



## PRINCIPLES OF DIVIDING PLANNING REGIONS IN THE LIGHT OF NATIONAL PROJECTS

Massad Hammoudeh\*, Kamal Khalaf, Zakir Musa

Urban Planning Department, Faculty of Engineering, Al-Azhar University, Cairo, Egypt

\*Correspondence: [mosaadmaghraby9@gmail.com](mailto:mosaadmaghraby9@gmail.com)

### ABSTRACT

#### Citation:

M. Hammoudeh, K. Khalaf, and Z. Musa, " Principles Of Dividing Planning Regions In The Light Of National Projects", Journal of Al-Azhar University Engineering Sector, vol. 19, pp. 1 - 26, 2024.

Received: 19 September 2023

Revised: 21 October 2023

Accepted: 30 October 2023

DOI:10.21608/aej.2023.243950.1451

Copyright © 2024 by the authors.  
This article is an open-access article distributed under the terms and conditions of Creative Commons Attribution-Share Alike 4.0 International Public License (CC BY-SA 4.0)

The introduction Regional planning is considered the cornerstone of preparing the comprehensive national plan, and to benefit from the impact of national projects and their development returns, it is necessary to reconsider the administrative division of the current planning regions of Egypt, in order to fit them with the national plan for the map of the republic, and to achieve the goals of the national plan for Egypt 2052 AD, which aims to increase the world. The Egyptian government has increased to 25%, which contributes to the population moving out of the narrow valley, benefiting from current resources, increasing balanced regional development rates and investment opportunities, stimulating the movement of capital, stimulating the development movement in remote governorates and regions, implementing social justice, increasing job opportunities, and spreading urban development in all parts of the Republic.

**KEYWORDS:** National Projects; Regional Development; Division of Regions; Development Disparities.

### مبادئ تقسيم المناطق التخطيطية في ضوء المشروعات الوطنية

مسعد حمودة\*، كمال خلف، ذاكر موسى

قسم التخطيط العمراني، كلية الهندسة، جامعة الأزهر، القاهرة، مصر

\*البريد الإلكتروني للباحث الرئيسي: [mosaadmaghraby9@gmail.com](mailto:mosaadmaghraby9@gmail.com)

### المخلص

يعتبر التخطيط الإقليمي هو حجر الأساس في إعداد الخطة القومية الشاملة، وللاستفادة من أثر المشروعات القومية ومردودها التنموي يستوجب الأمر إعادة النظر في التقسيم الإداري للأقاليم التخطيطية الحالية لمصر، لكي تتلاءم مع الخطة القومية لخريطة الجمهورية، ولتحقيق أهداف المخطط القومي لمصر 2052م الذي يهدف إلى زيادة المعمور المصري إلى 25%، بما يساهم في إنتقال السكان والخروج من الوادي الضيق والاستفادة من الموارد الحالية وزيادة معدلات التنمية الإقليمية المتوازنة وفرص الاستثمار وتنشيط حركة رأس المال وتنشيط حركة التنمية بالمحافظات والأقاليم النائية، وتطبيق العدالة الاجتماعية وزيادة فرص العمل ونشر التنمية العمرانية في كل ربوع الجمهورية.

**الكلمات المفتاحية:** المشاريع الوطنية، التنمية الإقليمية، تقسيم المناطق، التفاوتات التنموية.

## 1. INTRODUCTION

Regional planning is the key pillar for comprehensive national plan development. In light of the localization of new national projects and their developmental impact on the regions located wherein they are located, it is necessary to reconsider the administrative division of the regions in order for them to be aligned with the national plans for the State map and to achieve the objectives of the national plan to increase the developed area, contribute to the movement of population and from the crowded and inhabited areas, benefit from the current resources, increase the rates of balanced regional development and investment opportunities, stimulate the movement of capital and stimulate the movement of development in remote governorates and regions, apply social justice, increase job opportunities, strengthen regional interdependence relations and spread development urbanization in all parts of the Republic; Therefore, the research aims to identify the following:

- The international principles and standards for division of state regions in light of localization of national projects under the state strategic plan and through the study and analysis of national projects localization in regional locations in Egypt, measurement of disparities between regions and their associated governorates, and analysis of the impact of such disparities on demarcation of these regions to ensure that each region enjoys a share in this development and achieve a developmental balance in all regions and governorates of the Country through the following.
- Analysis of (academic proposals, official points of view, previous proposals and state efforts, the Egyptian experience, global and Arab experience, and the results of measuring Egypt's regional disparities) to lay the principles of regional division in light of national projects.

### Research Issue

The issue can be summarized in the existence of development disparities among Egypt's regions and governorates in light of the localization of national projects that would achieve and spread development and developmental balance. There is no analysis of the impact of these projects on regional division that achieves balanced regional development and identifies this division's planning principles compatible with the state's direction, previous efforts and results of disparities.

### Methodology

The research following the next methodology:

- Comparative analysis of global trends in regional division.
- The analytical approach of local trends in regional division (Egypt's Model). Therefore, the Research covers the following themes:
- Theme (1): Basic Concepts.
  - Theme (2): Global trends in regional division.
  - Theme (3): Analysis of local trends in regional division (Egypt's Model).
  - Theme (4): Proposed direction for regional division in light of Egypt's national projects.
  - Theme (5): Proposed principles and standards for regional division in light of national projects.

## 2. Basic Concepts.

### 2.1 Regional Development Concept:

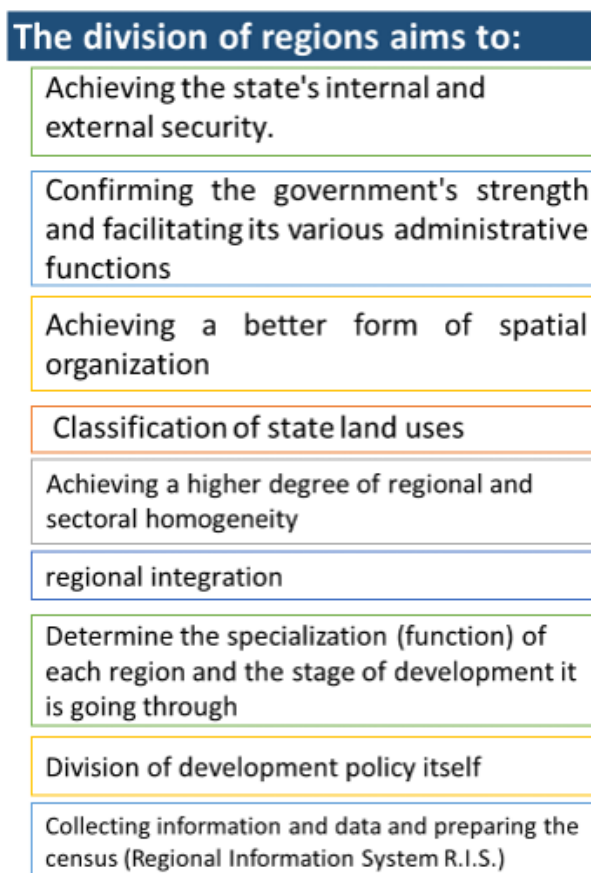
As “a method of planning that depends on the region wherein it planning carried out, and it has several definitions, including: The planning Method being able to de-velop solutions largely suitable for problems and issues faced by contemporary society, i.e., issues of (economic, social, urban, political and cultural) character [1].

### 2.2 Concept of Regional Division:

Is the process of demarcation and is considered the first step for the central gov-ernment to play several roles, as demarcation, definition of internal borders, particu-larly takes place to carry out tasks or play certain roles related to security, justice, and tax collection, i.e., the roles of a traditional government administration.

Modern scientific advancement and urbanization followed by the information systems revolution have added several new roles to governments, most notably eco-nomic and social development and planning for the same [2].

Regional division aims to achieve several objectives as per Figure 1. There are several methods that can be used to carry out demarcation of different regions and choose a method that is mainly related to the objective of these regional divisions; the metrics used are also related to the available data. As the main objectives of division can be summarized in analysis and planning, the criteria for division are dependent upon the morphological unit or the functional unit.



**Fig. 1.** Objectives of Regional Division.

### 2.3 Key Division Consideration

As regional division is carried out, there is a set of key considerations that need to be taken into account before division is carried out. These considerations serve as basic assumptions when conducting the regional division. These considerations are (state area - natural circumstances - population - spatial economic structure - spatial social structure - activities and population relations)

### 2.4 Major National Projects

Those major development projects with national goals [3, 4], aiming to achieve some sectoral development objectives, addressing national, regional and local issues, and exploiting competitive capabilities and opportunities [5,6] with direct national development impact (economic - social - service - strategic - security) on the GDP of the state [7,8] and all segments of the people in light of a real political and administrative will falling under a national strategic plan. It is an economic policy to achieve balanced urban development through localization and stimulation of urbanization and settlement, and the economic and urban orientation for the development of the desert across the country.

Accordingly, the impact of the national project manifests through the following:

- Urbanely: It affects the urban map of the country through creating urban communities that contribute to breaking the high population density (communities, districts and axis).
- Socially: It raises the development rate of the individual and the entire society.
- Economically: It contributes to the provision of job opportunities and the productive capacity it adds to the national economy [9].

### 2.5 The role of national projects in regional development.

It is noted that the national projects are aligned with their objectives and the goals of regional development in that project localization achieves a population attraction within the scope of the project and attracts investments to the same [10,11]. Two things can be achieved through the same: The first (Development of the diminished and poor regions), and the second: (reduction of pressure on the regions with concentrated development), in order to address the issue of regional disparity on the economic and social levels. Following are some models of national projects and their role in achieving regional development (economically, socially and environmentally) within the framework of sustainable development goals, which work to increase production expanding agricultural and industrial exports and increasing per capita national income within the framework of sustainable development goals [12,13], as shown by the developmental return of national projects through (its role in reducing disparities and raising the development rate in the governorates as a result of achieving urban polarization in uninhabited areas), which emphasizes the importance of considering the regional division in the light of those endemic projects that are intended to be endemic [14,15]. In order to reach the impact of national projects on division, it is necessary to consider analyzing global and Egyptian models and measuring regional disparities in light of the indicators resulting from these projects.

### 3. Global trends in regional division

#### 3.1 Presentation and analysis of countries' experiences

By analyzing the experience of the following countries (China - Germany - France - Saudi Arabia) Figure 2,3,4,5 in dividing their regions, Table 1 shows the following:

- The localization of national projects affects the development rates of the regions in which they are located, which in turn affects the achievement of balanced development with the occurrence of developmental imbalances and disparities between the regions, therefore, it is necessary to reconsider the regional division as per the endemic projects that are targeted for localization in the future, and on this basis a plan is developed for division according to the vision of the state and its national plan [16,17].

- Chinese development led to the division of its states into three economic geographic regions corresponding to the three regions, i.e., the east, the center, and the west. The rich areas became richer, the poor areas became poorer, and there are (567) poor province. Therefore, the unbalanced regional growth was exacerbated by the unfair geographical distribution of exports and foreign direct investment between regions [16].

Balanced regional development in China relies on the concept of "homogeneous society" to achieve balanced regional development, and links economic development with regional development through defining more comprehensive social, economic and political goals, prior to the goal of "supporting economic development" [18–20].

- It is clear that country division was primarily for political reasons, but it involved basic reasons consisting in the main goal to achieve balanced development throughout the state between the German Democratic Republic (Eastern) and the Federal Republic of Germany (West). This is a result of the annexation of parts of the borders Polish-German for the eastern part, where the Oder-Neisse line was considered the permanent border and projected its right to (Silesia, East Pomerania, Gdansk and East Prussia). This helped increase the possibility of raising development rates in this part as a result of proposals to localize national projects for the development of these lands, which had an influential role in reducing unemployment rates, the gross domestic product to reach 74.7%, the increase in the share of the industrial sector and the increase in the share of the GDP of Easterners [16, 21].

- It can also be said that the reconsideration of regional division is sometimes a result of the project localization in some regions. At other times, it was a reason for the localization of projects in the proposed regions in order to help ensure the success of the division and the achievement of development goals [22]. Both are linked to the other in order to reach a balanced regional development. According to the analysis of international and Arab experiences, the researcher sees the following:

- The division used in the State of China reduces the development rates in the internal regions as a result of the lack of a share of the coastal parts and endemic projects in those regions, resulting in balanced regional development for the whole country [24, 25].





- Neglecting the eastern parts of Germany, which necessitates a reconsideration of the localization and distribution of investment projects so that it is in line with the western part, as the starting point is not the same, so a focused plan needs to be considered.

- The use of France experience by re-dividing the planning regions of the countries according to the localization of urban projects in each region, as it is aligned with the idea of localizing new cities [26,28] and application of the experience of strong local representation of the state's governing bodies.
- Consideration of the proposal submitted for re-division of the Kingdom of Saudi Arabia as one of the most successful solutions due to the large areas of the regions and the great distance of services.

### **3.2 The principles of regional division as per the analysis of international and Arab experiences**

- There has to be support for division decentralization to relieve pressure on the central authorities and give local authorities a full opportunity to decide development plans in the regions in light of the general plan of the state, so that each region has a share of natural resources and various developmental components.
- All regions of the country shall enjoy a share of the national projects and a fair distribution of investments, so that a developmental balance can be achieved between the regions of the country and the gap between the different regions can be reduced.
- Division shall be carried out according to a national plan for the state, so that each region includes a large national project that achieves fair polarization of urbanization, population, and investments.
- Determining the area and population of each region in proportion to the size of potentials, development opportunities and targeted projects in accordance with the national plan.
- Each region shall have all the regional services and economic activities that make it unnecessary for it to resort to another region for help.
- There has to be taken into account the types and patterns of projects in accordance with the capabilities and elements of settlement in each region.
- It is necessary to evaluate the projects of the Arab Republic of Egypt (existing, in progress, and to be implementation), and developing a proposal to regional division according to the national state's plan and within the framework of analyzing Egypt's Vision 2052 and the efforts exerted to delimit those regions with the help of the experience of those countries and their proposals in dividing the same in a way that is alignment with the elements and conditions of the Egyptian state.
- There has to be Development of legislation linking the regional planning process with the development plans of the country as a whole in light of the targeted projects.

**Table 1.** Analysis of the administrative division of some international and Arab countries.

Themes of Comparison	China Republic - advanced	Germany Federation - Advanced	France Regional – advanced	Saudi Arabia Absolute Kingdom
Current State Division	 <p><b>Fig. 2.</b> Current State Division in China [16].</p> <p>Divided into (4) regions, The whole country is divided into 34 province-level administrative bodies.</p>	 <p><b>Fig. 3.</b> Current State Division in Germany.</p> <p>Divided into (16) provinces [23].</p>	 <p><b>Fig. 4.</b> Current State Division in France.</p> <p>Divided into (13) provinces.</p> <p>13 new territories were created by the new bill.</p>	 <p><b>Fig. 5.</b> Current State Division in Saudi Arabia.</p> <p>Divided into (13) provinces and this is the current division, There is a proposal to divide it into (21) regions.</p>
The foundations upon which the experiment relied in regional division	<ul style="list-style-type: none"> <li>• Achieving balanced regional development between the regions of the country, so that each region has a share in the localization of national projects in the coastal part [24, 25].</li> <li>• Dividing the central region into (northeast and central) to raise its development rates.</li> </ul>	<ul style="list-style-type: none"> <li>• Achieve balanced development throughout the state between the German Democratic Republic (Eastern) and the Federal Republic of Germany (West). This is a result of the annexation of parts of the borders Polish-German for the eastern part. Merging the eastern society with the western society, and considering it as one part of ideas and cultures [23].</li> </ul>	<ul style="list-style-type: none"> <li>• Achieving decentralization in development.</li> <li>• Reducing overcrowding within the capital, Paris, and attracting development outside it [26].</li> <li>• Achieving balanced development among the regions of the country.</li> </ul>	<ul style="list-style-type: none"> <li>• Spreading development within the borders of the regions by reducing their area, increasing their numbers.</li> <li>• Facilitate and accelerate the process of development and economic mobility, create more job opportunities, and re-divide the geographical area of the governorates within each region [27].</li> </ul>

**4. Analysis of the Egyptian model in regional division.**

It is necessary to identify the proposed national projects to measure their impact on the regional development and achieve balanced development, and their role in re-division.

**4.1 The national projects proposed in Egypt**

The national projects that were put forward in the previous period were dealt with, a large part of which entered into force. The rest is under study through the re-gions in which these projects are located [29,30]. According to the National Plan for Egypt 2052 AD, there are promising development regions that were covered by the National Plan [31], as follows:

- Developing the Suez Canal region as a global logistical and industrial center (phase one): It includes several projects, including (the development project for East Port Said as a container port and industrial zone, the development project for the northwest of the Gulf of Suez and the axial

port in Ain Sokhna, the Technology Valley project in Is-mailia, east of the canal, the project for developing the Suez Canal corridor as a global logistics hub).

- Sinai development: includes (industrial development in central Sinai, tourism development in southern Sinai, reclamation of 400 feddans on the waters of the Peace Canal, and the implementation of projects supporting development in North Sinai).
- Development of the Northwest Coast and its desert hinterland: It includes
  - Establishing the million cities in El Alamein as a major regional development center.
  - The Northwest Coast Development Project, the desert hinterland.
  - Qattara Depression Development Project in Western Desert.
  - Development and reconstruction corridor project in Western Sahara.
- Development of the northern governorates of Upper Egypt: This includes (establishing transverse axis for development in Upper Egypt, and development projects based on them, cultivating 100,000 feddans in the western plain of Minya (aromatic and medicinal plants)).
- The development of southern Egypt, Nubia, Halayeb and Shalateen regions. The southern Upper Egypt region includes:
  - \* Agricultural development reclamation project in Toshka and Darb Al Arbaeen.
  - \* Project for the development of mining area in Safaga (Golden Triangle).
  - \* Lake Nasser development project.
  - \* Extractive industries development project in Al-Alaqi Valley in the south valley.
- New projects at the national level.
  - \* The proposed national road network is 3200 km.
  - \* One million feddans reclamation project within the 4 million feddans reclamation plan.
- National, regional and local transport projects.
  - \* Water desalination projects, providing new sources of water and rationalizing water consumption.
  - \* Providing new and renewable energy sources, such as solar and wind energy.



Fig. 6. The proposed national projects during phase one 2017-2022.

According to the National Plan 2052 approved in 2012, those previously monitored regions are the most promising development regions on the Egyptian map with developmental potentials and opportunities that have the potential to lead development in Heliopolis in the coming phases. As shown in Figure 6.



All these projects have a direct impact on the GDP. They must have an impact on re-gional development as a result of creating longitudinal or transverse axis that achieve connectivity or creating new clusters or increasing the sizes of existing ranges and clusters. This would consequently achieve development for the underdeveloped re-gions, which achieves balance between those regions. The following Table 2 shows the projects according to the current regions.

**Table 2.** Distribution of national projects, including development projects, according to the current plan-ning regions [32–35].

Project	Examples	Added Area	Number of attracted population	Expected job opportunities	The target region for development
<b>Development of the Suez Canal and Sinai region, 461 km<sup>2</sup></b>	Northwest Gulf of Suez development	46 thousand feddans.	1.5 million people.	One million direct job opportunities	Suez Canal region
	Expansion and deepening of the lakes	37Km	200K people.	A more than 50 thousand opportunities	
<b>Golden Triangle Development Project</b>		840 thousand feddans.	1.2 million people - 12 proposed	Half a million directly - a million indirectly	Southern Upper Egypt region
<b>Northwest Coast Development Project.</b>		160K Square meters.	34 million people.	11 million opportunities.	Alexandria and North Upper Egypt
<b>New Cities Development Project.</b>	30 new cities	34k feddans	15 million people under phase 1	6 million opportunities.	development of the Upper Egypt regions
	Al Galalah	34k feddans		150k opportunities	Northern Upper Egypt region
	Administrative Capital	168k feddans.	40 million	2 million opportunities.	Cosmopolitan Cairo Region
	New Alamein	48k feddans	4 million people.		Matrouh Region

The impact of these projects is shown by analyzing the latest approved data for the per capita share of the dynamics (social - economic - urban - human development). The Egyptian model is analyzed in dividing planning regions in light of endemic national projects through a group of trends as follows:

**4.2 Analyzing the results of measuring regional disparities**

Which gives an indication for developing criteria for regional division in such a way that achieves developmental balance between the regions and their constituent gov-ernorates.

-By statistical analysis using the statistical method (SPSS program) - Analysis Cluster [36] for the governorates and regions of the Egyptian state, according to the dynamics for the year 2021 through the analysis of William Jeffrey [37] for a set of dynamics (7) as follows:

\* Urban indicators: Include (the per capita share of health services (breathing / bed) - the per capita share of paved roads) - the per capita share of tourist chambers (chamber / person) - the per capita share of cultivated area (field) in feddans).

\* Social indicators: Include (population - inhabited density - rate of natural in-crease).

\* Economic indicators: Include (unemployment rate - labor force)

\* Human development indicators: Include (Human Development Index - Domestic Product Index - Education Index - Expectation Index - Poverty Rate).

By analyzing the indicators of governorates, it is clear that they vary and differ from one governorate to another according to the status of that governorate in relation to the regions, Figure 7 whether they are advanced or underdeveloped. It has become clear to us from the forms during the selected time periods the extent of the variation between the dynamics of the governorates, as the statistical analysis of these dynamics resulted in the classification of the governorates it is divided into groups whose elements have common properties based on the set of indicators (dynamics), so that the classified cases within one cluster are homogeneous (i.e. relatively homogeneous among themselves), so that it works to minimize the variance within the single cluster and maximize the variance between the different clusters. It indicates the development rate according to the statistically standardized colors, where (red) is considered an (indicator of the high development rate), followed by (orange, yellow, and green) indicating (medium development rate) and (blue) indicating (low development rate).

Considering the extent of disparities among the governorates and regions, the standard statistical analysis proved the existence of substantial disparities, based on the urban, social and economic dynamics, which express the characteristics of the different governorates belonging to each individual region. The results of the standard analysis can be clarified as follows:

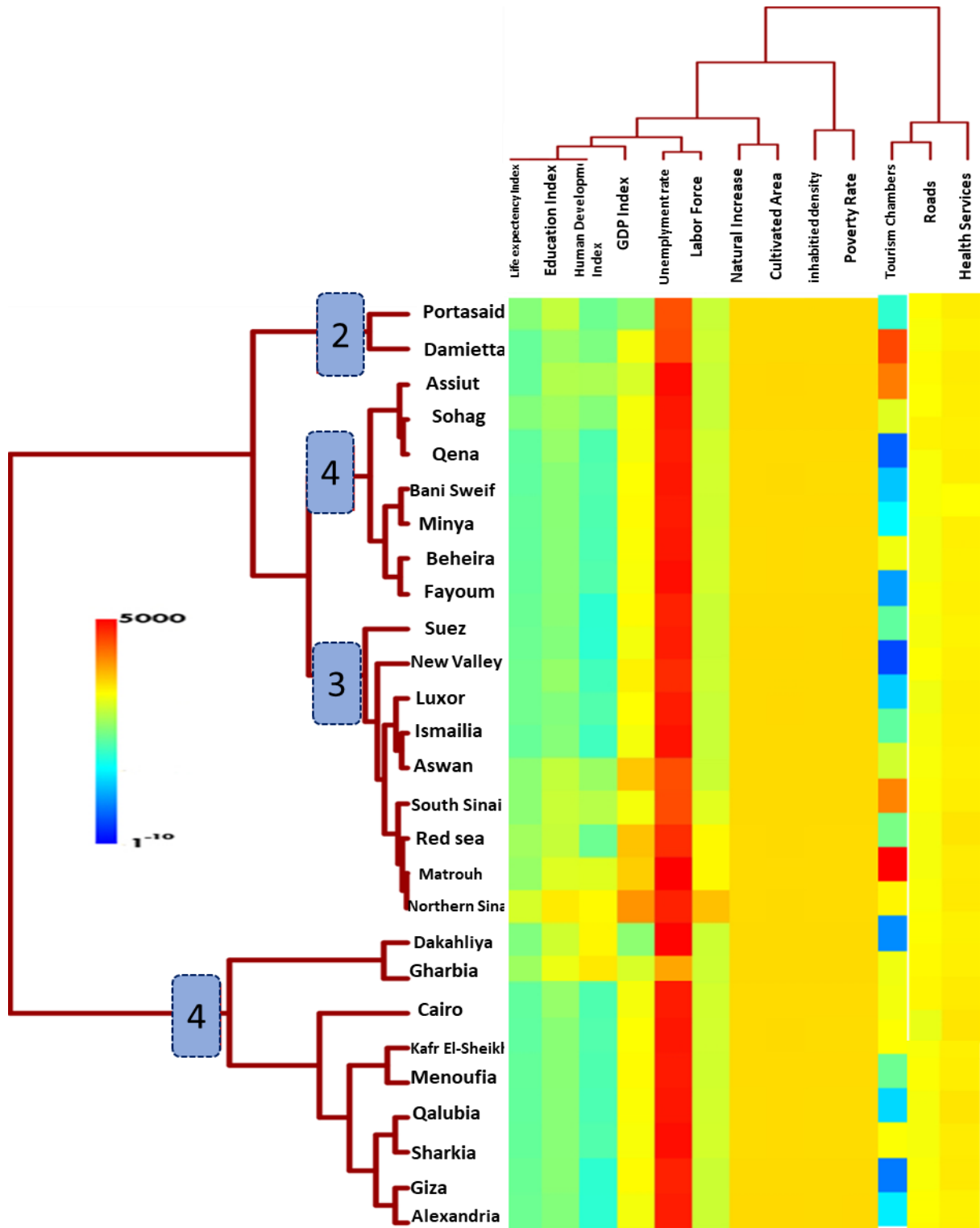
They are broken down into (4) sets expressing the development rate in an advanced stage of development, **Fig. 7** as follows:

- The Highest governorates are (Dakahlia - Gharbia - Cairo - Alexandria - Menoufia - Qalyubia - Kafr El Sheikh - Giza), followed by (Port Said - Damietta), followed by (Suez - New Valley - Luxor - Ismailia - Aswan - South Sinai - Red Sea - Matrouh) ranked third for the development rate. The following governorates (Assiut - Sohag - Qena - Beni Suef - Minya - Behaira - Fayoum) ranked fourth in the development rate.

- The results of classification of the governorates for 2021 in terms of the development rate are as follows:

- High in the following dynamics: (health services - roads - tourist chambers - unemployment rate).

- Average in the following dynamics: (cultivated area - human development index - domestic product index - poverty rate - labor force).



**Fig. 7.** Statistical analysis of dynamics for the governorates of Egypt for the year 2021 (extent of variation between governorates [36, 37].

The development rate varies based the region and the variable, ranging from high, medium and low. For example, the per capita share of cultivated lands in the regions of Assiut, Alexandria and

Suez, the highest of which are the governorates of the New Valley, Matrouh and North Sinai as a result of the localization of the 1.5 million Feddan project, according to Fig. 8.

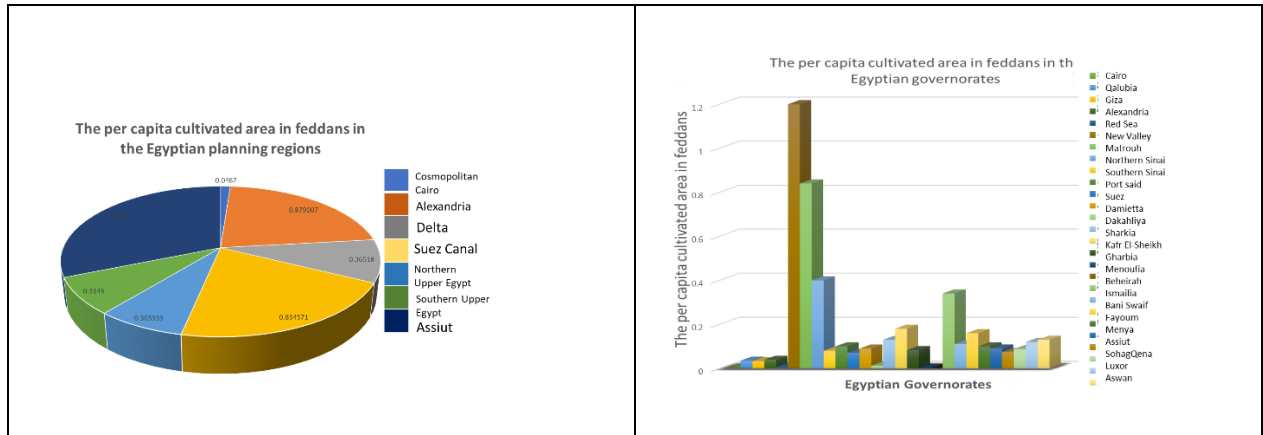


Fig. 8. The per capita cultivated area in feddans in the Egyptian planning regions and governorates for the year 2021 [38–42].

As for the per capita share of tourist chambers, Fig. 9 reaches the highest rate in the Suez Canal region and lowest rate in Alexandria region, moreover, the governorates of South Sinai and the Red Sea occupy the largest share, while the percentage is mediated in the Suez Canal and Matrouh governorates, decreasing in Port Said and Aswan, which confirms the inadmissibility of the proposal to separate Alexandria and Matrouh.

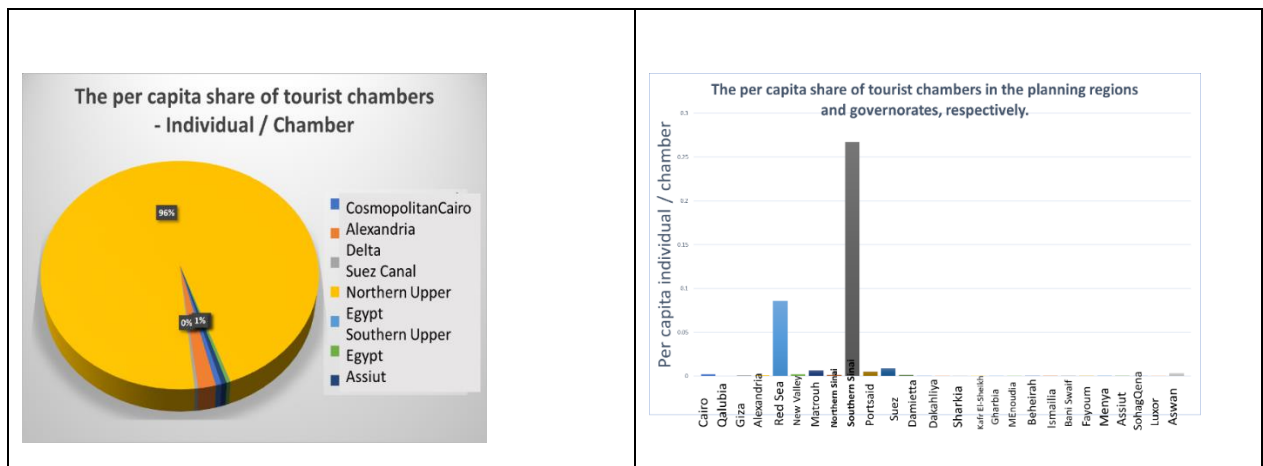


Fig. 9. The per capita share of tourist chambers in the planning regions and governorates, respectively [38 – 42].

The role of national projects is to raise the development rate in the regions, reducing these disparities. For example, the 1.5m feddans development project covers ~8 governorates and is considered an agricultural project that raises the per capita share of the agricultural area, increases the inhabited areas of the population and reduces densities in the regions. It also raises the per

capita share of the regions located therein, which notes the suitability of this project for the regions in which it is located.

It also stresses the importance of the New Alamein City and New Mansoura projects in the Alexandria region, which would raise the region's tourism shares.

The statistical analysis indicates the following:

- The regions of South and North Upper Egypt must be re-divided into (North-South-Central) Upper Egypt with a transversal division so that the governorates of North Upper Egypt, Assiut and the New Valley enjoy a share of tourism development and the mining Golden Triangle project. The governorates shall be modified to extend from the Red Sea in the east to the Libyan border in the west to achieve the theory of transversal division with integrated activities.
- The Cosmopolitan Cairo region must have a share of the Red Sea in order to raise the rates of tourism development by including the Suez Governorate in the region.
- The Delta region have an extension of a desert hinterland that accommodates the future population increase, so that the modification of the borders of the governorates of Fayoum and Giza extends to extend to the Libyan border in the west and includes Siwa Oasis to achieve the desired transversal division theory.
- Non division of Alexandria region, so that there is chamber to absorb the population increase and spread tourism development, as the city of El Alamein raises the shares of the entire region.
- Non separation of Sinai from the governorates of Port Said and Ismailia, considering them as one functional and administrative entity.

#### **4.3 Analyzing previous ideas to establish the principles and criteria for regional division.**

Some of the previous ideas were analyzed in this regard, whether they were government agencies or the proposals of specialists in the field of planning and development, the researcher added to them, as follows:

Academic approach consisting in the first, second and third proposal, in which the planning dimension, and the development potential in each region, and taking into account the principles and standards of planning without taking into account its reflection on the administrative aspects.

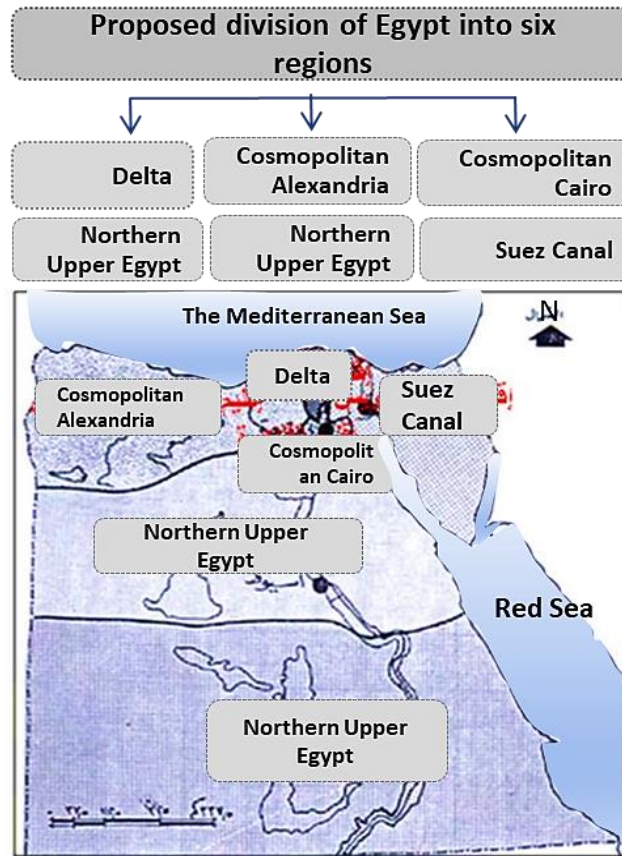


Fig. 10. The first proposal to divide Egypt into regions [43].

#### 4.3.1 The first proposal

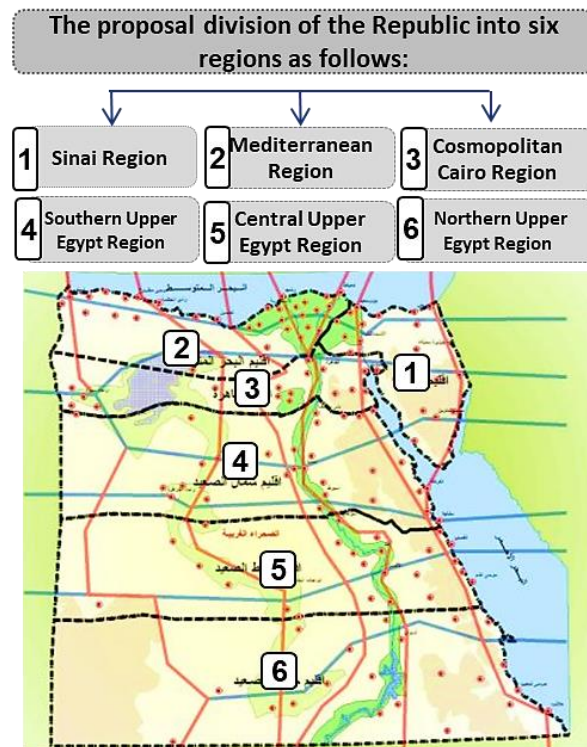
This proposal had been submitted as part of an PHD academic research [43] at Al-Azhar University, Department of Urban Planning in 1987. It proposes a re-division of the current regions of the Republic. The proposal divided the Republic into six plan-ning regions, **Fig. 10**.

- Providing an opportunity to leave the valley and head to the desert by merging the desert governorates with the valley, in order to achieve the expansion strategy, which gives an opportunity to localize non-agricultural uses on the desert edges and leave the valley for agriculture.
- Follow the methodology of the transverse division of the Republic by assigning the eastern and western parts of the Nile to the valley in the regions of North and South Upper Egypt.
- The convergence was not taken into account as much as possible in size and weight, whether spatial or demographic, as Assiut region was canceled and assigned to the North and South Upper Egypt regions, which disturbed the required balance between the regions of the Republic. The region of Southern Upper Egypt is about 45% of the total area of the Republic, and the region of Northern Upper Egypt is about 30%.
- The proposal did not provide any solutions for the Delta region although it is one of the republic's regions in need of amendment due to the magnitude of the issues found therein. - The same applies to Cosmopolitan Cairo region, as its area has been reduced and its population has remained constant, which means an increase in density.

### 4.3.2 The second proposal

This proposal had been submitted as part of an PHD academic research [44] at Al-Azhar University, Department of Urban Planning in 2010. It proposes a re-division of the current regions of the Republic into 6 regions.

In this regard, the proposed division, from the point of view of the proposal maker, achieves fair distribution of resources and diversification in economic activities, which is proposed to be by dividing Egypt into transverse regions, so that each region takes its share of the longitudinal potential that characterize the republic (the Red Sea - the valley - the western reconstruction corridor), **Fig. 11**.



**Fig. 11.** The second proposal to divide Egypt into regions [44].

#### **Analysis of this proposal:**

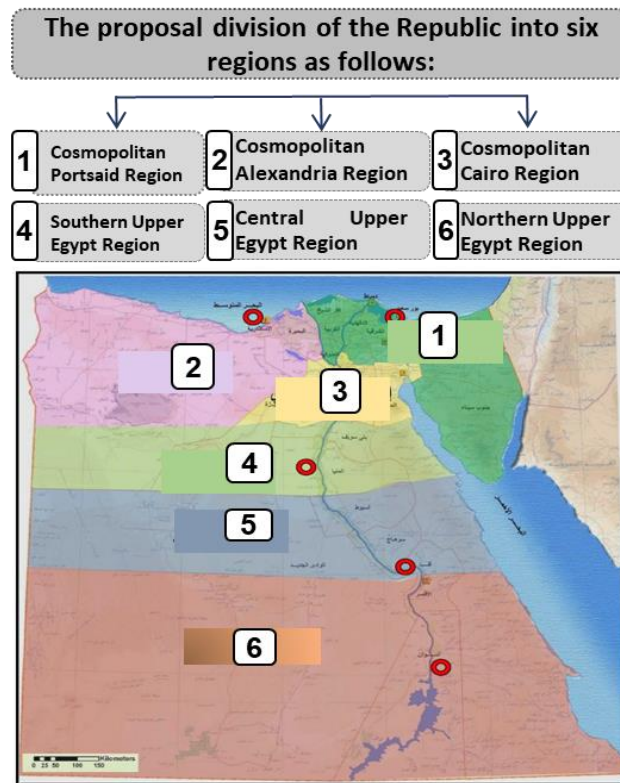
- Achieving as much as possible the agreed bases and criteria for dividing Egypt into planning regions, which are:
- The need to provide a sea port for each region.
- The need that each region includes one or more of the transverse development axes
- Providing a desert back for each region.
- Convergence between the planning regions in size and weight, whether spatial or population.
- The need for each region to be based on a civilized center that serves as a lighthouse for the region
- The boundaries of the planning region should coincide with the administrative borders of the governorates as much as possible
- The large number of administrative amendments in the proposed division, which is an obstacle in the beginning to the stability of statistical and informational data and the administrative apparatus of those provinces.



- Adding the Delta region to Alexandria region under the name of the Mediterranean region, which added to its burdens, and after the population center of gravity represented in the Delta region, it was more appropriate if he wanted to include the Delta region to a new development area that enjoys the existence of a desert hinterland that would be used to accommodate the population increase generated from the Delta region.
- It is possible that the Delta region will be included in the Suez Canal region, where there is a desert hinterland in Sharkia Governorate as well as the existence of Sinai Peninsula as a semi-empty area despite its abundance of elements that outweigh the population. There is also a security dimension that makes directing population payments towards the eastern borders very important.

### 4.3.3 The third proposal

This proposal had been submitted as part of an PHD academic research [45] at Al-Azhar University, Department of Urban Planning in 2010. It proposes a re-division of the current regions of the Republic into 6 regions, **Fig. 12**.



**Fig. 12.** The third proposal to divide Egypt into regions [45].

#### **Analysis of this proposal:**

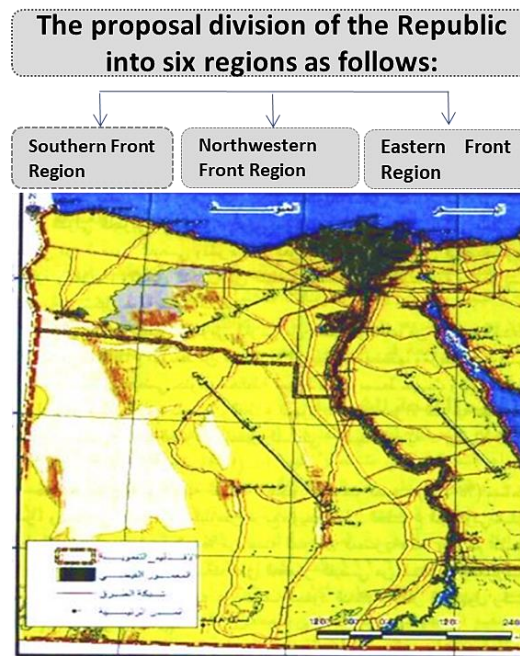
- Providing an opportunity for each region to have a share of sea destinations (Mediterranean Sea - Red Sea) to get out of the valley to the desert by merging the desert governorates with the valley, in order to achieve.
- Follow the Strategy of Expansion.
- Follow the methodology of the transverse division of the Republic by the eastern and western parts of the Nile to the valley in the regions of North, South, and central Upper Egypt.



- It did not differ much from the previous proposal in terms of the methodology for distributing regions. Rather, cosmopolitan Cairo did not have the opportunity to ex-pand into the desert.
- The convergence was not taken into account as much as possible in size and weight, whether spatial or demographic, as Assiut region was canceled and assigned to the Central and South Upper Egypt regions of the Republic.
- The Suez governorate was added to cosmopolitan Cairo region, and the Delta region to Port Said and Suez, despite the difference in the economic base between the gover-norates.
- The proposal relied on the principle of integration between regions, meaning that there are a number of regions that will rely on discharging their population increase towards neighboring regions (Cosmopolitan Cairo region, Delta region) although there is a basic criterion that he resorted to in his proposal, which enhances region inde-pendence and achieving equal growth that achieves justice between Territories.

#### 4.3.4 The fourth proposal

This proposal was mentioned in the book, the Population Issue and the Future of Egypt at the Beginning of the Twenty-First Century [46], which was published by Dar Al-Majed for Printing and Publishing in 2010. The author of the proposal relied in his proposal on the fact that the re-division of Egypt into development regions depends on a clear national vision for the future of development in Egypt, consisting in maximiz-ing the benefit from Egypt's geographical location to improve its position in the world development map through a map of development priorities based on the comparative advantages of the national development product, allowing for a position to compete with the new world order. Accordingly, the Republic was divided into three develop-mental regions, **Fig. 13**.



**Fig. 13.** The fourth proposal to divide Egypt into regions [46].

### **Analysis of this proposal:**

- The focus of the proposal on development areas outside the valley and the delta to fill the gap in the desert areas may be appropriate to stop the severe urban expansion into agricultural lands.
- Each region has an external development orientation towards the global economic blocs.
- Each region includes environmental diversity (desert - coast - valley).
- High connectivity abroad through the diversity of my location on the sea fronts, political borders and adjacent areas. The floodplain and the desert hinterland (Maritime Port)
- Discharging the high population densities in the floodplain to semi-empty desert areas
- Non-compliance with the vast majority of the criteria previously set for the preparation of the proposed division.
- Non-compliance with the existing administrative borders as much as possible due to the difficulty of distributing one governorate into three development regions, as most of the governorates of Upper Egypt extend east and west of the valley.
- Did not take into account the natural and social conditions in the proposed division.
- Outward direction rather than serving the population of the region itself.

#### **4.3.5 The fifth proposal**

The General Authority for Urban Planning 2012: The General Authority for Urban Planning has developed the State Vision 2052 by: Preparing a proposal to divide Egypt into development regions within the framework of activating the orientations of the National Strategic Plan for Urban Development of Egypt [47], which includes:

- Accommodation of the expected population increase within 40 years while achieving population balance in accordance with the capacity of each region.
- Equal and balanced distribution of development components at the governorate level.
- Achieving social justice and reducing disparity in the distribution of resources and wealth between regions and reducing poverty.
- Providing job opportunities in the proposed areas for development and achieving quality of life for citizens.
- Adding ~12 million feddans to the populated area to become 11% of the republic's area, and to provide 29 million new opportunities.
- Dependence on non-traditional water and energy resources to meet the needs of population growth and economic activities.
- 5 new governorates were proposed, as follows: (The Tenth of Ramadan - El Alamein - Wadi El Natrun - Helwan - Central Sinai).

A proposal was prepared to re-divide Egypt into development regions, so that these regions would be the first step towards activating decentralization in development and enabling the state to implement major development projects proposed through the strategic plan. This is based on a set of standards, which guarantee the need for each region to have a set of basic economic activities that allow such region to compete nationally and internationally, and so that each region have a maritime gate and a desert hinterland for urban extension, and to have a network of axis, ports and airports that contribute to accelerating development. It is also based on the need for each region to have a number of major development projects that allow it to absorb the expected population

increase within 40 years, and each region includes a number of current governorates, some of whose borders have been proposed to be amended.

With the aim to achieve justice in distributing the desert hinterland that can be developed in all governorates, in addition to proposing a group of new governorates in the priority development areas, to achieve a set of goals according to Fig. 14.

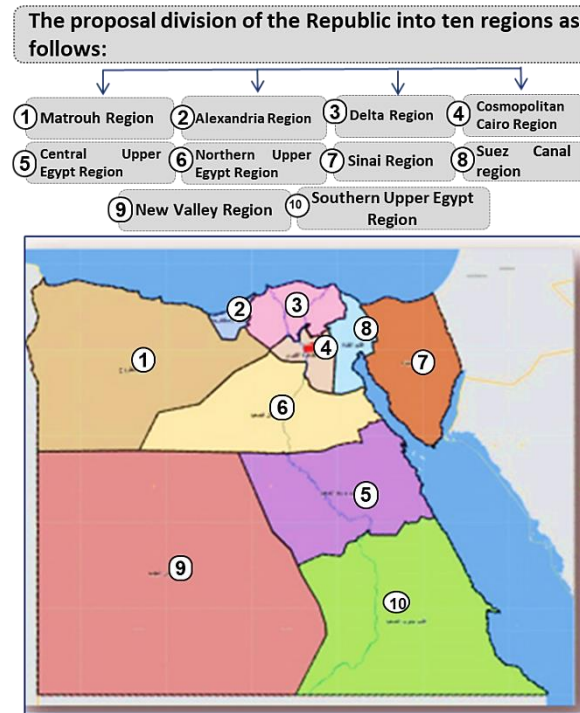


Fig. 14. The fifth proposal to divide Egypt into administrative regions [47].

**Analysis of this proposal:**

- Improving the status of the northern Upper Egypt region by supplying the same up to the Red Sea coast, so that it has an outlet for development operations in the region.
- Dividing the region of Southern Upper Egypt into the regions of Central and Southern Upper Egypt in order to control the enormous potentials in the Red Sea Governorate.
- Accelerate the implementation of the proposed projects in those areas and attract the population increase.
- Optimal utilization of the current water resources from the Nile River and rain, and reliance on desalination of sea water and saline water, to add new agricultural lands to eventually double the area of agricultural lands in Egypt, by adding nearly 6 million feddans.
- There region has to have executive and financing powers to set development plans, and follow up on the implementation of major development projects in accordance with the time plans prepared for them.
- There has been no compliance with most of the criteria it set as part of division (sea access, integration and diversification of economic activities, ....).
- Increasing the number of regions to 10 regions, which hinders making the region an administrative unit with executive powers.

- The situation of the Delta region has not been improved, as it is one of the regions of the Republic most in need of new development areas, and the assignment of the Buhaira governorate to the same will not guarantee a solution to the issues in the re-gion without resorting to other policies and relying on neighboring regions.

- Separating Alexandria Governorate and making it an independent region and making Matrouh Governorate another unacceptable region, as the region in terms of its existing status is considered the best, as Alexandria Governorate represents population weight with the Buhaira Governorate and a center of civilizational abundance. Matrouh Governorate serves as the backbone for the region, with its tourism components and agricultural lands that can be expanded upon.

- Separation of the currently Canal region into two regions (the Canal and Sinai) is unsuccessful, as the Suez Canal region is currently one of the regions with little population, despite the potentials enjoyed by the region, and such fragmentation weakens the region's chances of increasing development rates.

5. The proposed regional division in the Arab Republic of Egypt in the light of national projects Some believe that defining a region must cover six important elements in order to be a region without regard to its formal and functional delineation [49]:

- Choosing the borders of the region in a way that does not hinder the normal activities of the people, as if the residents fulfill their needs without having to move to another region.

- The specified region shall include a sufficient population of at least one million people to ensure the establishment of a system of municipalities or an administrative system that helps stability.

- The size of the region should not be so large as to swallow other regions due to its abundant population, resources and financial wealth.

- The borders of the region shall if possible be in line with prominent natural borders such as rivers, mountains, etc., which give prominent borders that impose the borders of the region.

- Ensure that its inhabitants are at least socially harmonious in terms of cultural and religious composition and customs.

- Include capital and wealth to ensure life continuation of and meet the requirements of the population through the plan.

And by presenting and analyzing all the aforementioned trends to re-divide the Republic into comprehensive development regions, and in light of the principles and criteria that have been reached for dividing the entire area of the country into comprehensive development regions (administrative - economic - planning), it was possible to develop a proposal to divide Egypt into comprehensive planning regions. It aims to exploit the entire Egyptian globe through the national vision of the development strategy for bankers in the light of national projects, as it turns out that the goal of setting new standards is to achieve balanced development between regions and a fair distribution of national projects within the framework of decentralization.

The Republic was divided into 7 development regions, Figure 15, as follows:

1- Cosmopolitan Cairo Region: It includes five governorates (Cairo - Giza - Qalyubia - Suez - Fayoum - Tenth of Ramadan - Helwan - 6th of October). the modification of the borders of the governorates of Fayoum and Giza extends to extend to the Libyan border in the west and includes Siwa Oasis to achieve the desired transversal division theory. It includes the scope of the state's capital, the center of governance, institutions and administrative services. The rest of the region's

governorates represent urban ex-pansion and all competitive investment and service activities at the national and in-ternational levels. It will accommodate 30 million people in 2052.

2- Northwest Coast Region: It includes 4 governorates (Alexandria - El Alamein - Ma-trouh - Siwa).

3- Delta region: It includes 8 governorates (Sharqia - Dakahlia - Gharbia - Menoufia - Kafr El-Sheikh - Damietta - Beheira - Wadi El-Natron).

4- Sinai Region: It includes 6 governorates (Port Said - Ismailia - North Sinai - South Sinai - Central Sinai - Sharkia).

5- Northern Upper Egypt region: It includes 4 governorates (Minya - Beni Suef - Assiut - Al-Wahat). The governorates shall be modified to extend from the Red Sea in the east to the Libyan border in the west to achieve the theory of transversal division with inte-grated activities.

6- Central Upper Egypt region: Includes 4 governorates (Red Sea - Sohag - Qena - Lux-or - New Valley).

7- Southern Upper Egypt region: It includes two governorates (Aswan - Toshka).

8- The governorates shall be modified to extend from the Red Sea in the east to the Libyan border in the west to achieve the theory of transversal division with integrated activities by adding 5 governorates proposed by the commission as follows (the tenth of Ramadan - Helwan - El Alamein - Wadi El Natrun - Central Sinai - Siwa), and re-dividing the Red Sea to include only central Upper Egypt and re-dividing the gov-ernorates (Assiut - Sohag - Luxor) to the Red Sea coast. It was managed to divide the New Valley into (Wahat - New Valley - Toshka). Figure 15 shows the analysis of the proposed division.



**Fig. 15.** A proposal to divide the planning regions and their governorates in light of the distribution of national projects.

## 6. Proposed principles and standards for regional division in light of national projects.

Comprehensive principles and standards have been identified according to the global models of some countries for dividing planning regions in light of national projects, and they are as follows:

- Attaining equal and balanced distribution of development components and re-sources, and taking into account the results of measuring disparities between the gov-ernorates and regions of the country.
- Activating decentralization in the management and implementation of major devel-opment projects so that the region has a special budget to finance some major projects.
- Transforming from sectoral development to integrated spatial development, and de-fining clear activities for the region in development that achieve competitive ad-vantage.
- Achieving integration and gradation of the proposed development projects according to their prioritization between the regions and governorates.
- Optimal guidance to support development plans in the medium and long term, as each region can be independent in terms of approving the regional plan for develop-ment and major projects at the level of the region and governorates, setting priorities and setting executive action plans for major projects, approving budgets for major projects and ensuring the provision of financing and participating in the implementa-tion of some of the same and follow-up on the work of the sectoral bodies and the gov-ernorates in the implementation of major projects.
- Each region should include a large national project, a major city that accounts for a key pillar, and a proportionate and integrated economic base, with the diversity of economic resources in each region, and the availability of communication elements at the national and international levels (airports - ports).
- Allowing a transverse extension in the desert areas, finding a direct access to the re-gion on a waterfront, while finding a direct access to the region on a waterfront.
- Strengthening the regions with new cities to link the existing and the new urban are-as, as well as rural and urban areas, along with achieving integration between existing and new development areas.
- Reaching policies and strategies that achieve the proposed division into stitched re-gions according to a national vision.

## Conclusion

The research adopts the idea of analyzing the impact of national projects on di-viding the planning regions of a group of countries, and reaching a set of global foun-dations to achieve a balanced development for that division. The results of the re-search are as follows:

- National projects are considered "an economic policy to achieve balanced national development". They have an impact that appears in urban, social, and economic through drawing up a new urban map (cities, communities, regions, or axes), which achieves a regional balance of levels of development in the governorates and regions of the country as a result of stimulating and attracting urbanization. and the economic and urban orientation for the development of desert areas that have a direct impact on the GDP of countries.
- The localization of national projects contributes to reducing the severity of regional disparities by reducing the differences between the governorates and eliminating the noticeable fluctuation in the development rate, and consequently between the regions, based on the analysis of the economic, social and urban dynamics statistically, which express the characteristics of the different regions.

- It is possible to raise the indicators of development rate for the underdeveloped governorates by localizing national projects that would raise per capita rates according to the observed disparities in the different development sectors based on the analysis of urban, economic and social variables.
  - National projects affect the regional division of the countries through the developmental return of those projects in terms of providing job opportunities and attracting the population to the sites of these projects, which will be reflected in the balanced development between those regions, where one region grows to the exclusion of the other, so it is necessary to reconsider the division of countries in the light of their national projects.
  - The regions are affected by the localization of national projects in the country (locations - quality). Therefore, these regions must be divided according to several criteria to ensure that all regions have a share of these projects and a share of development according to the capabilities of each region in order to achieve balanced regional development in all regions of the country.
- National projects affect the division of the planning regions of Egypt by re-dividing the country into (8) planning regions as per the new concluded principles, and reconsidering some governorates so that each region has a share of the sea coasts, as well as a share of the desert hinterland to achieve future expansion. Moreover, each region includes a major city representing a key development pillar, and non-key development pillars, and development axes that achieve linkage between the parts of the country.

## References

- [1] Alden J, Morgan R. *Regional Planning: A Comprehensive View*. Colchester: TBS The Book Service Ltd; 1974.
- [2] *Dividing Egypt into planning regions*, A series of planning and development issues No. (162), Institute of National Planning. Cairo, Egypt: 2003.
- [3] Jabr A. *The impact of national projects on the formulation of the urban map in Egypt*. PhD Thesis. Al-Azhar University Faculty of Engineering, Urban Planning Department, 2021.
- [4] Abusaada H, Elshater A, Rashed R. Exploring the singularity of smart cities in the New Administrative Capital City, Egypt. *Ain Shams Engineering Journal* 2022. <https://doi.org/10.1016/J.ASEJ.2022.102087>.
- [5] Alade TA, Bukoye OT, Roehrich JK, Edelenbos J. Cross-national collaboration in strategic transport projects: The impact on benefits realization. *International Journal of Project Management* 2022. <https://doi.org/10.1016/J.IJPROMAN.2022.03.009>.
- [6] Coenen J, Newig J, Meyfroidt P. Environmental governance of a Belt and Road project in Montenegro – National agency and external influences. *Land Use Policy* 2022. <https://doi.org/10.1016/J.LANDUSEPOL.2022.106136>.
- [7] Terano M, Suehiro K, Sagae T, Tobita E. Japanese National Project for the Innovation of Industrial Polypropylene Process Technology. *Stud Surf Sci Catal* 2006. [https://doi.org/10.1016/S0167-2991\(06\)80426-X](https://doi.org/10.1016/S0167-2991(06)80426-X).
- [8] Mishlanova M. Development trends of the Russian system of national projects. *Transportation Research Procedia* 2022. <https://doi.org/10.1016/J.TRPRO.2022.06.170>.



- [9] Ika LA, Söderlund J, Munro LT, Landoni P. When project management meets international development, what can we learn? *International Journal of Project Management* 2020. <https://doi.org/10.1016/J.IJPROMAN.2020.10.004>.
- [10] Zerjav V, McArthur J, Edkins A. The multiplicity of value in the front-end of projects: The case of London transportation infrastructure. *International Journal of Project Management* 2021. <https://doi.org/10.1016/J.IJPROMAN.2021.03.004>.
- [11] Liu L, Han C, Xu W. Evolutionary analysis of the collaboration networks within National Quality Award Projects of China. *International Journal of Project Management* 2015. <https://doi.org/10.1016/J.IJPROMAN.2014.11.003>.
- [12] Al-Mugharbel N. Sustainable Development Strategy, Egypt's Vision 2030. Arab Forum for Sustainable Development, Jordan, Amman: Ministry of Planning, Follow-up and Administrative Reform; 2019, p. 30.
- [13] Ramadan ST. The effect of dividing Egypt into planning regions on urban development. Master's thesis. Faculty of Planning, Cairo University, 1990.
- [14] Cui X, Du Q, Zou PXW, Lu C, Li Y. A method for incorporating heterogeneity in measuring the economic carrying capacity of urban infrastructures. *J Clean Prod* 2022. <https://doi.org/10.1016/J.JCLEPRO.2021.130058>.
- [15] Jung PH, Thill JC. Sea-land interdependence and delimitation of port hinterland-foreland structures in the international transportation system. *J Transp Geogr* 2022. <https://doi.org/10.1016/J.JTRANGEEO.2022.103297>.
- [16] Wang Y, Wang Q, Shen B, Sun X, Ouyang H, Ding D, et al. Regional Policy, EU–China Cooperative Research Program, European Union. Brussels: 2010.
- [17] Wang Q, Ren S. Evaluation of green technology innovation efficiency in a regional context: A dynamic network slacks-based measuring approach. *Technol Forecast Soc Change* 2022. <https://doi.org/10.1016/j.techfore.2022.121836>.
- [18] Liu J, Fang Y, Wang R, Zou C. Rural typology dynamics and drivers in peripheral areas: A case of Northeast China. *Land Use Policy* 2022. <https://doi.org/10.1016/J.LANDUSEPOL.2022.106260>.
- [19] Li L, Ma S, Zheng Y, Xiao X. Integrated regional development: Comparison of urban agglomeration policies in China. *Land Use Policy* 2022. <https://doi.org/10.1016/J.LANDUSEPOL.2021.105939>.
- [20] Hu Q, Wang C. Quality evaluation and division of regional types of rural human settlements in China. *Habitat Int* 2020. <https://doi.org/10.1016/J.HABITATINT.2020.102278>.
- [21] Concepts and Strategies for Spatial Development in Germany, Standing Conference of Ministers responsible for Spatial Planning. Federal Ministry of Transport, Building and Urban Affairs, Berlin: 2006.
- [22] Yamasaki J, Itsubo N, Murayama A, Nitanaï R. Eco-efficiency assessment of 42 countries' administrative divisions based on environmental impact and gross regional product. *City and Environment Interactions* 2021. <https://doi.org/10.1016/J.CACINT.2021.100061>.
- [23] Kuhlmann S, Proeller I, Schimanke D, Ziekow J. Public Administration in Germany. Switzerland: Springer Nature; 2021. <https://doi.org/10.1007/978-3-030-53697-8>.



- [24]Feng R, Wang K. The direct and lag effects of administrative division adjustment on urban expansion patterns in Chinese mega-urban agglomerations. *Land Use Policy* 2022. <https://doi.org/10.1016/j.landusepol.2021.105805>.
- [25]Chang Y, Hu P, Huang Y, Duan Z. Effectiveness and heterogeneity evaluation of regional collaborative governance on haze pollution control: Evidence from 284 prefecture-level cities in China. *Sustain Cities Soc* 2022. <https://doi.org/10.1016/J.SCS.2022.104120>.
- [26]de Bony J. Project management and national culture: A Dutch–French case study. *International Journal of Project Management* 2010. <https://doi.org/10.1016/J.IJPROMAN.2009.09.002>.
- [27]Rees-Caldwell K, Pinnington AH. National culture differences in project management: Comparing British and Arab project managers’ perceptions of different planning areas. *International Journal of Project Management* 2013. <https://doi.org/10.1016/J.IJPROMAN.2012.04.003>.
- [28]Shore B, Cross BJ. Exploring the role of national culture in the management of large-scale international science projects. *International Journal of Project Management* 2005. <https://doi.org/10.1016/J.IJPROMAN.2004.05.009>.
- [29]Ashour MA, Aly TE, Abu-Zaid TS, Abdou AAA. A comparative technical study for estimating seeped water from irrigation canals in the Middle Egypt (Case study: El-Sont branch canal network). *Ain Shams Engineering Journal* 2023. <https://doi.org/10.1016/J.ASEJ.2022.101875>.
- [30]Diwedat AI, Saad SAF, Nada AM, Ibraheem AM. The role of numerical model in assessing the waterway restoration for watershed management, the case of BAHR YOUSSEF, Egypt. *Ain Shams Engineering Journal* 2023;14:101888. <https://doi.org/10.1016/J.ASEJ.2022.101888>.
- [31]The National Strategic Plan for Urban Development and Priority Development Areas, General Organization for Physical Planning, Ministry of Housing, Utilities and Urban Communities. Cairo, Egypt: 2014.
- [32]The National Strategic Plan for Urban Development. General Organization for Physical Planning, Ministry of Housing, Utilities and Urban Communities. Cairo, Egypt: 2014.
- [33]The National Project for Land Reclamation - Phase I - 1.5 million feddans, Ministry of Agriculture and Land Reclamation. Cairo, Egypt: 2016.
- [34]President of the Arab Republic of Egypt Decree No. 341 of 2014 to establish the economic zone of the Golden Triangle. Egypt: Information and Decision Support Center, Egyptian Cabinet; 2014.
- [35]Preparing the general and detailed plan for the new administrative center for finance and business (the administrative capital) - the impact of building requirements and urban development controls, New Urban Communities Authority. Cairo, Egypt: 2016.
- [36]SPSS Statistics program, statistical analysis using the statistical method - Analysis Cluster 2023.
- [37]Jeffrey GW. Regional Inequality and the Process of National Development: A Description of the Patterns. *Econ Dev Cult Change* 1965;13. <https://doi.org/10.1086/450136>.
- [38]Egypt in numbers, Central Agency for Public Mobilization and Statistics. Cairo, Egypt: 2021.
- [39]Description of Egypt with Information, Information and Decision Support Center, Egyptian Cabinet, Arab Republic of Egypt. Cairo, Egypt: 2021.
- [40]Bulletin of Agricultural Statistics, Ministry of Agriculture and Land Reclamation - Economic Affairs Sector. Cairo, Egypt: 2021.

- [41] Statistics of the elements of hotel activity and tourist villages in the public and private business sectors in the Arab Republic of Egypt 2019, Central Agency for Public Mobilization and Statistics. Cairo, Egypt: 2021.
- [42] The strategic vision for the comprehensive development of Egypt 2052, General Organization for Physical Planning, Ministry of Housing, Utilities and Urban Communities. Cairo, Egypt: 2014.
- [43] Al-Minshawi MO. Local Factors Affecting the Division of Egypt into Planning Regions. PhD Thesis. Al-Azhar University Faculty of Engineering, Urban Planning Department, 1987.
- [44] Tammam ZM. Urban Management According to Urban Development Strategy for Arab Republic of Egypt. PhD thesis. Al-Azhar University Faculty of Engineering, Urban Planning Department, 2010.
- [45] Abu Khatwa S. Developing the desert hinterland by dividing Egypt into planning regions. PhD Thesis. Al-Azhar University Faculty of Engineering, Urban Planning Department, 2012.
- [46] Moselhi FM. The Population Problem and the Future of Egypt at the Beginning of the Twenty-First Century. Cairo, Egypt: Dar Al-Majid for publication and distribution; 2010.
- [47] The National Strategic Plan for Urban Development and Priority Development Areas - Demarcation of Egypt into Development Regions, General Organization for Physical Planning, Ministry of Housing, Utilities and Urban Communities. Cairo, Egypt: 2013.
- [48] Abdel Maqsood F, Amer S. The foundations of division into planning regions, unpublished attempts 2004.
- [49] Al-Manis WA. Urban and Regional Planning. Kuwait: Kuwait University Publications; 1985.