



# The Impact of the Suez Canal on Egypt's Geography and Economy, 1867–2019 (150 Years Since Its Opening)

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**Abstract** We assume in this article that the geographical location and special international role of the Suez Canal had and still has great potential for strengthening the Egyptian economy in general and for the development of the Canal area in particular. On the 150th anniversary of the inauguration of the Suez Canal, the article attempts to see if the potential has materialized, at least in part. We find that, despite the very large gap discovered between expectations and reality, there are achievements to point to: The Canal is an unusually important source of income for Egypt, the construction of the Canal led to the establishment of three major cities, in the three Canal cities, new industrial areas have been established, accompanied by modern infrastructure, along the cities, modern bridges and tunnels have been built that effectively connect the West and East banks of the Canal, and Egypt has invested tremendous efforts in agricultural development of all periphery areas. The Canal area has received special treatment. There is a new five-year plan for the development of

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the area, a plan in which large investments are made in the area with high expectations.

**Keywords** Nile Valley · Fayum Depression · New Suez Canal · Urbanization

It was Herodotus, the Greek historian of the fifth century BC, who claimed that Egypt was the gift of the Nile and indeed, since the beginning of Egyptian history, more than 5000–6000 years ago, human settlement in Egypt took place near the Nile only. The Fayum Depression—an extensive area that developed west of the Nile Valley, is also, in fact, an extension of the valley, since it is lower than the Nile and water can be pumped to it using gravity alone. In order to leave the Nile Valley to the Sahara Plateaus it was necessary to bring up water from the Nile to higher areas, which was impossible before pumps were invented.

The construction of the Suez Canal in 1869 marked a change in the Egyptian settlement map, for the first time in thousands of years. Efforts have since continued to go beyond the Nile Valley and its delta into the desert, in a desperate attempt to catch up with Egypt's alimentary needs.

The completion of the Canal's construction, which took place little more than 150 years ago, was an event of international importance and even more, held great potential for the development of Egypt itself.

Large enterprises, both economic (such as refineries or steel mills) and cultural (such as the establishment of a special museum), attract a very large number of people—consumers and visitors. By this, these enterprises also become anchors for development and sometimes could even lead to the establishment of new cities.

The construction of the Suez Canal, which shortened the route between London and Bombay by 4450 km, was a mega-project and there were very high expectations that this enterprise would be followed by many additional projects.

To date, only some of these expectations have been fulfilled, and in this article, we will address the gap between expectations and reality.

## DEFINING THE SUEZ CANAL AREA

The Canal area includes three districts<sup>1</sup>:

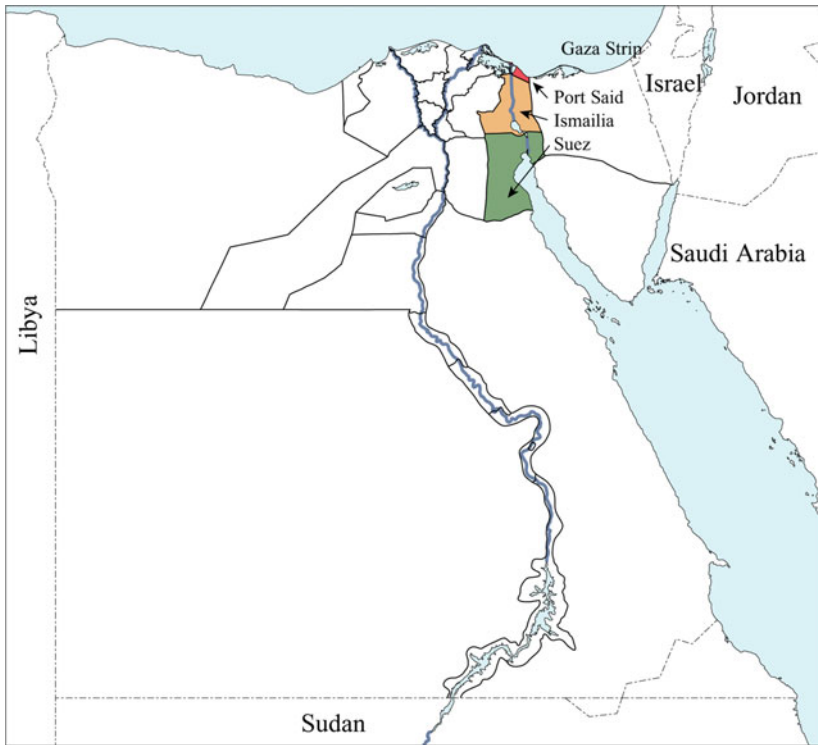
1. District 12: Ismailia District

The Ismailia region is a natural continuation of the Egyptian Delta through Wadi Tumilat which is an ancient tributary of the Nile that reached as far as the Sabkat al-Bardawil region of Sinai. The freshwater canal passes through this wadi, thus there is a high percentage of farmers in this area. In the other two districts of the Canal area there is almost no agricultural hinterland.

2. District 19: Port Said District

3. District 26: Suez District

It is important to note that these are not the cities of Ismailia, Port Said, and Suez but the districts at the center of which are these cities (Map 1).



**Map 1** Egypt—Administrative division, with emphasis on the Suez Canal area

### SUEZ CANAL—BASIC DATA (*SOURCE SCA*)

The purpose of constructing the Suez Canal was to shorten the route between Europe and India. Before the Canal was constructed, ships that left London on their way to Bombay were forced to circumnavigate South Africa and cross a 10,700 km route. The Canal's construction shortened the route to 6250 km. This means a shortening of the route by 4450 km.

In 1869, the year the Canal was completed, it was 195 km long, 7.5 m deep and 58 to 100 m wide. In 1995, the Canal was widened and deepened, and its dimensions reached a width of 286–300 m, its depth 25 m.

In 2015, a large project called the “New Suez Canal” was carried out, in which, in just one year, additional canals were dug (parallel to the original Canal) to shorten the waiting time for ships. In addition, the Canal was widened to 313 m, and deepened to 24 m, in several sections. The duration of the voyage through the Canal was shortened from 15 to 11 h. The waiting time was shortened from 8 to 3 h.

As a result of the development work, the number of ships capable of crossing the Canal per year has increased. Until 2015, about fifty ships a day could pass through the Canal. The Canal's capacity doubled to one hundred ships per day, at least in theory. The larger volume of ships crossing the Canal was planned to increase Egyptian revenues. In reality, as of 2019, Egypt's revenues from the Canal do not meet expectations. This is due to global problems and changes in the nature of goods.

Although the number of ships passing through the Canal is relatively small compared to previous years, the size of the ships is constantly increasing. For Egypt what matters is the amount of goods and the volume of ships passing through the Canal and not necessarily the number of ships. Following are some data for comparison (Table 1).

The nature of the goods has changed: Comparing the nature of the goods that passed through the Canal in the last decade (2010s) to the goods that passed through it in the 1960s, one finds that there was a dramatic decrease in the number of passengers, a moderate increase in the number of oil tankers, a marked increase in gas tankers and a dramatic increase in container carriers.

Egypt's revenues from the Canal have also changed. For example, in 2016, the Canal generated Egypt \$4.2 billion, which accounted for about 13.9% of the total revenues of Egyptian economy and about 25% of the total exports that year (which stood at \$23.3 billion). Egyptian imports

**Table 1** Passage of ships, goods, and the income from the Suez Canal, 1961–2018<sup>2</sup>

<i>Year</i>	<i>Number of ships passing through the Canal</i>	<i>Millions of tons of goods</i>	<i>Revenue (in billions of dollars)</i>
1961		55.50	
1997		296.00	
2004	12,000	702.00	2.5
2010	18,050	897.00	3.4
2016	17,200	987.00	4.2
2018		1140.00	9.0

The data for the years 2010–2016 indicate an increase in the amount of cargo while there was a decrease in the number of ships

that year stood at \$59.78 billion. Egypt was left with a deficit of \$34.48 billion that year.<sup>3</sup>

Egypt's greatest problem is the size of its population compared to its physical and human resources. In 2019, one hundred million people lived in Egypt, most of them poor. The primary cause for Egypt's inability to break out of the cycle of poverty is its constant need to provide its huge population with food and other basic needs at affordable prices. Thus, for example, although Egypt has quite fine wheat crops, it has in recent years become the world's largest wheat importer.

The cost of maintaining the Canal, including its development, is very high. Against this background, the profits from it should be carefully examined. In 2016, the profits from the Canal stood at \$4.2 billion, but the expenses for the development of the Canal that year stood at \$8 billion.<sup>4</sup>

Why did Egypt take such a dangerous expense, financially speaking? Opinions vary: some argue that the spending was outrageous while others argue that non-economic considerations such as the pride of a people and the prestige of leaders should also be taken into account. They also argue that under conditions of uncertainty, such as those existing in respect of the Canal, there is no choice but to take risks.

Below we will try to answer the following questions:

1. After 150 years of the Canal's existence, what is its contribution to urbanization, the population of the Canal area, and to the policy of dispersal of the population in Egypt in general?

2. How did the Canal affect the development of agriculture in the area?
3. What are the indirect consequences of the Suez Canal on the Egyptian economy?
4. What is Israel's connection to the Canal area (1948–2019)?

In replying to these questions, I will refer to Mayan Alony's article in *Horizons in Geography* 96 (2019) that refers to all four questions, however, it dealt with the whole of the Sinai Peninsula, and we refer only to the Canal districts, therefore there is a difference in the data.<sup>5</sup>

Alony describes in detail the planning and incentives to develop the whole of Sinai, following the IDF's withdrawal from there in 1982 and discusses the reason for the failure to implement the plans. When the explanations do not match, I will add my own data and explanations.

### THE CANAL'S CONTRIBUTION TO URBANIZATION, POPULATION AND DISPERSAL OF THE POPULATION IN EGYPT

At the time of writing this article, 2018, there were 99.4 million people in Egypt (a natural increase of 2.38% brought the population in 2019 to 100 million people) (Table 2).

In 2018, the residents of the Canal area constituted 2.7–2.8% of the total population of Egypt. In 2006 as well, the residents of the Canal area constituted 2.7% of the total population of Egypt indicating that there is no population growth in this area. Moreover, while the natural increase in the Canal cities is 2.38%, the urban growth rate in Canal cities stands only at 1.8%.<sup>7</sup>

This figure indicates an abandonment of the Canal area, and this fact is consistent with what is happening elsewhere in the world in the age of

**Table 2** Population of the Canal Area (2018)<sup>6</sup>

<i>District</i>	<i>Number of residents</i>	<i>Division between urban residents and farmers</i>
Port Said	749,000	737,000 in the city + 12,000 farmers
Suez	728,000	Overwhelming majority in the city + few farmers
Ismailia	1,325,000	601,000 (44%) in the city + 724,000 (56%) farmers
Total	2,832,000	

globalization and greedy economy. The population converges mainly to the big cities (such as Beijing, Paris, and in Israel—Tel Aviv) and abandons the periphery. Those leaving are mostly young people leaving an aging population in the periphery.

The Canal area employs 2.8% of all employed in Egypt (857,000 out of 29,953,000 in 2017). This figure corresponds with the percentage of the population in the Canal area, relative to the total Egyptian population. This is a disappointing situation, as this area has a very high potential for industrialization, both in traditional industries and in high-tech industries. The potential is not realized. The failure to realize the potential can also be seen in the unemployment figures: unemployment in the Canal area reaches about 12.2%, which is also the unemployment rate in the whole of Egypt.<sup>8</sup> At the end of 2019, many development works were carried out in the Canal area, including the establishment of new industries and this fact gives rise to cautious optimism concerning employment in the near future.

### THE CONTRIBUTION OF THE CANAL AREA TO EGYPTIAN AGRICULTURE DATA

In Egypt as a whole, agriculture contributes 11.7% of the total GDP of the country, but it is important to note that the rate of those employed in agriculture is 25.8% of all workers in the economy—a figure that characterizes third world countries.<sup>9</sup>

In order to compare the contribution of the Canal area to Egyptian agriculture we will select four main crops in Egypt and examine the contribution of the Canal area to each of these crops. The examination will be done by comparing the areas of these crops (in 2016) in the units of Feddan (1 Feddan = 4.2. Dunams) (Table 3).

Apparently, the contribution of agriculture of the Canal area to the Egyptian economy is small. In fact, agriculture in this area fails to meet even the needs of the local population.

The struggle to expand agricultural land in Egypt in general and in the Canal area in particular is ongoing. From a national point of view, the construction of the Canal and the establishment of the three Canal cities should be seen as a first and successful attempt to go beyond the Nile Valley into the desert. 150 years have passed since the Canal was constructed, and the map of the dispersal of the Egyptian population has indeed changed.

**Table 3** The contribution of agriculture to the Canal area<sup>10</sup>

<i>The Crop The Region</i>	<i>Rice (area in Feddan)</i>	<i>Sugar Cane (area in Feddan)</i>	<i>Cotton (area in Feddan)</i>	<i>Wheat (area in Feddan)</i>
<b>All of Egypt</b>	<b>1,353,377</b>	<b>325,912</b>	<b>131,750</b>	<b>3,353,151</b>
Port Said Region	21,051	0	346	10,267
Suez Region	0	0	0	4452
Ismailia Region	4651	0	454	44,525
<b>Total Canal Area</b>	<b>25,702</b>	<b>0</b>	<b>800</b>	<b>59,244</b>
Contribution of the Canal area in relation to the whole of Egypt	<b>1.8%</b>	<b>0%</b>	<b>0.6%</b>	<b>0.9%</b>

Today we have tools and technologies that make it possible to settle the desert: there are pumps, bulldozers, electricity, and so on. Despite this, the Egyptian government is finding it hard to attract population from the old areas toward the periphery.

Since the opening of the Canal, large enterprises in the field of agriculture have been established in Egypt with an emphasis on the prospering of the wilderness in the periphery. There are such enterprises on both sides of the Nile Valley. East of the Nile Valley there was a plan to add 3.1 million dunams to the agricultural area and west of the Nile Valley there was talk of adding 900,000 dunams.

The area at the center of our discussion is the area east of the Nile Delta. There is a plan for a total addition of 4.5 million dunams of agriculture. There is also a tourism development plan along the shores of the Mediterranean to Libya and it also includes the beaches of Nuweiba in Sinai and some of the beaches of the Red Sea. The tourism development plan speaks of a development that includes about 10 million dunams.

According to development plans for the Sinai Peninsula from 2005 and even earlier, the goal was to make prosper about 411,000 feddan (= 1.6 million dunams). According to the plan, a project was carried out in Sinai to transport water to El Arish in a 90 km long canal (the "Peace Canal"). The water enters the canal from the Damietta (the eastern tributary of the Nile). The project was indeed completed and water began to flow but was suspended due to climate change and domestic and international politics.



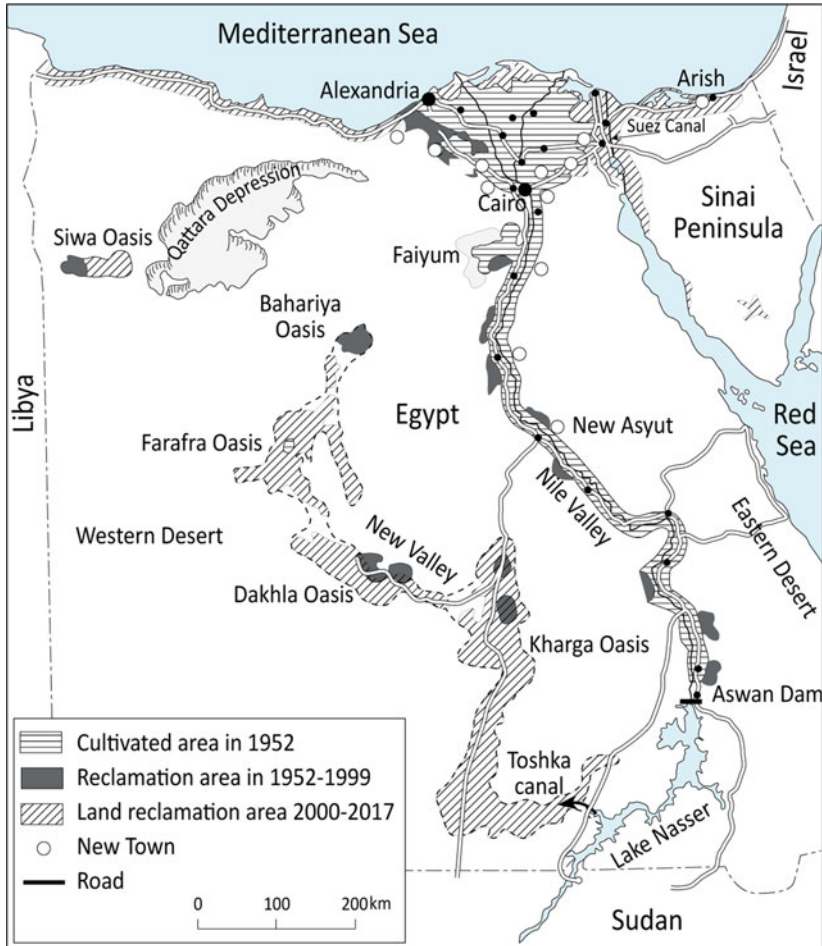
The biggest of the Egyptian development plans is the plan to revive the “New Valley.” This refers to a series of large soil depressions located in the desert west of the Nile Valley. One of these depressions is the Tushka Depression that covers an area of 3.3 million dunams and the Tushka plan speaks of its irrigation using the Nile water (but in reality, there is no water for this plan). Another depression is the Farafra Depression that covers an area of 5.2 million dunams and is partially irrigated by groundwater (Maps 2 and 3).

Two comments are in place:

- a. The development data presented above are official data of the Egyptian government. However, not all researchers accept them. This is because over the years all Egyptian development plans went wrong time and time again until it is difficult to know what was actually done and what remained only as an idea or as a plan or as an attempt to cover up failure.<sup>11</sup>
- b. Some scholars even talk about the loss of new lands in alarming proportions.<sup>12</sup> Reasons for this include severe water shortages (which is not exclusively an Egyptian problem), non-functioning bureaucracy, land erosion due to unprofessional manpower as well as extensive urban construction on land, new as well as old (Map 4).<sup>13</sup>

According to the above calculations, the total cultivated area in the Canal districts in 1973 was 1.7 million dunams (405,000 feddan). And in 2019 the total cultivated area in the Canal areas was 6.2 million dunams (1,400,000 feddan). According to this comparison, the area currently cultivated in the Canal area is at least 265% larger compared to the area cultivated there in 1973. This is a positive state of affairs compared to what is happening in Tushka, in northern Sinai and in other areas in Egypt. Today the entire region is flourishing and is an important source of livelihood for thousands of Egyptians.

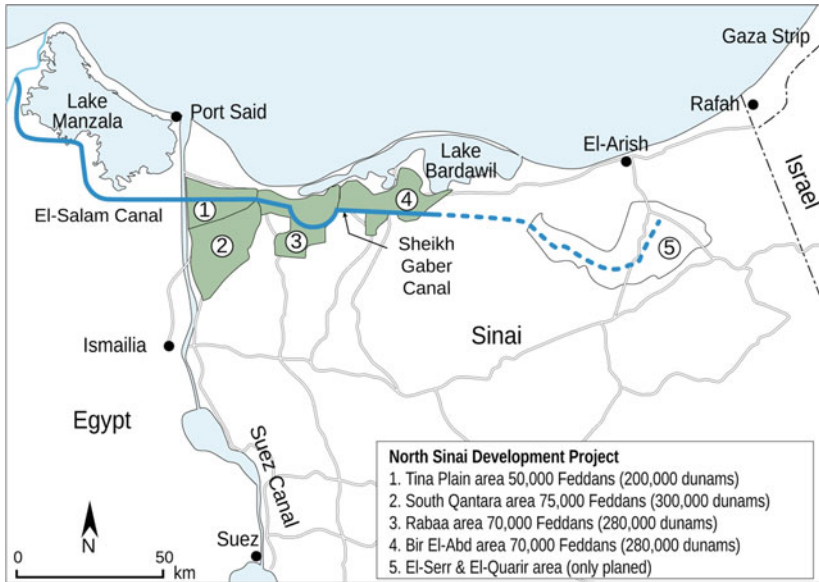
Despite all the delays we have enumerated thus far, Egypt has managed to collect fragments of successes and accomplished achievements in going beyond the Nile Valley into the desert. The agricultural area on both sides of the Suez Canal is encouraging evidence for the future.



**Map 2** Plans for the expansion of the agricultural areas and the new cities in Egypt 1902–2017 (From Soffer and Borkowski [2014](#))

## INDIRECT IMPLICATIONS OF THE SUEZ CANAL FOR EGYPT'S ECONOMY AND SECURITY

We noted in the introduction that the Suez Canal provides a very significant contribution to improving the country's commercial balance sheet.

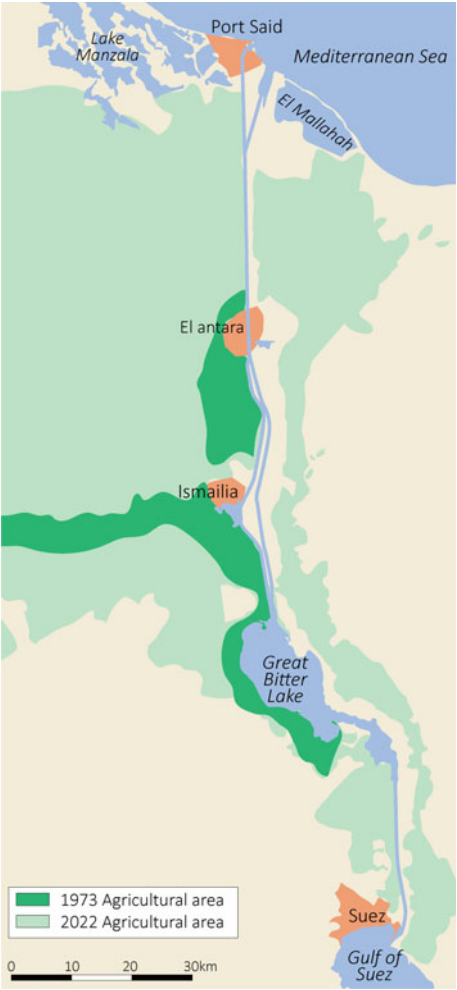


**Map 3** The Peace Canal for the development of North Sinai with emphasis on the Western section near the Suez Canal—a suspended enterprise (Soffer and Borkowski 2014)

The profits of the Canal are identical to the profits from tourism and constituted, at least in the years 2010–2019, about a quarter of all Egyptian exports. There are additional implications of the Canal, listed below.

Simultaneously with the construction of the Suez Canal they also began to dig a freshwater canal that would lead drinking water to the hundreds and thousands of workers employed in the construction of the Suez Canal. This freshwater canal later became a lever for the development of agriculture in the area. Near the Suez Canal and the freshwater canal, three new cities have been established in the adjacent desert area. These cities began to take in workforce for the operation of the ports and the Canal. The expectation was that qualified manpower would arrive in the area that would staff thousands of jobs, both in the municipal services and in the establishment of new industrial areas at such an important international junction.

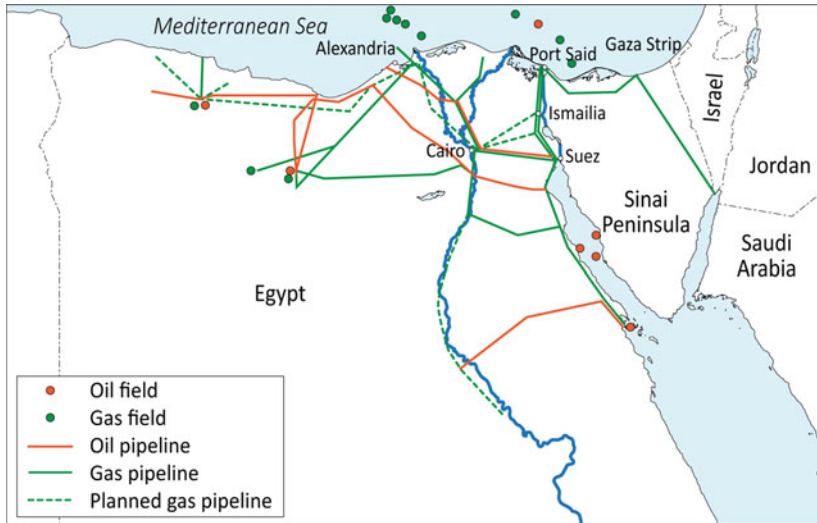
**Map 4**    Green areas in the Suez Canal area in 1973 (Mapping by the author, 1973)



To this one must add the indirect implications the Canal has on the Egyptian economy and security:

- a. On both sides of the Suez Canal there are now green agricultural areas.

- b. From Port Said in the north to the city of Suez in the south industrial areas have been established and are still being established. These industrial areas, located east of the Canal, are connected to the west of the Canal by ferries and mainly by modern bridges and tunnels.<sup>14</sup>
- c. The Suez Canal created a very important bridge between the north and the south, but not only. Indirectly, it also created a west–east bridge that Egypt has been missing since the dawn of its history. The Canal area is the logistical base for the cities that attract tourists to the desert—Hurghada, Sharm al-Sheikh, and Nuweiba. This new bridge has turned the whole of southern Sinai into an important international tourist center.
- d. The city of Suez is extremely important to the Egyptian energy economy and has become the fuel center of Egypt (see Map 5). Suez produces 23% of Egypt's total energy. It serves as a base for everything done in most areas of energy and houses a number of refineries. Gas and oil are drained to Suez from Sinai and the Red Sea and from there they are transported, through a serious transportation system, to Cairo and the rest of the country and even if there are surpluses for export.
- e. During the British Mandate, many British military forces were deployed to the area of the Canal. Since 1956, thousands of Egyptian soldiers have arrived there. For the needs of the military forces, many bases were built in the area and to this day the Canal area serves as Egypt's largest military base.



**Map 5** Location of the city of Suez in the oil and gas transportation system in Egypt (Soffer and Borkowski 2014)

### WHAT IS ISRAEL'S CONNECTION TO THE CANAL AREA?

On security grounds, the Suez Canal is important for both Egypt and Israel. For Egypt it is important as a barrier against invasion from the northeast and for Israel it is important as a barrier against an Egyptian invasion. It is these concerns that have led the demilitarization of the Sinai Peninsula a central basis for the peace treaty between Israel and Egypt.

Twice Israel reached the banks of the Suez Canal: the first time in the 1956 Sinai War and the second time from the 1967 Six Day War to the evacuation of Sinai in 1982 following the signing of the peace treaty with Egypt. Today, more than ever, it is clear that maintaining the demilitarization of the Sinai Peninsula is essential to maintaining the cold and fragile peace between Israel and Egypt.

As of 2020, Israel and Egypt experience cold, sometimes tense peace relationship. However, there are diverse collaborations between them as the two countries wish to expand the peace treaty between them for their own interests in the areas of security, the war on terror, preserving freedom of navigation in the region and more.<sup>15</sup>

Israel also invests considerable efforts in the development of common industrial zones in the Canal area (Qualifying Industrial Zones—QIZ). The more money is invested in Sinai and the Canal area, the greater the Egyptian interest in maintaining the region's stability and improving relations with Israel.<sup>16</sup>

Israel and Egypt also have a common interest in environmental issues, since environmental damage does not recognize political boundaries. The widening of the Suez Canal caused great damage to the shores of Israel and to the shores of the Mediterranean in general. These are added to the extensive damage that the Aswan Dam has brought, earlier, to the entire eastern basin of the Mediterranean.<sup>17</sup>

## CONCLUSION

The assumption of this article is that the geographical location and special international role of the Suez Canal had and still has great potential for strengthening the Egyptian economy in general and for the development of the Canal area in particular. On the 150th anniversary of the inauguration of the Suez Canal, I attempted to see if the potential has materialized, at least in part. My conclusion is that, despite the very large gap discovered between expectations and reality, there are achievements to point to:

- There is no doubt that the Canal is an unusually important source of income for Egypt.
- The construction of the Canal led to the establishment of three major cities.
- In the three Canal cities, new industrial areas have been established, accompanied by modern infrastructure.
- Along the cities, modern bridges and tunnels have been built that effectively connect the west and east banks of the Canal.
- Egypt has invested tremendous efforts in agricultural development of all periphery areas. The Canal area receives special treatment. There is a new five-year plan for the development of the area, a plan in which large investments are made in the area with high expectations.

However, the efforts to disperse the population did not bear fruit. The situation is similar to what is happening in other countries around the

world. All of them have difficulty bringing population from the cities to the agricultural areas. The process is usually in the opposite direction: the cities (especially the main ones) are growing and prospering, while the periphery is dwindling. The proportion of the population in the Canal area does not exceed 2.8% of Egypt's population. This is also the proportion of agricultural land in the area out of the total Egyptian agricultural land. The dimensions of the failure are evident throughout Sinai.<sup>18</sup>

The dwindling of the periphery has many causes: the droughts and climate changes that occur in the Nile Basin, as well as in many other regions of the world, result in a reduction in water volumes and severe damage to the sensitive fabric of life of the Nile and its surroundings. The rapid population growth is, in turn, burdening the carrying capacity of the area. As a result, most development programs in Egypt have been halted or slowed down greatly.

Despite the difficulties in dispersing the population, it is important to note that the Canal area was and is a pioneer in bringing out a relatively large population from the Nile Valley to the periphery. This was the first case of an Egyptian exodus out into the desert far from the Nile Valley (from about 150 km to about 250 km out of the Valley), beyond the old population map that included only the Nile Valley and its delta. The transport of fresh water on such a scale has not happened in Egypt before. In the introduction to this article, I posed the question: Does the importance of the Canal to the Egyptian economy really meet the expectations that were placed on it?

After examining the Canal's contribution in a number of parameters such as contribution to budget, industry, tourism, construction, and agricultural and industrial development in the present and future—the conclusion is clear: the Canal has a significant contribution to the Egyptian economy and although to date not all expectations have been met, the plans (and especially the current ones) leave great hope for their realization.

## NOTES

1. Egypt's Statistical Yearbook by the Central Agency for Public Mobilization and Statistics (CAMPASA), <https://www.capmas.gov.eg/HomePage.aspx>. See also Map 1.
2. CAMPAS 2018, SCA.
3. CAMPAS 2016, Balance of payments.



4. SCA, CAMPAS 2016.
5. Mayan Alony, "The Development of the Sinai Peninsula during the Years 1982–2011: Plans and Implementations," *Horizons in Geography* 96 (2019): 223–250 (Hebrew).
6. CAMPAS 2018.
7. CAMPAS 2018, Demography.
8. CAMPAS 2018, Employment.
9. CAMPAS 2018, agriculture.
10. CAMPAS 2018, agriculture.
11. Soffer (2006, p. 39). On this matter, see also 'Water Profile of Egypt' Kundell, J. (2010) which also notes the large discrepancy between what was planned and what was actually done.
12. Hanna and Abdel-Ghani Osman (1995).
13. Given the great ambiguity regarding the data published in Egypt, I will use in this article the 1973 data which I compute from Maps 4 and 5, and compare to the 2019 data collected from Google Earth. The data in this article contradicts the data presented in Alony's article.
14. Gal (2015) and Winter (2019).
15. Soffer and Borkowski (2013, 2014) and Soffer (2014).
16. Ministry of Foreign Affairs, Israel (2006), Ministry of Industry, Trade and Labor (2011), Elnatan (2018), and Alony (2019).
17. Soffer (1999, 2006).
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