THE SUEZ CANAL
GLOBAL POWERS
LOCAL CONSEQUENCE


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Shortest sea route between the Atlantic and Indian ocean via the Red Sea
Cutting a 24-day transit time to just 16 hours
One of the most heavily used ocean lanes, with more than 100 ship passes daily
The canal is so narrow that it cannot regulate two-way traffic
Wait-time of vessels can be up to a week

see https://www.container-xchange.com/blog/shipping-routes/
EGYPT
94% DESERT
6% ARABLE LAND
HOUSING 95% OF POPULATION

Solar Radiation kWh/m²/day

Mean Annual Rainfall

Potential Evapotranspiration

Köppen-Geiger climate classification map for Egypt (1980-2016)

Photos: NASA
Egypt's fast-growing population has hit 100 million, its statistics agency said on Tuesday, presenting a pressing problem for an already overburdened country with limited resources.

The figure is an increase of 7 million since the publication of the last census results in 2017. Egypt's population has tripled since 1960, with the annual growth rate peaking in 1987 at nearly 2.8 percent.

The North African country retains its position as the most populous Arab nation and Africa's third most populous country behind Ethiopia and Nigeria. (...) A baby is born in Egypt roughly every 17.9 seconds, the statistics body calculated.

Prime Minister Mostafa Madbouly told a cabinet meeting last week that "population growth is the single largest challenge facing the state ... and affects national security".

The vast majority of the country's population is crammed in urban areas around the Nile, some 7 percent of Egypt's territory. The lifeline, which Egypt shares with Sudan and Ethiopia, critically provides around 97 percent of Egypt's water needs.

Young population: As with the majority of Arab countries, Egypt has a youthful population with just over 60 percent under the age of 30.

Around 10 million Egyptians live overseas, most of them in the Gulf in search of better economic opportunities. Their remittances have become an important source of income for Egypt.

Nearly a third of Egyptians live below the poverty line, according to CAPMAS figures released last year.

The unemployment rate is hovering around 10 percent, with millions leading precarious lives often without social protection in the informal economy.

source: news agencies
WATER SCARCITY

Water challenges in Egypt result from the limitation of water resources, high losses from agricultural and domestic sectors, high population growth and increasing demands, climate change uncertainties, construction of dams on the Nile tributaries, inequitable water access, and the insufficiency of financial resources.

Egypt’s annual water supply dropped to an average of 663 cubic metres per person in 2013, down from over 2,500 cubic metres in 1947. Egypt is already below the United Nations water poverty threshold, and by 2025 the UN predicts it will be approaching a state of “absolute water crisis” with a predicted annual quota dwindling to 582 cubic meters per person.


As Egypt faces a decrease in its water share as a result of the Grand Renaissance Dam construction in Ethiopia, parliament is now focusing on reducing the domestic use of water through laws and awareness campaigns.

https://www.al-monitor.com/pulse/originals/2020/03/renaissance-dam-effects-egypt-water-rationalization-use.html
Rising sea levels and land reclamation: Cornelia Redeker, Hassan El Ghayesh adapted by Eman Farouk
Beginning in late-1861, tens of thousands of peasants used picks and shovels to dig the early portions of the canal by hand. Progress was painfully slow, and the project hit a snag after Egyptian ruler Ismail Pasha abruptly banned the use of forced labor in 1863. The canal was first dug manually by forced labor. Faced with a critical shortage of workers, Lesseps and the Suez Canal Company changed their strategy and began using several hundred custom-made steam- and coal-powered shovels and dredgers to dig the canal enabling rapid progress during the last two years of construction. Of the 75 million cubic meters of sand eventually moved during the construction of the main canal, some three-fourths of it was handled by heavy machinery.

2023 PLANNED EXPANSION
The SCA announced accelerated plans to extend a second channel of the canal and to enlarge an existing channel after the Ever Given container ship ran aground and blocked the waterway for six days last year. “The project will be completed in 24 months. We started in July 2021 and God willing we will finish in July 2023,” Chairman Osama Rabie said on the sidelines of an event in Dubai. Reuters January 16, 202212:21 PM

2015 BYPASS
For years the canal was hampered by its narrow width and shallow depth, which were insufficient to accommodate two-way traffic from modern tanker ships. In August 2014, Egypt’s Suez Canal Authority announced an ambitious plan to deepen the canal and create a new 22-mile lane branching off the main channel. The expansion opened in 2015. The improvements, however, were not enough to prevent a 1,300-foot container ship from becoming wedged—and stuck—in the canal as it traveled from China in March 2021. The ship blocked more than 100 ships at each end of the vital shipping artery for nearly a week, causing major disruptions to global commerce.

1967 6-DAY WAR
During June 1967’s Six Day War between Egypt and Israel, the Suez Canal was shut down by the Egyptian government and blocked on either side by mines and scuttled ships. At the time of the closure, 15 international shipping vessels were moored at the canal’s midpoint at the Great Bitter Lake. They would remain stranded in the waterway for eight years.

1956 SUEZ CRISIS
In what became known as the Suez Crisis, a combined British, Israeli and French force launched an attack on Egypt in October 1956. The Europeans succeeded in advancing close to the canal, but later withdrew from Egypt in disgrace following condemnation from the United States and the threat of nuclear retaliation from the Soviet Union. The Suez Canal was left under Egyptian control previously under the control of a Franco-British company. The Suez Canal Zone was restored to Egyptian sovereignty, following British withdrawal of about 90,000 troops and years of negotiations.

BANKRUPCY / TAKEOVER BY BRITISH
British Empire continued to criticize the canal during its construction, but it later bought a 44 percent stake in the waterway after the cash-strapped Egyptian government auctioned off its shares in 1875.

CONSTRUCTION OF SUEZ CANAL FERDINAND LESEPS
After conquering Egypt in 1798, Napoleon Bonaparte sent a team of surveyors to investigate the feasibility of cutting the Isthmus of Suez incorrectly concluding that the Red Sea was at least 30 feet higher than the Mediterranean. Any attempt to create a canal, they warned, could result in catastrophic flooding across the Nile Delta. Until 1847, when a team of researchers finally confirmed that there was no serious difference in altitude between the Mediterranean and Red Seas.

PHARAONIC LINK BETWEEN RED SEA AND NILE
Egyptian Pharaoh Senusret III may have built an early canal connecting the Red Sea and the Nile River around 1850 B.C., and according to ancient sources, the Pharaoh Necho II and the Persian conqueror Darius both began and then abandoned work on a similar project. The canal was supposedly finished in the 3rd century B.C. during the Ptolemaic Dynasty.

MILITARY SAFETY ZONE
February 22, 2019

The four new vehicle tunnels — two of them are north of Ismailia and the others are south of Port Said — are set to open in March or April, Ahmed El Abd, board chairman of Egypt's Concord for Engineering and Contracting, which is in charge of constructing the north Ismailia tunnels, told local media on Nov. 24, 2018. Building the four tunnels is part of the Suez Canal Area Development Project, which was launched in August 2014 by President Abdel Fattah al-Sisi. The project aims at transforming the Suez Canal from being a mere waterway to an integrated development zone that includes commercial, industrial, logistic and residential areas, which contribute to supporting the Egyptian economy.

Sisi launched the next stage of the new megaproject in November 2015, again closely following the development plan that the MOD had imposed on the Morsi administration in May 2013. Focusing on the area east of Port Said at the northern end of the canal, it envisaged a new seaport, industrial area, logistics hub, and 10,000 housing units, as well as a fish farm and tunnels running under the Suez Canal. The area was envisaged as an industrial and logistical hub that would attract some $40 billion in international investment, with then minister of investment Ashraf Salman expecting it eventually to account for one-third of Egypt's economy. By December 2018, Mamish claimed that $30 billion had been invested since 2015 in what he proudly described as a "genius site on the global investment map," 75 percent of which came from foreign investors led by China. (Chinese companies may be attracted by Egypt's free-trade agreement with the United States, which offers them a means of exporting their goods from qualifying industrial zones to the United States under a "made in Egypt" label.)
PORT SAID ARCHITECTURAL HERITAGE

https://rawi-publishing.com/articles/portsaidverandas/
1956 GAMAL ABDEL NASSER

1975 ANWAR SADAT

1869 ISMAEL PASHA, NAPOLEON BONAPARTE III, PRINCESS EUGENIE

2015 ABDELFATAH EL SISI

https://decemus.livejournal.com/9577.html
https://www.sis.gov.eg/Story/116049/New-Suez-Canal-anniversary-?lang=en-us
For four decades the new cities programme has remained the only vehicle for Egypt’s urban development. Today there are 22 built or part-built Egyptian new cities – and the New Urban Communities Authority (NUCA) has plans for 19 more. Around 7 million people now call these new cities home. It is arguably the most ambitious new cities programme the world has ever seen – a dream of bustling cities in an almost lunar desert landscape that outstrips the visions of even China and India.

https://www.theguardian.com/cities/2019/jul/10/new-cities-in-the-sand-inside-egypts-dream-to-conquer-the-desert?utm_term=RWRpdG9yaWFsX1RoZUNp-tdHlY2FwZ2luOC1hbGlmaWVyLXNpZ2UvWer2L2FwYWFsLWRpdG9yaWFsLWhlY2F0aW9uL1RoZUNnY3NvdW50L3JpZC5qcG9ydFwvb3JpZ2UvL2JlY2lvdXRcLW1haWwtdXNlcmlzLmpwZw%3D&utm_source=esp&utm_medium=Email&utm_campaign=TheCityscape&CMP=cityscape_email

This article is an edited extract from To Build a City in Africa: a History and a Manual by Rachel Keeton and Michelle Provoost, published by NAi010 and the International New Town Institute (INTI)
New Cairo Capital
Area: 78,400 Hectare
Distance from centre of Cairo: 35 KM
Raphael Chipault, Benjamin Soligny (second half of the 19th century) Engraving an air view from the Red Sea, with the Bitter Lakes and Lake Timsah, to the Mediterranean coast.
LAKE MANZALA

Mohamed E El Raey (1999). Geomorphological map of the north-eastern part of the Nile delta, showing the mouth of the Nile Damietta Branch, spit and Manzala lagoon. in: Vulnerability Assessment of Sea Level Rise Over Port Said Governorate, Egypt
LAKE MANZALÁ

Lake Manzala is long but quite shallow. Though Lake Manzala’s unaltered depth is only four to five feet, alterations to the depth were made during the construction of the Suez Canal to allow the Canal to extend 29 miles lengthwise along the lake. Its bed is soft clay.[Rogers, J. R. and G. Owen (2004). Water Resources and Environmental History. ASCE Publications. p. 124. ISBN 978-0-7844-0738-7.] Before construction of the Suez Canal, Lake Manzala was separated from the Mediterranean Sea by a strip of sand 200 to 300 yards wide. Port Said was established adjacent to Lake Manzala during the nineteenth century to support canal construction and related travel. The lake’s location directly south of the Port Said Airport restricts the city’s capacity for growth.[Melady, J. (2006). Pearson’s prize: Canada and the Suez Crisis. Toronto, Lancaster, New York: Dundurn Press Ltd. p. 207. ISBN 978-1-55002-611-5.] Lake Manzala is the northernmost of three natural lakes intersected by the Suez Canal, the other two being Lake Timsah and the Great Bitter Lake. Construction of the canal proceeded from north to south, reaching Manzala first. Due to the lake’s shallowness, it was necessary to dig a banked channel for ships to pass. Fishermen at Lake Manzala Lake Manzala served as a significant source of inexpensive fish for human consumption in Egypt, but pollution and lake drainage have reduced the lake’s productivity. In 1985, the lakes fishery was an open area of 89,000 ha and employed roughly 17,000 workers.[1] The government of Egypt drained substantial portions of the lake in an effort to convert its rich Nile deposits to farmland. The project was unprofitable: crops did not grow well in the salty soil and the value of resulting produce was less than the market value of the fish that the reclaimed land had formerly yielded. By 2001, Lake Manzala had lost approximately 80 percent of its former area through the effects of drainage efforts.[7]
GREAT BITTER LAKE
GREAT BITTER LAKE AND THE SIX-DAY WAR
GREAT BITTER LAKE ASSOCIATION 1967-1974
INVASIVE SPECIES

(...) Of nearly 700 multicellular non-indigenous species (NIS) currently recognized from the Mediterranean Sea, fully half were introduced through the Suez Canal since 1869 (Galil et al. 2014). This is one of the most potent mechanisms and corridors for invasions by marine species known in the world. Further, molecular methods demonstrate high levels of gene flow between the Red Sea and the Mediterranean populations (Golani and Ritte 1999; Hassan et al. 2003; Bariche and Bernardi 2009). Most of the NIS introduced via the Suez Canal have established thriving populations along the Levant, from Libya to Greece, and several spread in the Western Mediterranean. The individual and cumulative impacts of these NIS adversely affect the conservation status of particular species and critical habitats, as well as the structure and function of ecosystems and the availability of natural resources.

https://link.springer.com/article/10.1007/s10530-014-0778-y
72 km total: 35 km parallel channel / 37 km expansion of current canal
DEVELOPMENT OF CROSS-SECTIONAL AREA 1956-2010

Max Loaded Ship

35 ft
30 000 DWT

53 ft
150 000 DWT

62 ft
210 000 DWT

66 ft
240 000 DWT

Cross Sectional Area

1956
1200 m²

1960
3600 m²

2001
4800 m²

2010
5200 m²

Side Gradient is 4:1 in the north and 3:1 in the south

https://www.suezcanal.gov.eg/English/About/SuezCanal/Pages/CanalCharacteristics.aspx
2015 BYPASS

Allows two-way traffic for 45 miles of the canal’s 120-mile length, creating room for more ships, and potentially more revenue (…). The project has been warmly received by many Egyptians, who contributed 80% of the 64bn Egyptian pounds (£5.6bn) raised to build the new canal, after the government promised them a 12% annual yield on their investment.

https://www.theguardian.com/world/2014/nov/30/suez-canal-scheme-threatens-mediterranean-ecosystem-economic-activity
Built in one year instead of three without according engineering, economic and environmental studies costs more than doubled from 4 to 8.5 billion USD
see Carnegie Middle East Center (2019). A Military Unbound: Transformation in the Sis era
Egypt's Suez Canal revenue hits $7 billion record peak

Reuters
Thousands of Egyptians evicted without compensation for Suez project
Inhabitants of two villages, Abtal and Qantara, a few hundred metres east of the existing channel, say they are the bypass's first victims: 1,500 homes have been destroyed and 5,000 are under threat to make way for bypass.

Wind appears to be the main culprit for the grounding of the ship, however, with the sandstorm’s strong and variable winds making it more difficult to navigate the passage. For now at least, it’s speculative whether climate change may have increased the odds of the strong wind event on March 23. However, the large-scale weather pattern responsible for the sandstorm was quite extreme, and climate change could have contributed to make this event more extreme. Observations of the upper-level air patterns at 500 millibars (about 18,000 feet) on that date showed a very amplified and wavy jet stream pattern, with a strong ridge of high pressure over the Middle East and a strong trough of low pressure just to its west over the central Mediterranean Sea. Both features were about two standard deviations from the mean.

Jeff Masters, Yale Climate Connections

https://yaleclimateconnections.org/2021/03/suez-canal-shutdown-shows-vulnerability-of-global-economy-to-extreme-events/
From the Aesthetic to the Productive

AESTHETIC

PRODUCTION

LANDSCAPING EGYPT

From the Aesthetic to the Productive

AESTHETIC

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