unimportant. The recommendations were linked with the sustainable development goals to assess their suitability for the proposed framework. Some suggestions made to improve the coherence of the framework included creating unique indicators to monitor the results of the proposed plans in the city region and encouraging rural development through the promotion of urban-rural links with city regions.

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