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The Options for a Commercial International Port in the Gaza Strip: A Historical Perspective

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The construction of a port for the Gaza Strip has been under discussion for close to 30 years. It includes complex issues and in particular Israeli security inspections in order to prevent the acquisition of weapons by Hamas as opposed to the economic needs of close to two million residents in Gaza, in addition to the fact the existence of a port that ships from all over the world will visit will be a sign of Palestinian national sovereignty.

The goal of this chapter is to provide a historic and geographic review of the various alternatives that have been put forward for the construction of a port in Gaza and other options that are specifically designed for the Gaza Strip. The chapter is politically neutral, and its goal is to factually describe the options, although it appears that the option eventually chosen will be part of a broader arrangement between Israel and the Palestinians and will not stand alone.

Introduction

From a historical perspective, the question of building a port in Gaza first arose in 1993 with the signing of the 'Oslo accords'. As part of the accords, the foundations were laid for agreements with the Palestinian Authority (PA) to evaluate the possibility of building a port in Gaza. The issue became even more relevant with the Disengagement from the Gaza Strip in 2005,² which was meant to end Israel's relationship with Gaza and its responsibility for Gaza's citizens. Nonetheless, and for understandable security reasons, Israel continued its supervision of trade (primarily imports) between Gaza, Israel, the West bank and other countries.

According to the Paris Accord, which was the economic appendix attached to the Oslo agreements that defines the bilateral economic and commercial relationship, Israel and the PA are considered to be a "single tariff envelope". In other words, processes to do with international trade, such as tariffs, regulation, etc., take place only on the entry of the goods into Israel while the conveyance of the goods between

1 This chapter is based on a paper written in 2015 as part of my studies at the National Security College.

2 The Israeli disengagement from Gaza was the unilateral dismantling in 2005 of the 21 Israeli settlements in the Gaza Strip and the evacuation of the settlers and Israeli army from inside the Gaza Strip.

Israel and the PA is not defined as international trade. This situation was maintained, at least officially, also after the Disengagement.

Following the Oslo accords, a Dutch- French consortium consisting of the Dutch company Ballast- Nedam and the French company Spie- Batignolles began the planning of a port in the Gaza Strip in the 1990s and later on even began building it. During this process, disagreements arose as to the way in which Israel would inspect the goods and equipment arriving in the port in order to prevent the smuggling of weapons. In September 2000, a short time after work was started, the Second 'Intifada' broke out. After the "lynch" in Ramallah,³ the IDF bombed the port infrastructure that had been constructed, as well as the airport, and during the ensuing 20 years until today construction has not been resumed.

It is also worth mentioning the work of three academics: Professor Zeev Hirsh, Shauli Katznelson and David Sasson, who wrote a policy paper that included several alternatives for the construction of a port in the Gaza Strip.⁴ They sought to demonstrate the advantages of a port in Gaza from the perspective of flexibility and the conveyance of goods to the South of the State of Israel, to the West Bank and even to Jordan, and that the port could serve as a catalyst for the building of roads, railways and other types of infrastructure. The policy paper outlined a 30-year plan that included, among other things, the building of a main road connecting Gaza to Amman. Naturally, and as in the case of any port, their concept would lead to employment solutions for the local population and the creation of job training programs for port-related occupations, such as logistics, freight-forwarding, crane operation, etc. Hirsh felt that the economics of the project would accelerate geopolitical processes and therefore he went beyond the construction of a port by also suggesting the establishment of a free trade zone that together with the port and the accompanying logistic facilities would be a positive factor in the achievement of peace.

After Israel withdrew from Gaza as part of the Disengagement in 2005, the Palestinian Port Authority submitted a proposal to build a port in the Gaza Strip based on the previous plan, namely a port located in the northern part of the Gaza strip. The proposal was submitted by the engineer Kaled Abu Gumiza.

3 During the "lynch" in Ramallah on October 12th, 2000, two IDF reserve soldiers were attacked and killed by a Palestinian mob.

4 Zeev Hirsch, Shauli Katznelson and David Sasson, A Free Economic Zone and Port for the Gaza Region. The Hammer Fund for Economic Cooperation in the Middle East, Tel Aviv University, 1991.

Following Operation 'Cast Lead' in late 2014, the issue of a port in Gaza again made the headlines as part of a possible agreement with the Palestinians. The agreement by Israel for the construction of a port in Gaza in the reality that followed Operation Cast Lead was interpreted as an unprecedented achievement for Hamas. Avigdor Lieberman, who was Foreign Minister at the time, attacked the Hamas by claiming that the organization is seeking political gain by means of terror.

As we are about to enter 2021, there is still no change in the Israeli position with regard to the construction of a commercial port on the coast of the Gaza Strip. There is a full sea blockade on the Gaza Strip, which means closure of Gaza's coast by the Israeli navy and preventing the arrival of ships to the Gaza Strip. Nonetheless, from 2015 until 2020 Israel gave serious consideration to a number of options that could open the door to international trade to and from the Gaza Strip, while at the same time they do not force Israel to put aside any of its conditions for full security and for the prevention of use of any future port by Hamas for an arms buildup.

Accordingly, I will review the various ways to approach the idea of a commercial international port in the Gaza Strip, as they have been presented over the years.

First option: The status quo – the Port of Ashdod

This option is the current situation, as it has existed since the Disengagement from Gaza. The arrival of sea freight to the Gaza Strip currently passes through the Port of Ashdod. About 4 percent of the goods arriving in the Port of Ashdod are destined for Gaza. This involves traffic of equivalent of about 3,000 containers per year (according to data of the Israeli Shipping Bureau for 2014; the quantity of goods arriving by sea for the Gaza Strip has remained virtually unchanged for the past five years⁵).

Most of the goods are unloaded at the Port of Ashdod. They undergo several security and industrial inspections and then make their way overland to the Gaza Strip. It is prohibited by Israel for cargo containers to enter Gaza and therefore the goods arriving at the Port of Ashdod are unloaded and then transferred onto trucks of one configuration or another. The goods pass through two conveyance systems, one Israeli and one Palestinian (within the Gaza Strip) and the interface between them is the Kerem Shalom crossing.

It is worthwhile describing the current reality by way of the "story" of a container's journey from the moment that it is ordered by a Palestinian businessman until it arrives at its destination in Gaza.

5 Interview with a senior official of the Port of Ashdod in 2020.

The journey of a container:

In a meeting at the Gaza Coordination and Liaison center at the 'Erez Crossing', I heard about the "journey" of a Palestinian import container headed for the Gaza Strip from the Port of Ashdod that contained a shipment of fertile eggs.⁶

The Palestinian businessman travels to Spain and locates a chicken farm in order to import fertilized eggs. He does this after comparing the cost of importing them from Turkey, Italy, the US and Germany and decides to import the eggs (based on their cost) from Spain. The Palestinian businessman is dependent on an import permit from the Veterinary Service in Israel. On the assumption that he obtains the relevant permit, he arranges sea transport from Spain to Ashdod. When it arrives at the Port of Ashdod, it is unloaded into the bonded warehouse. An Israeli veterinarian inspects the shipment's documents, physically checks the eggs unloaded from the container and approves them. Now, the eggs have to be reloaded by means of a forklift onto trucks, which involves a fee paid to the Port of Ashdod for port services. The goods are loaded onto the Israeli truck at a cost of at least NIS 5,000 (this is a specialized truck – it is closed and refrigerated).

The truck makes the trip from Ashdod to the 'Kerem Shalom' crossing in about two hours. This is the only crossing for goods into Gaza. Now the goods will wait for between one and four hours. Sometimes the goods may not enter Gaza on the same day. When its turn comes, the goods are unloaded from the truck and eggs go through a security and veterinarian inspection.

At this stage, what is called a "sterile" truck arrives to take the goods from Israeli territory into Palestinian territory. The sterile zone is secured by the IDF. After the sterile truck gets to the other side—the Palestinian side—here again there is a wait of between an hour and a full day. On the Palestinian side, the sterile truck is unloaded, and the goods are loaded onto a "regular" Palestinian truck. Since goods can cross only by way of Kerem Shalom, transportation is usually required also in the Gaza Strip to the eggs' final destination. The cost of the crossing is NIS 1,000, the cost of using the sterile truck is NIS 500, and the cost of the Palestinian levy is NIS 50 per ton (in other words a truck carrying 20 tons of eggs will involve a levy of NIS 1,000). Palestinian taxes add about NIS 200 per truck. There is also indirect damage to the goods, including damage to the eggs during the crossing and the loading and unloading, and the theft by the Palestinian workers during the transportation due to their dire economic situation. All of these delays reduce the quality of the eggs and their percentage of hatching is reduced from 90 percent to 75 percent. That 25 percent drop in quality represents eggs that will be disposed of.

6 Interview with a senior official at the Gaza Coordination and Liaison center on December 21, 2014.

The service provided to the Palestinians by the Port of Ashdod has been improved significantly during the past year, thanks to a business policy of "supplier–customer" while maintaining the level of security.

Second option: A Palestinian pier in the Port of Ashdod

During the late 1990s, the Ports and Railway Authority in Israel (as it was then called) offered the Palestinians a "Palestinian pier" in the Port of Ashdod in order to avoid the cost of building a commercial port in the Gaza Strip. The pier would provide all of the symbols of sovereignty that are so important to the PA, such as a mechanism for use of the pier whereby imports and exports would not be considered as goods transported by way of Israel but rather would be considered to be only Palestinian goods. As part of the plan: workers and a pier would be allocated periodically to the PA in order to move cargo; Palestinian inspectors would be included in the activity; and an area of the port would be leased to the PA for the offices of customs brokers, inspectors, etc. including storage area, namely a full Palestinian logistical zone.

In the short run, the Ports and Railway Authority proposed to the PA that the Palestinian pier would be allocated to it on request and in the long run, when the port is expanded, it would be possible to consider the permanent allocation of a pier to the Palestinians. In a policy paper of the Ports and Railway Authority, called "Operation of a Palestinian Pier in the Port of Ashdod", consideration was given for separate incoming and outgoing traffic on the Palestinian pier in the future (Marom and Agamon, 1998). In the end, the plan was shelved due to a lack of interest on the Palestinian side.

The economic assumption of a Palestinian pier in Ashdod is that the goods that are unloaded still need to travel overland to the Gaza Strip. Given that this will be done without any special fees, the economic calculation changes radically. In this option, there is no difference between goods unloaded on the pier and transferred by land to Jordan, to the West Bank or any other land destination, just like goods unloaded in the Port of Haifa that are transported overland to various destinations in the State of Israel, Jordan and the West Bank.

The possibility of a Palestinian pier that handles only exports is not economically feasible since the ship that will leave the pier and will unload the goods in the destination port will not be able to return with freight being imported to the Gaza Strip.

As of 2020, this option is not relevant to any degree in view of the geopolitical situation between Israel and the Gaza Strip.

Third option: A deep-water or shallow-water port in Gaza

It would appear that most of the public discourse on the issue of a port in Gaza has in mind a deep-water port based on the aforementioned plan by the Dutch- French consortium Ballast Nedam put together in the 1990s.



Figure 1: A simulation of the planned port accessed from the site of the Ballast Nedam consortium

Based on the information in the "Strategic Masterplan for the Development of Israel's Mediterranean Ports" of the Israel Ports Company (IPC) from 2006, a clear plan was ready for the creation of a shallow-water port in Gaza that would be used for RORO ships,⁷ as a branch of the Egyptian ports of Port Said (the main transshipment port in the Eastern Mediterranean) and the port of Damietta.

The planned port was not meant to handle the loading and unloading of containers, but rather general cargo ships whose freight is intended to be transported from there overland. The IPC's forecast in 2006 related to the provision of services by the port in Gaza and that of 'el- Arish' to meet the needs of the PA, Jordan and Iraq (according to the situation in 2006). Moreover, and according to the forecast, although efficient and active ports in Gaza and el-Arish would not be able to compete with Israel's commercial ports, they would increase, at their expense, the share of Palestinian goods transported by sea. Clearly this forecast was dependent on the political and geopolitical situation, just like any other plan.

7 Rollon/rolloff. These ships allow for a loaded truck to get on to the ship itself.

Nonetheless, the large transshipment ports that exist today are deep-water ports that can serve giant ships (of 18,000 TEU and more, which have a draught that requires deep water in the port). In Israel the two new ports being built will provide a solution for these ships (the Ha'mifratz Port in Haifa and the Ha'darom Port in Ashdod), which will reduce the need to use feeder ships from other transshipment ports in the Eastern Mediterranean, will shorten the time of conveyance, will reduce the dependence of Israel on foreign ports and will save sea transportation costs.⁸

Therefore, from the perspective of 2020, and given the technological progress in shipping and ports, a port in Gaza can take one of two possible forms: a shallow-water port designed to handle cargo ships arriving from the main transshipment ports in the Eastern Mediterranean or an independent deep-water port (although this possibility involves a financial investment of a much greater magnitude).

The aforementioned port, whatever its configuration, will serve as a source of employment and will provide jobs for the local population.

This is the case as we enter 2021 and even more so once the two aforementioned ports being built in Haifa and Ashdod (Ha'mifratz and Ha'darom), which are planned to operate semi-automatically and will be operated by leading international terminal operating companies, are completed. Current technology is changing the world order and occupations that were previously common in the ports will no longer exist. A prime example is crane operators – an occupation that is disappearing from the world of the ports, as a result of the remote-control technology that facilitates a central control room and loading/unloading without the mediation of a human being.

Apart from the movement of goods by ship, a port has an important role to play also in the movement of people from one place to another, such as incoming and outgoing tourism. The cruise activity by way of Gaza to both Egypt and Jordan and the West Bank could in principle be a major engine of growth. The port in Gaza could serve as a port for passenger ships for the purpose of tourism or coastal cruises, just like the model that exists in Israel, which includes, for example, local ships operated by 'Mano Cruise Lines' and other local ships liners and international cruise companies. For purposes of illustration, about half a million cruise passengers pass through Israel's ports every year (ignoring of course the period of the Corona crisis).

The measure of tourism in this context is the number of passengers that enter the port for a one-day visit. Here again, the port in Gaza in a different reality could serve

8 Statistical Yearbook of Shipping and Ports for 2019, Ministry of Transportation, the Shipping and Ports Authority (SPA), p. 8. http://asp.mot.gov.il/SPA_HE/StatisticalYearBook19.pdf [Hebrew]

as a catalyst in the local economy by means of coastal tourism, whether planned or spontaneous.

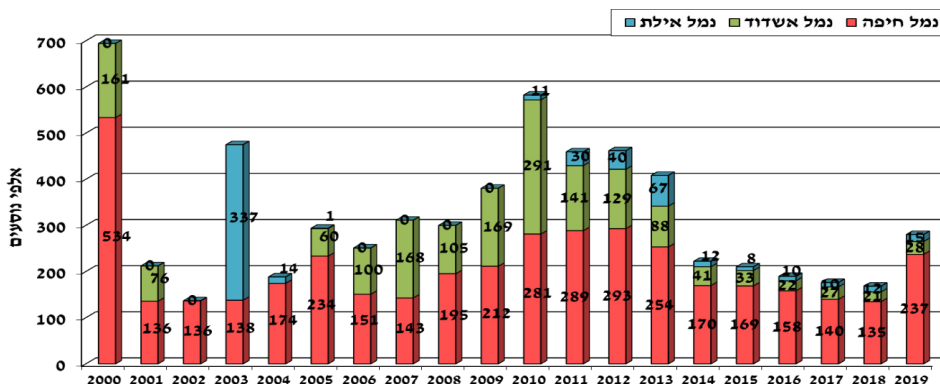


Figure 2: Passenger traffic in Israel's ports 2000–19⁹

Fourth option: A seaport or an airport on an artificial island

The construction of artificial islands to house infrastructure has been discussed in more than a few engineering-technological studies, which have also provided examples of its implementation. A review of the various technologies for constructing artificial islands appears in Appendix A to this chapter.¹⁰ Weiss (2014) describes the expected needs of the State of Israel in the realm of infrastructure and in that context surveys the building of artificial islands off the coast of Israel.¹¹ Borat (2014) also examines the subject of artificial islands off the coast of Israel,¹² as does a paper by researchers at the Technion.¹³

9 Ibid., pp. 38–39.

10 The technologies for artificial islands have also been reviewed in Moti Klamer, *Artificial Islands for Energy Infrastructure*, Maritime Strategic Evaluation for Israel 2016/17, p. 166 and Moti Klamer and Ehud Gonen, *Developments in the Construction of Artificial Islands and Floating Platforms during the Past Year*, Maritime Strategic Evaluation for Israel 2018/19, p. 206.

11 Shmuel Weiss, 2014. *Artificial Islands: A Milestone in the Development of the State of Israel?* Chaikin Chair for Geostrategy at Haifa University and the National Security Council Research Center. <https://bit.ly/3eaiD1i> [Hebrew].

12 Michael Borat, *The Maritime option – the Blue Avenue*, Chaikin Chair for Geostrategy, Haifa University, 2014. <https://ch-strategy.hevra.haifa.ac.il/index.php/studies-and-publications/books/45-20140201> [Hebrew].

13 *Maritime Plan for Israel, Stage III Artificial Islands as a Policy tool*, 2015. <https://bit.ly/2JOnkBr> [Hebrew].

The plan for an artificial island that will be used for a seaport and an airport for Gaza was proposed by Minister of Transportation Israel Katz during Operation 'Protective Edge' (2014). According to the PTP magazine (2014), Katz claimed that this project will help Israel free itself of civil responsibility for the Gaza Strip and will facilitate civilian separation, whereby Israel will no longer supply electricity, fuel and food to Gaza. At the same time, Gaza will undergo a process of disarmament that will include the weapons, rockets and missiles possessed by Hamas. In order to provide for the needs of the Gaza Strip after the cessation of Israeli logistic support, the 'Rafiah' crossing between Gaza and Egypt will be opened for an interim period for the supervised passage of goods and people.

The financing of an artificial island, which according to the plan will be built at a distance of 4.5 km from the Gaza coast, will be provided by the international community, while the engineering model will be provided by the Israel Ports Company. On the island there will be a seaport with a water depth of 30 meters (!), a logistic zone and a marina for yachts. In addition, it will have infrastructure facilities, such as energy plants and a desalination plant, and at a later stage an airport.

The security inspection of goods unloaded on the island will be carried out using Israeli technological means, and on the bridge between it and the Gaza Strip there will be an inspection station to prevent smuggling. This bridge will have the ability to support vehicle traffic, railway lines and pipelines for oil, fuel and natural gas.¹⁴

The island as a whole will be under international supervision (such as that of NATO) while at sea Israeli control will be maintained and essentially so will the maritime blockade in order to prevent smuggling other than by way of the port.

According to the plan, there will not be any residential building on the island although there will be tourist hotels. The full operation of all the facilities on the island, including the seaport and the airport, will be the responsibility of the Palestinians. The main condition for the implementation of the plan is, as already mentioned, the full demilitarization of Gaza.

Zvi Ben Gelyahu (2011) reports that Katz' plan was presented already in 2011 and received a "green light" to start planning from the Prime Minister, as reported by Channel 2 on March 29th, 2011 by Udi Segal. According to the report, the island will have an area of about 8,000 dunam, and the bridge between it and the Gaza Strip will be on pillars, like the bridge at the power stations in the cities of Hadera

14 "Israel may build artificial island off Gaza Strip coast", Conal Urquhart, The Guardian, 30 March 2011.

and Ashkelon. The plan was put together over a period of three months by a group of experts on shipping and airport traffic, which was appointed by the Minister of Transportation. The cost of the project ranges from 5 to 10 billion dollars and it will require an estimated six to ten years to build. Channel 2 reported at that time that the program had the support of Meir Dagan, former head of Israeli Intelligence, and that it had already been presented to the Israeli Security Cabinet.



Figure 3: Simulation of the proposed artificial island off the coast of Gaza¹⁵

The spokesperson for the Ministry of Transportation declared that the main goal of the island is to improve the quality of life for Gaza residents without harming Israel's security.¹⁶

However, today, and in view of the technological advances in the maritime realm (and in particular the Ocean Brick System – OBS), it is possible to make the planning more flexible and even more so the implementation, and of course the price is not of the same magnitude as that of building an island based on breakwaters and fill of sand and rocks brought to the site.

A possible example based on the aforementioned technology is presented below. It can keep the shore free from port facilities, it is more efficient from the viewpoint of time to build, it does not harm the environment and it is certainly feasible from an engineering standpoint.

¹⁵ Spokesperson of the Ministry of Transportation on the site port2port, May 24, 2018.

¹⁶ Ibid (12).



Figure 4: A model of an artificial island that was presented for a port in Georgia to be built using the OBS technology

Fifth option: A floating port

Already at the beginning of the 1990s, alternatives were considered for a floating deep-water port for Gaza. Livne (1997) describes the methods that were relevant during the second half of the 20th century, namely the "flexiport" which was a floating modular port, an application borrowed from the method of building pontoons for drilling islands in the North Sea. The method was adopted by a Dutch company which began building modular "pontoons", namely floating elements that can be assembled in order to create large platforms. The first floating port using the flexiport method was created in the Falklands in 1984, during the war between Argentina and Britain and within less than six months.

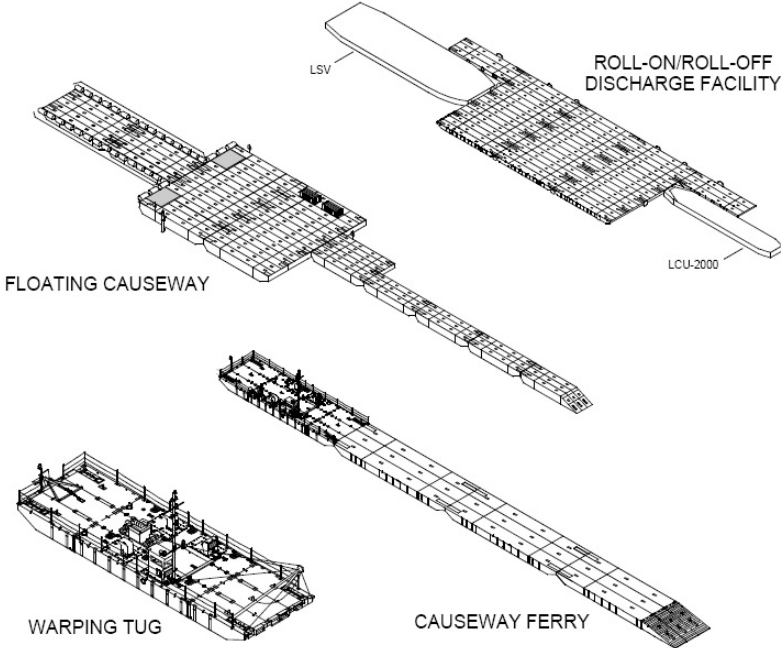
Today, engineering technology makes it possible to build floating ports that have no less capability than traditional deep-water ports on the coast. Stefan Wamfeler (2014) claims that there is currently a trend in the planning of ports toward floating ports that are between twenty and forty miles off the coast and to locate port activity there. The main motivation is security, namely, to be able to check containers arriving in the US before they come onto the mainland.

In this analysis, and when a floating port for Gaza is not the subject of discussion, the intention is to a floating pier of the type used by navies (such as the US navy) in order to enable the anchoring of small to midsize ships for unloading. The US

navy technical manual TM 55-1945-205-10-4 presents the possibilities for building a floating causeway by means of modular components:



Figure 5: Simulation of a floating port¹⁷



17 <http://www.seasteading.org>.

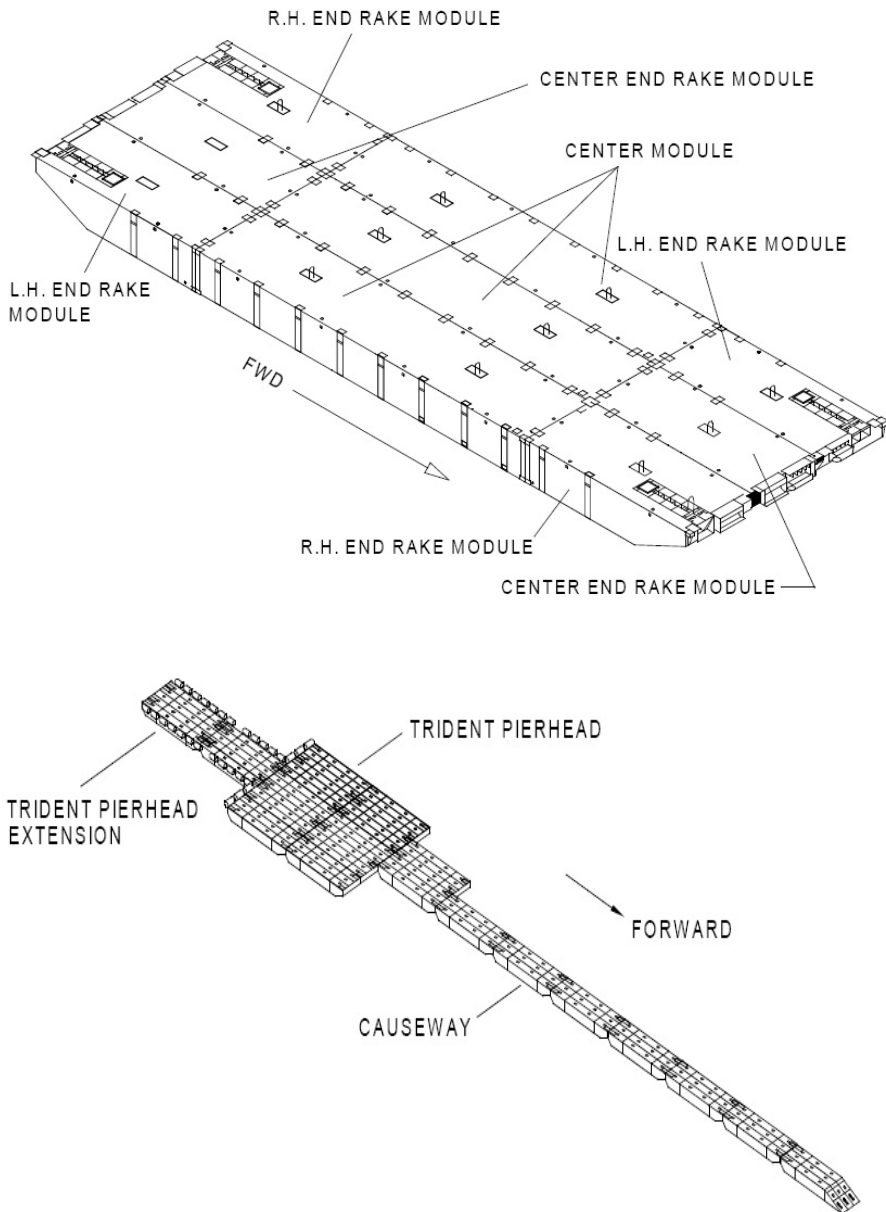


Figure 6: US navy technical manual TM 55-1945-205-10-4 which presents possibilities for the building of a floating causeway by means of the assembly of components¹⁸

18 The drawings are taken from the American technical manual TM 55-1945-205-10-4 MODULAR CAUSEWAY SYSTEM (MCS) FLOATING CAUSEWAY (FC).
<https://www.liberatedmanuals.com/TM-55-1945-205-10-4-HR.pdf>

The idea behind this option is to handle feeder ships carrying a relatively small number of containers (between 300 and 2,000) that have been transhipped at another port.



Figure 7: A floating pier

Sixth option: A secure transshipment port and a shipping route from it to the Gaza Strip

This option involves a Palestinian pier at a port in a different country in the Mediterranean basin, to which ships will bring goods that are destined for Gaza. The goods will undergo transshipment and from there will be brought by a designated shipping route to Gaza. The shipping will be done by feeder ships which will arrive at the Gaza Strip and will be handled there on a designated floating port of one type or another (or deeper piers), which will only be used for that purpose.

The countries that have been mentioned in the documentation of this option by the various planners are Cyprus and Turkey. In other words, this involves a Palestinian pier at Larnaca or Limassol (in Cyprus) or Mersin (in Turkey) where security inspections would be carried out (by a third party, such as the EU or NATO).

In early 2013, the Gaza businessman Gawdaat Alhudri submitted an initiative to the District Coordination and Liaison (DCL) of the IDF to establish a shipping line between a Gaza port and a port in Turkey. The initiator of the idea is Alhudri's brother, Gamal,

a member of the Palestinian parliament who is identified with Islamic organizations and is the Chairman of the "Remove the Blockade" Committee. The initiative includes the removal of the "maritime blockade" on the Gaza Strip as part of the establishment of a supervised sea route between a Gazan port and a single port in Turkey.

A detailed plan submitted by Gawdaat Alhudri to the DCL describes the main motivation for the plan: "Egypt is not providing an appropriate solution to the Gaza Strip's commercial needs."

According to the proposal, the supervised route will connect a Gazan port—that is, a fishing port—to the Port of Mersin in Turkey, and it will be used for ship traffic to and from Mersin. It will not be used by ships coming from other ports. In view of the fact that this is only a fishing boat port, only ships of up to 5,000 tons (according to the proposal) will be able to use this route.

The fishing port in Gaza will be expended to include storage facilities and the necessary infrastructure for the loading and unloading of ships. In addition, it will be possible to upgrade the capabilities of the port in Gaza on the basis of offshore facilities (such as a floating causeway). From the Hamas' standpoint, involving Turkey in this solution is a clear advantage. According to the initiative, the very fact of Turkey's membership in NATO will, at least in theory, reduce Israel's security concerns. As part of this plan, Israel will be part of the security inspection of goods, it will prevent the smuggling of weapons and it will escort ships on the trade route to Gaza. Furthermore, the project will help rehabilitate the diplomatic relations between Turkey and Israel, which deteriorated following the incident of the 'Marmara flotilla', and the two countries will be able to cooperate on the Palestinian issue. Finally, increasing imports from Turkey and the opening of the shipping route between Turkey and Gaza will lead to significantly cheaper imports.

According to Alhudri, the creation of the shipping route has clear advantages, such as the creation of a cheap supply of goods and inputs in the Gaza Strip; a reduction in the cost of transporting goods by way of the tunnels (...); a reduction in the various fees and taxes that are paid to Israel, the PA, Egypt and Hamas; reducing the time needed to import goods relative to the "indirect" routes used today; and the direct collection of tariffs by the PA on goods heading to the Gaza Strip at the port in Turkey. Moreover, there is a potential for using the Gazan port for the import of goods also to the West Bank. The plan will advance the "state" process by way of the channel of "economic independence" for Gaza, will create a direct link between Gaza and foreign markets, will create jobs and will facilitate the movement of people.

However, as of late 2020, Turkey is not a potential player in such an equation from Israel's point of view. But this is not the case for the option of a Palestinian pier within a port in Cyprus. This is a feasible option that should be considered and the Port of Lanarca, for example, is a possible facility for transshipment.

Furthermore, in 2017–18 the IDF again considered the option of a transshipment port but nothing developed in view of the geopolitical reality.

One way or another, if this option is realized, then the Israeli navy will have an additional mission, namely the escort of ships making their way from the transshipment port to the Gaza Strip. The objective will be to ensure that the ships do not link up with other ships on the way in order to receive weapons destined for the Gaza Strip, a mission that will require the investment of resources.

Seventh option: The Port of el-Arish – from vision to solution

In view of the strategic masterplan for the development of Israel's Mediterranean ports, the Egyptians have over the years developed the Port of el-Arish as only a secondary port, with a capacity of only 2 million tons of general cargo, alongside various fishing activities. Nonetheless, in that Israeli plan it is mentioned that the Port of el-Arish can in the future (the plan was written in 2006 with a forecast up to 2050) serve as a key port that will handle part of the maritime transport of goods traveling to and from the Gaza Strip, the West Bank and Jordan (general cargo ships) and thus, together with Israel's ports, will facilitate their imports and exports.

The Port of el-Arish is the most northern Mediterranean port in northern Sinai. Up until 1982, it was indeed defined only as a fishing port. The Egyptian development activity in the port was evident already in 1987 (IPC, Masterplan, 2006) and included the expansion of the breakwater in order to later prepare the port for the handling of cargo ships.

Implicit in the option of expanding el-Arish is, from my perspective, a vision for the full solution of problem of access to an international port for the Gaza Strip and in my estimation, it is possible under certain circumstances.

The el-Arish option is being promoted by a group of businessmen led by Shlomi Fogel¹⁹ and includes an economic solution for the situation in the Gaza Strip.

19 Interview, March 20, 2015

The plan for the development of the Gaza Strip has the following components:

First, the building of 14 half-islands ("islets") – They will be financed by the Saudis at a cost of \$10 billion. A Belgian company has already performed a feasibility study. The islands will have a total area of 6,000 dunam with a potential of housing about 1 million people and they will expand the territory of the Gaza Strip which is currently 354 sq km.

The second component is the creation of "bubbles" for industrial parks that will serve as free-trade zones. The bubbles will be built by the following countries: Qatar, Dubai and Abu Dhabi, and will be the location of factories built by Israeli, Egyptian and Palestinian entrepreneurs. This will create a win-win convergence of interests.

Moreover, the Americans will finance the project to transform el-Arish into a deep-water port and shipping hub, including an international airport. It will also include a tourist boardwalk in the area of the Bardawil Lake (another Egyptian interest).

The international airport will stimulate the development of the Sinai region and thus will reinforce Egyptian sovereign governance in the peninsula and will help halt the trend toward it becoming a no man's land and an incubator for terror.

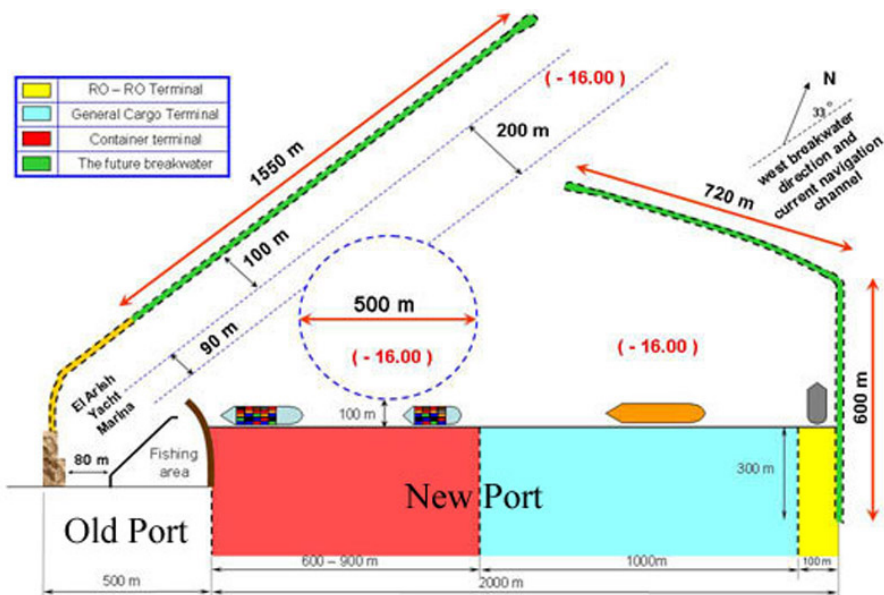


Figure 8: The Port of el-Arish – existing and planned²⁰

Essentially, the plan is reminiscent of Zeev Hirsh's aforementioned plan from the early 1990s, which included a free-trade zone on the seam between Israel and the Gaza Strip and described a situation in which the economic prosperity would have benefits on the geopolitical level, even to the point of changing the reality. The new plan is strongly in the interest of all the sides. As of mid-2019, the Port of el-Arish was as pictured in Figure 9.



Figure 9: Aerial photo of the Port of el-Arish²¹

Greater Egyptian control of northern Sinai is still the objective of the Egyptian government in order to preserve its sovereignty in the region.

Both the development of a deep-water port and an airport in el-Arish will, among other things, facilitate the conveyance of goods to and from the Gaza Strip, as will the construction of a power plant, desalination facilities, railways, and other infrastructures.²²

21 From Google Earth, on the site of the Egyptian government. <http://www.emdb.gov.eg>

22 The Jerusalem Center for Public Affairs, Developing Northern Sinai – A New Diplomatic Paradigm, June 26, 2019. <https://jcpa.org/article/developing-northern-sinai-a-new-diplomatic-paradigm/>

Conclusion

This chapter has examined the various alternatives for establishing an international trade connection to and from the Gaza Strip. Following is a summary of the alternatives:

Option	Port on the shore of the Gaza Strip	A port off the shore of the Gaza Strip	A port / designated pier in another country in the Eastern Mediterranean	A port in a neighboring country
Construction of infrastructure	Full construction of infrastructure on the coast of Gaza.	Construction of infrastructure using advanced technology.	Will require the building of a facility to handle ships in Gaza or on the shore (expansion of existing fishing port) or a floating facility).	Overland transportation to the Gaza Strip.
Security inspection	Problematic. Inspection by an international body.	A bridge will facilitate tighter inspection; inspection by means of an international body.	Inspection at the foreign port by an international body. Securing of the shipping route between the port and Gaza by the Israeli navy.	Egypt: inspection at the Egypt-Gaza border crossing. Ashdod: Continuation of tight Israeli inspection.
1.	Deep-water port for handling ships of all types.	Port on an artificial island that is connected by a bridge to the shore.	A Palestinian pier in Cyprus (Limassol or Larnaca).	Use of the expanded el-Arish port for the needs of the Gaza Strip.
2.	Shallow-water port for handling feeder ships and RORO ships.	Floating port	Palestinian pier in Turkey (Marsin).	Continued use of the Port of Ashdod for the Gaza Strip.

From a purely economic perspective and in the geographic reality that the ports of Ashdod and el-Arish are only a few dozen kilometers from the border of the Gaza Strip (from the north and from the south, respectively), there is no justification for building another port in Gaza. Therefore, from a purely logistical perspective, the Gaza Strip can be serviced by existing ports and the huge budgets that would be required to build a port in Gaza can be used for other desperately needed infrastructures in the Gaza Strip. Nonetheless, there is also a clear and fundamental Gazan desire for an independent port, both as a symbol of sovereignty and to avoid, at least to some extent (and to an even greater extent in the future), Israel's security inspections of Gazan trade.

In this context, it is worth mentioning that there are many examples of "pairs of ports" that are close to each other but are located in different countries (Eilat and Aqaba are examples from our own region).

The examination of the alternatives for a commercial port in the Gaza Strip or direct Gazan access to international trade needs to take into account Israel's need (which is apparently a clear and absolute Israeli red line) for reliable security inspection of goods transshipped at the port, in order to prevent the smuggling of weapons into the Gaza Strip.

Direct Israeli inspection is apparently not a realistic prospect in an arrangement in which the Palestinians use a port in a third country (rather than in Gaza or in Israel). In such a case, the security inspection will be dependent on the host country (the possibilities surveyed here were Cyprus, Turkey and Egypt), on a reliable international body acceptable to both sides, such as NATO or EU forces, and the use of security technologies that allow for remote Israeli inspection without a physical presence.

Weighed against the Israeli security interest is the Palestinian interest to build a port, as a gateway to international trade and the economic development it would bring and as a symbol of sovereignty.

It is clear that the Gaza Strip desperately needs economic development. However, it is in Israel's interest to consider whether such development will help Hamas preserve its regime in Gaza or whether economic growth will strengthen the Palestinian middle class, which will in the long run oppose the Hamas regime. On the other hand, it is possible—at least in theory and subject to the political developments in the region—to construct a mechanism such that the development of a port will occur simultaneously with the return of the PA to power in Gaza and with the demilitarization of the Gaza Strip, and a certain degree of international involvement.

On a more realistic note, it appears that as long as there is a strong Hamas regime in Gaza, no change in the current situation can be expected.

Appendix 1: Examples and technologies for building artificial islands

There are a few examples worldwide of artificial islands:

The island of Jorong in Singapore whose construction was completed in 2009. It is used for heavy industry as a solution for the shortage of land in Singapore.

The Japanese port of Kube which was built on a total area of 8,000 dunam and which can handle container ships and includes a logistic support area.

The artificial island in Dubai which is used for commercial infrastructure and residence.

The Island of Bilboa in Newport Beach, California which is composed of three artificial islands – Bilboa, Little Bilboa and Collins.

Pearl – Qatar: This is a manmade island with an area of nearly 4 million square meters. This was the first area in Qatar that was made available for ownership by foreign residents, with the population of the island growing from 3,000 in 2011 to 12 thousand in 2015. The island, which is developed by the United Development Company, is expected to also include entertainment facilities for residents, as well as for tourists.

The Palm Islands in Dubai: Three artificial islands off the coast of Dubai in the UAE. The archipelago was built by a land upgrade carried out by the Nail government real estate company. The Palm Islands are called that because they are in the shape of a palm tree. It is the name of the original island and the smallest of the three.

Until recently, the most commonly used technology for creating artificial islands was to bring in sand and boulders from quarries. This method harmed the environment and over time the tolerance for such activity has declined.

The basic building block of an artificial island is the caisson, a prefabricated element made of reinforced concrete that is sunk to the seabed. By accumulated a large number of caissons, it is possible to build breakwaters, islands and more. The caisson can also be hollow and filled with condensed air, and in this way, it can be towed to where it will be placed.

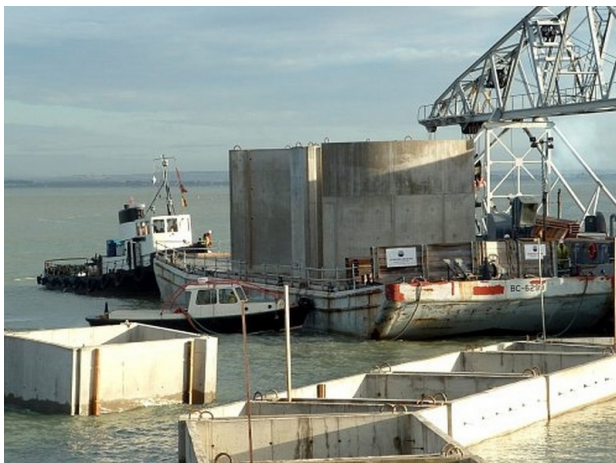
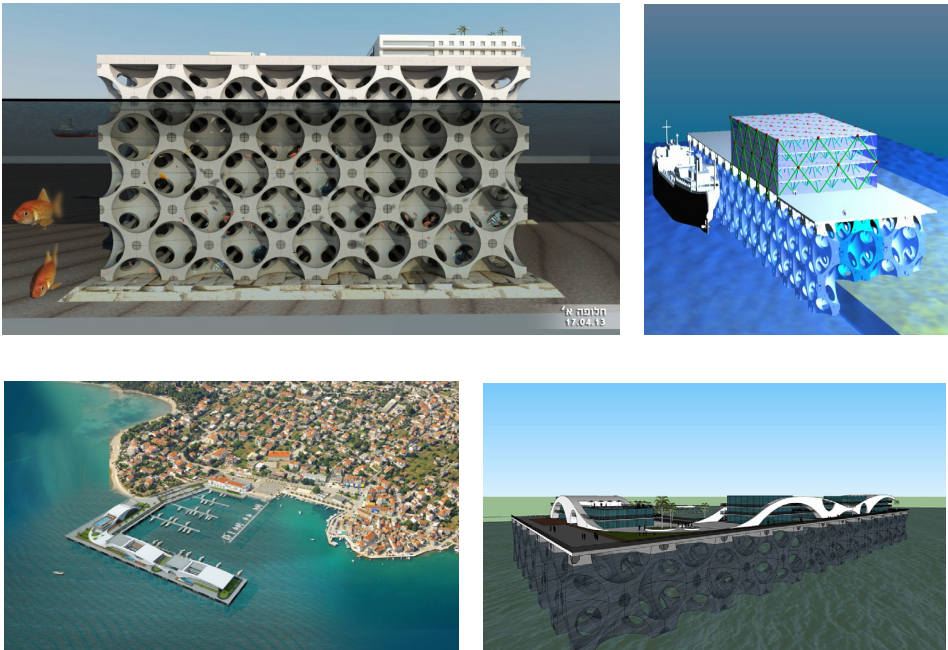


Figure 10: Transporting caissons on a barge

In recent years, there has been a major breakthrough in this domain in the form of Ocean Brick System (OBS) technology, which makes it possible to cast the concrete into special molds and to create elements that can be connected together. The elements are hollow and the construction of a pier, a wharf, a breakwater or an island is possible near the site by casting the elements at the location. There is no need to transport sand or boulders nor to transport the elements from the casting factory to the site. Everything is done on site and without harming the environment. The elements are hollow and therefore, after construction the structure can be towed to the site and sunk in a controlled manner.

Following are a number of examples:



Figures 11–14: An artificial island makes intensive use of raw material. Weiss (2014) estimated that about 70 million cubic meters of raw material is needed for an island of 2,000 dunam and another 10 million cubic meters of quarry material is needed for the breakwaters to protect it. In general, artificial islands that are built in water that is more than 20 meters deep become very expensive projects and therefore the aforementioned innovative method provides a solution at a fraction of the cost of a classic project involving sand and boulders.