

MARITIME STRATEGIC EVALUATION FOR ISRAEL 2021/22

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Section 5: Maritime law, good order at sea

This section contains a variety of articles that discuss different aspects of good order at sea. One article discusses Israel's decision not to sign the United Nations Convention on the Law of the Sea (UNCLOS) in 1982 and examines the reasons given then in comparison to the current state of affairs. Another article examines the question of the maritime border between Israel and the Gaza Strip from economic and legal perspectives. Another article suggests a maritime monitoring system for Israel that will allow collecting data on activities and occurrences in Israel's maritime domain, for security and inspection. The fourth article discusses the defense of Israel's ports against cyber attacks and explains that the investment in security measures is worthwhile compared to the expected damage of a cyber attack on the ports. The fifth article discusses the impact of government subsidies on the maritime sector around the world. The sixth article discusses the benefits offered by flag of convenience countries and how other countries cope with these benefits. The final article examines the reform in the Israeli ports since the Israel Ports Company was established and replaced the Ports Authority.

The State of Israel and the Convention on the Law of the Sea – the Current State

Benny Spanier

Introduction

For over a decade now, various events in the marine domain in our region, not necessarily related one to another, repeatedly focus our attention on this arena. A partial list would include these, for example: The discovery of gas deposits in Israel's Exclusive Economic Zone and the question of their development; the delimitation of the maritime border between Israel and Lebanon; the tension with Turkey over the "blockade" of Gaza and the question of maritime zones with Libya; the joint gas pipeline from the Eastern Mediterranean to Europe; the pollution of Israel's shores with tar, etc. In this context, the question of Israel's status and its rights from the perspective of the Law of the Sea is raised.

A closed seminar was held on March 8, 2021, at the Maritime Policy & Strategy Research Center, attended by experts and policymakers in Israel on the question of: Pros and Cons of Israel's Joining the Convention on the Law of the Sea.¹ In view of what was said there, this article seeks to present the main insights on the issue of Israel's non-signature of the Convention on the Law of the Sea in 1982, and to examine whether, and to what extent, the political and economic developments within the international and regional system this past decade justify revisiting the pros and cons of Israel's joining the Convention.

First, we will present the background of the signing of the Convention on the Law of the Sea in 1982. We shall then present the main reasons why Israel did not join the Convention: (1) The status that was given to the PLO and the fear of the appearance of recognition of the PLO had Israel signed it; (2) The diminished rights of passage in the Straits of Tiran; (3) Restriction of military vessels' ability to conduct searches on the high seas; (4) Obligation to submit to international arbitration in case of an unresolved maritime dispute; (5) The USA's non-signing of the Convention. For each one of these reasons, I shall present the current status. In the article's conclusion I shall present several forward-looking recommendations, to the extent that they

¹ The seminar was held under the Chatham House Rule, i.e., the names of the participants and their affiliations cannot be made public, however anything said there can be used. This paper constitutes its author's interpretation of what was said in the seminar. Any error or misunderstanding are his sole responsibility.

relate to the continued debate on Israel's position regarding its signing up to the Convention.

The main argument of the paper is that it is worth evaluating the prevailing claim that Israel has no reason to join the Convention on the Law of the Sea at the present time, since it enjoys all its rights due to the very fact that it accepts the Convention as customary international law and on the other hand it is not subjected to its inherent pitfalls. The changes in the Eastern Mediterranean and Israel's current status allow it to take an initiative which will enable it to deal successfully with challenges in the maritime domain, while not necessarily taking risks. Under these circumstances the Convention on the Law of the Sea can serve as a lever, rather than a hinderance, which Israel can use to advance its objectives.

The Background for the Creation of the Convention on the Law of the Sea

International conventions are the main legislative tool of international law. They are the main means for creating norms, commitments and institutions.² The normative basis empowering the conventions, and which motivates countries to join them is the fundamental customary rule according to which agreements have to be honored (*Pacta sunt servanda*). Thus countries, including Israel, create a contract which reflects the convergence of their interests, and in which they assume upon themselves legal duties and acquire entitlements for themselves, which create mechanisms enabling cooperation between them. In today's era of global international law, this tool institutes a political discourse of rights and duties. It reflects both on domestic law within countries and on the interrelationships between them.³

The overriding goal of the Convention on the Law of the Sea is to regulate geographically, peacefully, and fairly, the use and exploitation of the world's largest and most important natural resource.⁴ The laws of the sea were among the first to develop as customary international law and among the first to begin to take form through codification.⁵ In this sense, this is a European process, since Europe was the leader concerning the ability to use the high seas through large ships and

² See: Orna Ben-Naftali and Yuval Shany *International Law between War and Peace* 367–373 (2006) [Hebrew] (hereinafter: Ben-Naftali and Shany)

³ See: Ben-Naftali and Shany, *ibid*, footnote 2, p. 19.

⁴ See: United Nations Convention on the Law of the Sea, signed 10 December 1982, entered into force 16 November 1994, 1833 UNTS 397 (1982) (hereinafter: Convention on the Law of the Sea).

⁵ See: Sarah Weiss Maudi, "Laws of the sea," *International Law* 525, 525 (third issue, Robbie Sabel and Yael Ronen editors, 2016 [Hebrew] (hereinafter: Weiss Maudi) [Hebrew]

suitable instrumentation, and it was also Europe that created the realization of the importance of a military naval force.⁶ After hundreds of years in which the maritime customs developed, the First United Nations conference on the Law of Sea (UNCLOS I) took place in 1958 in Geneva with 86 countries attending. The conference formed four conventions which, from this point onwards, became the normative basis for the Law of the Sea: the Conventions on the Territorial Sea and Contiguous Zone; the Convention on the High Seas; the Convention on the Continental Shelf, and the Convention on Fishing and Conservation of the Living Resources of the High Seas. There was an intention to create another Convention on the Compulsory Settlement of Disputes arising from the Convention on the Law of the Sea, however this one never reached fruition. Israel signed and ratified the first three conventions and they came into effect in 1961. The last convention was signed but never ratified.⁷

The third conference on the Law of Sea was between 1973 and 1982. It consisted of 11 rounds of talks over 585 days. It took place alternately in three countries.⁸ Israel was an active participant in all these deliberations. The Convention was opened for signing on December 10 1982 at Montego Bay in Jamaica. The Convention came into force on November 16, 1994 – one year after the sixtieth country ratified it. Until today the Convention has been ratified by 168 countries and organizations.⁹ In the eastern Mediterranean region, Lebanon, Egypt and Cyprus have signed and ratified the Convention. Israel, Syria, and Turkey, however, have not. Nevertheless, Israel accepts the customary guidelines of the Convention on the Law of the Sea, including the guidelines regarding the maritime zones.¹⁰

The reasons Israel did not join the Convention on the Law of the Sea

In the course of the seminar, it became clear that at the basis of Israel's abstention from joining the Convention were several reasons not necessarily related to one another, but which ultimately drove the decision on this issue. Following is a review of the five main reasons for Israel's decision not to sign and their meaning today.

⁶ See: Donald R. Rothwell & Tim Stephens, *THE INTERNATIONAL LAW OF THE SEA* (2016) (hereinafter: Rothwell & Stephens), p. 1.

⁷ See: Weiss Maudi, footnote 5, p. 526.

⁸ The second conference on the Law of Sea took place in 1960 and failed to achieve any results. It is not relevant to this article.

⁹ See: [United Nations convention on the law of the sea](#) (table of signatures and ratifications)

¹⁰ See: Attorney General, Opinion of the Deputy Attorney General regarding the Law Applicable in Marine Areas, January 15 2013 (clause 37) [Hebrew].

1. The PLO's signing of the Convention

The Ministry of Foreign Affairs documents from 1982 reveal that the most important reason for Israel not to sign the Convention was the fact that a decision was made at the convention, enabling national liberation organizations to join, thereby obtaining observer status in the institutions which would be set up due to the Convention. This effectively paved the way for the PLO to join the Convention and Israel was keen to prevent the appearance that by its signing the Convention it was granting recognition to the organization and accepting its membership.¹¹ The documents reveal division of opinions among the professionals, but ultimately – and considering that this took place while the First Lebanon War was being fought – the decision was made not to sign.

The situation today: In 1993, Israel and the PLO signed the Oslo Accords, in which Israel recognized the latter as the legal, legitimate representative of the Palestinian people, and the Palestinian Authority was established. Various subsequent agreements were signed with the Authority. In other words, the current situation is that the reason which validated the 1982 decision has become meaningless. Moreover, in September 2019 the Palestinian Authority deposited its declaration regarding its maritime zones offshore Gaza at the UN, in accordance with the Convention on the Law of the Sea.¹² This means that the Palestinian Authority is using the Convention for political and economic advancement of issues it regards as important. At the same time, Israel is not a party to the Convention and is not taking any measures whatsoever in the maritime domain, which relate to consolidating its hold on that domain, at least not in any way related to the Law of the Sea.

2. Navigation through the Straits of Tiran

The 1958 Convention on the Territorial Sea and Contiguous Zone states that navigation in the straits would be open to all for "Innocent Passage".¹³ However, in practice the

¹¹ See for example: Lydia Shukrun, Manager of the Department of Israeli Law and Law of the Sea, to Alon, August 15, 1982, Subject: Law of the Sea, Straits of Gibraltar, Israel State Archive, File MFA-5873/10 [Hebrew]; and Shabtai Rosen to Rubinstein, November 3, 1982, Subject: Law of the Sea – the Final Draft, Israel State Archive, File MFA-5873/12 [Hebrew].

¹² See: Declaration of the State of Palestine regarding its maritime boundaries in accordance with the United Nations Convention of Law of the Sea. State of Palestine Ministry of Foreign Affairs and Expatriates.

¹³ See: Convention on the Territorial Sea and Contiguous Zone (1958), Clause 16(4); and also: ICJ-Corfu Channel case, Judgment – (1949). This regime was created and specified de facto in the ruling by the international Court of Justice on the Corfu affair back in 1949.

blocking of the Straits of Tiran by Egypt was one of the main reasons for the outbreak of the Sinai War in 1956 (which preceded the creation of the Convention) and also for the Six-Day War in 1967. And so, the 1979 peace treaty between Israel and Egypt specifies that navigating in the Straits of Tiran would be "freedom of navigation" ("unimpeded and non-suspendable freedom of navigation and overflight"), like on the high seas. In other words, the parties understood the sensitivity of this issue and upgraded the regime as it exists in the Convention from "Innocent Passage" to "Freedom of Navigation".¹⁴

Three years later, in 1982, the Convention on the Law of the Sea downgraded the right of passage through the Straits of Tiran from the outset it specified a new regime in the straits, named Transit Passage, which allows for passage without an option to remain, when the strait connects between high seas or an Exclusive Economic Zone and other high seas or another Exclusive Economic Zone.¹⁵ The problem was that the Straits of Tiran do not fit this definition. They connect between high seas (the Red Sea) and territorial waters of other countries (Saudi Arabia and Egypt, in the Gulf of Eilat), and therefore it is not possible to benefit from the rights to "Transit Passage", and rather, one must make do with an "Innocent Passage" regime, which is prevalent in straits of this kind.¹⁶ According to the Convention on the Law of the Sea, "Innocent Passage" can be suspended for various reasons (technical or safety).¹⁷ Various documents of that time indicate that the reason for Israel's objection to the Convention on the Law of the Sea was the downgrading of the level of passage regime in the Straits of Tiran.¹⁸ The concern was of the possibility of suspension and control over all passes through the strait en route to or from Israel. This was in view of the bitter experiences of 1956 and 1967 and, in practical terms, that the straits might once again be blocked to navigation.

The situation today: In the peace treaty with Egypt, whose signing had preceded the Convention, the navigation regime in the straits was settled and was upgraded to "Freedom of Navigation". There is broad agreement among scholars that the peace agreement takes precedence over the Convention, being a preceding and specific

¹⁴ See: Peace Treaty Between the State of Israel and the Arab Republic of Egypt of March 26, 1979, in clause 5(2).

¹⁵ See: Convention on the Law of the Sea, footnote 4, in clauses 37–44.

¹⁶ See: Convention on the Law of the Sea, footnote 4, in clause 45(1)(b).

¹⁷ See: Convention on the Law of the Sea, footnote 4, in clause 19(2).

¹⁸ See for example: By: Arie Rona, Manager, Administration of Shipping and Ports, to Minister of Transportation, Mr. Yisrael Kessar, on January 2, 1996, Subject: State of Israel's joining the Convention on the Law of the Sea, Israel State Archives, file GL-40248/23.

agreement. However, in 2016 Egypt and Saudi Arabia signed an agreement in which, inter alia, the islands of Tiran and Sanafir were returned to the sovereignty of the latter, effectively conceding half of the Straits of Tiran along with it. Saudi Arabia (currently) recognizes neither Israel nor the peace treaty signed between Israel and Egypt. Neither does it accept (at least not officially) the change in the navigation regime in the straits. Therefore, as far as Israel is concerned, there is a concern today that following the agreement between Egypt and Saudi Arabia, and in view of the Convention on the Law of the Sea, it would be possible once again to block at least half of the passage through the straits.¹⁹ It is likely that the solution for this issue lies in a negotiated settlement between all the parties, not necessarily in accordance with the Convention on the Law of the Sea.

3. Prohibition on searching ships on the high seas

Another reason for Israel's non-signature to the Convention on the Law of the Sea was potential exposure to prosecution in international forums due to military activities on the high seas. The Convention allows for "visits" by navy vessels to civilian ships on the high seas, however not under the authority of an organized multinational force, only if these are suspected of piracy, slave trade, illegal broadcasting or questions of nationality or flag.²⁰ The Convention does not recognize anti-terrorism as grounds for enforcement by means of warships on the High Seas – a practice Israel has engaged in over many years of its war against terror.

The situation today: The past decade is characterized, from the security perspective, as a time of a low intensity conflict. This type of warfare is characterized by "under the radar" activities, with a high degree of deniability. In addition, it is clear that a large proportion of the activity during this period is done via proxies. It is possible that the terrorist activity that characterized the preceding decades (for example the attempt to smuggle weapons in 2002 on board the *Karine A*) is less relevant. Therefore, perhaps, in the current reality, this consideration is less significant. Furthermore, it is possible that the risk in this respect can be hedged by adding an exception clause when signing up to the Convention (see below).

¹⁹ See: Benny Spanier, "The Transfer of the Tiran and Sanafir Islands to Saudi Arabia and Freedom of Navigation in the Straits of Tiran – an Unsolved Story", in Shaul Chorev and Ehud Gonen (eds.), *Maritime Strategic Evaluation for Israel 2017/18* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2018), pp. 147–155.

²⁰ See: Convention on the Law of the Sea, footnote 4, in clause 110; and also: Rothwell & Stephens, footnote 6, pp. 175–176.

4. Mandatory arbitration

Article 9(1) of the Convention on Fishing and Conservation of the Living Resources of the High Seas from 1958 specified, for the first time in maritime law, a mechanism of mandatory arbitration.²¹ In case of disagreement between parties, the dispute would be referred to a committee consisting of five members, unless the parties agree on some other proceeding for resolving the dispute. This is almost certainly the reason why Israel never ratified that convention.

Chapter XV of the Convention on the Law of the Sea of 1982 is dedicated to dispute settlement. Clause 279 specifies the duty of the countries to resolve differences through peaceful means.²² It states that if the parties fail to settle the dispute between themselves, the section in the Convention concerning mandatory arbitration – the second part of Chapter XV – would be enacted.²³ And indeed, clause 287 specifies all of the possible ways for resolving the potential disputes (the various forums) and the countries are invited, when signing on to the Convention, to choose their preferred options. As a rule, the Convention on the Law of the Sea does not permit reservations or abstention from mandatory arbitration, except in two main cases cited in clause 298: in disputes concerning the delimitation of maritime borders (298(1)(a)(I)); and disputes on military issues (298(1)(b)).²⁴

From what some of the experts in the seminar said, one could deduce that the option of mandatory arbitration within the Convention on the Law of the Sea is the main reason, today, for Israel's not joining the Convention. Israel wants to prevent the possibility of being "dragged" into litigation in front of international forums regarding its activities on the high seas and disputes concerning these activities.

The situation today: Israel's problematic failure in the delimitation of the land border affair regarding Taba in 1988 considerably cemented its conviction against litigation in front of international forums.²⁵ In terms of the Convention on the Law of the Sea, nowadays, one can list several significant issues which could form grounds for

²¹ See: Convention on Fishing and Conservation of the Living Resources of the High Seas (1958), clause 9(1).

²² See: Convention on the Law of the Sea, footnote 4, in clause 279.

²³ See: Convention on the Law of the Sea, footnote 4, in clause 281(1).

²⁴ See: Convention on the Law of the Sea, footnote 4, in clause 298; see also: Rothwell & Stephens, footnote 6, pp. 491–494. There is one more case in which a reservation is acceptable, and this concerns Security Council decisions to exercise its authority over the dispute. For more details

²⁵ See: Robbie Sabel "The Attempts to Negotiate a Compromise Solution to the Taba Dispute", *Bar Ilan Law Studies* 14, 507,517–518 (1997) [Hebrew]

mandatory litigation in such forums: the dispute over the maritime border between Israel and Lebanon; the maritime boundary around Gaza with the Palestinian Authority (whenever that time comes); the right of passage in the Straits of Tiran, in particular within the zone controlled by Saudi Arabia; the restrictions on navigation and entry to the Gaza Strip by sea; the cross-border offshore reserves (especially in the Lebanon area) and, as mentioned, the issue of conducting searches on suspicious vessels on the high seas.

There is a measure of scope for dealing with the mandatory arbitration issue. An initial quantitative examination shows that as of today, 41 countries have attached provisos to one of the abovementioned issues or to both of them. This means about 25% of the countries which are party to the Convention, and therefore this is not a negligible occurrence. It means, on the one hand, that an international practice is being installed, whereby countries join a convention but reserve the right to defend their interests in certain aspects. On the other hand, there is a phenomenon by which international forums take upon themselves authorities transcending the letter of the convention, and refuse to accept those provisos. This is the case in the South China Sea – China's claims; and also in the case of the Strait of Kerch between the Sea of Azov and the Black Sea – Russia's claims.

The experts at the seminar drew an ambiguous picture, which can be assessed in various ways. On the one hand, some claimed that there is no reason to join the Convention since Israel accepts it as customary international law, does not benefit from it, and avoids the risk of being "dragged" into international forums. On the other hand, some claimed that joining would enable hedging the existing disputes and would provide Israel with a normative leverage against its adversaries, which would enable it to progress efficiently toward resolving the existing disputes.

5. The United States' abstention from joining the Convention on the Law of the Sea

From reading documents in the Ministry of Foreign Affairs' archive it appears that the United States' decision not to join the Convention, due to its own considerations, also had an influence on the Israeli decision.²⁶ The opinions in the seminar were divided over how much the United States' position influenced Israel's decision.

The situation today: Joe Biden's entry into the White House in early 2021, the return of the United States to the Paris Accords on Climate Change and other agreements, as well as the general trend of international cooperation, indicate a change in the

²⁶ See for example: "The Steering Committee for the Interministerial Advisory Committee on the Maritime Issue", 16.6.1982. Israel State Archives, file MFA 5873/10.

United States' approach. It is difficult to predict whether this change will apply also to the Convention on the Law of the Sea and whether the United States will be joining it. On this matter the opinions of the experts at the Seminar were divided and it appears that it is not possible to get a clear, unequivocal picture. At the same time, one can presume that should the United States join the Convention, this will be a significant component in Israel's considerations as to whether to join this move.

Forward-Looking Recommendations

1. It is worth evaluating, through academic research, the claim that at present Israel has no reason to join the Convention on the Law of the Sea, since on the one hand, it enjoys all the rights in the Convention due to the fact that it accepts the Convention as customary law, while on the other hand, it is not subjected to its inherent pitfalls. The study should examine the challenges Israel faces in the maritime arena and, in each one, would weigh the advantages and disadvantages in joining the Convention. Even if it may seem, at one time or another, that the balance is shifting in one direction or the other, the situation in our region and in the international arena is changing and the balance of power needs to be revisited from time to time.
2. The declaration by the Palestinian Authority of the maritime zones in the Gaza region challenges the State of Israel, Egypt and Cyprus. As far as Israel is concerned, the declaration is a challenge to the settling of this area in future negotiations (whenever they occur). Israel ought to push forward its own Maritime Regions Law, in which it will declare its own boundaries, including in this region.
3. Concerning half of the Straits of Tiran, which are under Saudi sovereignty, there is a question as to the navigation regime as it appears in the Convention. This issue will need to be discussed with Saudi Arabia, if and when a dialog will take place between the parties. Experts should prepare the groundwork for this dialog, or for an attempt to resolve the issue through indirect means. Past experience has shown that it is better to reach an early, agreed solution before it is too late.
4. It is advisable to conduct an empirical academic study at the international level that would examine the issue of provisos countries install under clause 298 of the Convention (delimitation of boundaries and military activity). It should ask whether this mechanism does indeed provide countries protection against intervention of international forums in local conflicts and disputes and to what extent this can be relied on. Such a study can confirm or dispel the claim that there are mechanisms within the Convention which provide sufficient protection against mandatory arbitration, thereby influencing Israel's decision on this issue.

5. The proper professional levels should conduct a dialog with the United States on the question of its position toward joining the Convention on the Law of the Sea. This dialog ought to provide clarity as to whether a change in their attitude can be expected regarding joining the Convention, and what would their position be should Israel decide to join without them.

UNCLOS, Delimitation of Maritime Boundaries and Offshore Infrastructure as a Means for Regional Cooperation and Reconstruction of the Gaza Strip

Orin Shefler

The starting point for future negotiations between Israel and the Palestinians regarding the maritime zones offshore the Gaza Strip ("Gaza") will no longer be as it was. The acting parties have internalized their lessons-learned from past interactions, and a new race has begun with respect to developing natural resources in the Mediterranean Sea. This race will undoubtedly have a significant effect on the outcome of the Israeli-Palestinian conflict. Operation "Guardian of the Walls" was indeed harmful to the Hamas regime in Gaza but it did not bring about its downfall. The protracted political and diplomatic struggle between Israel and the Palestinian leadership, including the dispute over the maritime zones and natural resources deposits therein, has remained unchanged. In this article, I shall introduce a new premise which links between the delimitation of Israel's maritime boundaries in accordance with the United Nations Convention on the Law of the Sea ("UNCLOS"), regional cooperation and the resolution of the Israeli-Palestinian conflict and the reconstruction of Gaza. The traditional diplomatic and military process between Israel and the Palestinians has always hidden a complex layer of mutual claims to oil and gas reservoirs in the Mediterranean Sea. The Israeli-Palestinian conflict has begun to stray from the classic security concepts, where the Palestinians are at an inherent disadvantage, and are shifting to other arenas, where the Palestinians have a better chance of achieving their political aspirations with far-reaching economic implications. Perhaps, from within this new reality, new opportunities could allow for a more efficient balance of interests with respect to the exploitation of natural resources in the Mediterranean Sea for the benefit of the State of Israel, Egypt and the Palestinians, under state-sponsorship of stakeholder countries.

The Historical Context of The Maritime Zones Offshore Gaza

Since the declaration of the State of Israel, the question of control over the maritime zones offshore Gaza has been subject to considerable debate – and so far, this matter remains unresolved. Surprisingly, Israel and Egypt decided to abstain from settling this issue as part of the peace treaty between them in 1979. The question of control of the maritime zones offshore Gaza has been devoid of a sustainable solution. In this article, I shall distinguish between two different approaches to achieving a comprehensive regional settlement regarding the maritime zones offshore Gaza: the first doctrine, the "Classic Doctrine" which deals primarily with the question of governance, military and political control over the borders of Gaza and its maritime zones; and the second doctrine – the "Modern Doctrine", which takes a more expansive approach and also deals with the significant economic issues under the principles of UNCLOS, and in particular – the delimitation of the maritime

borders offshore Gaza and ownership of the natural resources therein. These two doctrines require distinctly separate disciplines and expertise. These two doctrines are independent of each other, but also complement each other at certain interface points. To better understand the implications of the Modern Doctrine, one must also understand the depths of the Classic Doctrine (including key events, previous agreements and maritime incidents which have brought the parties to this point).

The Gaza-Jericho Agreement¹

In May 1994 an agreement was signed between Israel and the Palestine Liberation Organization (PLO) ("**Gaza-Jericho Agreement**") which, among other things, addressed the legal status of the territorial waters offshore Gaza. In the Gaza-Jericho Agreement, Israel agreed that the Palestinian Authority's autonomous authority would include [the] "surface, subsurface and territorial waters" offshore Gaza, whereas Israel would bear responsibility for the "protection against external threats, including the responsibility for protecting the Egyptian Border and the Jordanian line, and for protection against external threats from the sea and from the air". The use of such terms was apparently not incidental since these terms also appear in Israeli legislation² and have a clear and distinct meaning. Under the Gaza-Jericho Agreement, it was also agreed that several maritime zones would be established offshore Gaza: the first, a maritime zone referred to as the "Central Zone" which would extend up to a distance of approximately 20 miles off the coast of Gaza into the sea; and the second, two strips of water, a mile and a half each, in the southern section near Egypt and in the northern section near Israel. These areas were to remain under Israeli security control.

Under the Gaza-Jericho Agreement, the Central Zone was intended to be governed under joint Israeli-Palestinian control and used for fishing and other domestic use. The Central Zone was measured from the Gaza coastline and up to the twentieth mile offshore. From the Gaza coastline and up until the third mile offshore was to be used for tourism and recreation. Foreign shipping was barred from approaching the Gaza coast up to 20 miles until the construction of a seaport in Gaza.³

¹ The "Gaza-Jericho Agreement between Israel and the PLO", May 1994.

² The Submarine Areas Law, 1953, Section (1) A "the territory of the State of Israel shall include the sea floor and underground of the submarine areas adjacent to the shores of Israel that are outside Israel territorial waters, to the extent that the depth of the superjacent water permits the exploitation of the natural resource situated in such areas".

³ "Report of the international fact-finding mission to investigate violations of international law, including international humanitarian and human rights law, resulting from the Israeli attacks on the flotilla of ships carrying humanitarian assistance", p. 6.

The map below illustrates the Classic Doctrine as envisaged in the Gaza-Jericho Agreement. The Gaza-Jericho Agreement included relatively few civil and economic references. Importantly, the Gaza-Jericho Agreement contained no references, mentions or citations whatsoever to UNCLOS⁴ which only came into effect in 1994, and at that time Israel had decided not to join.

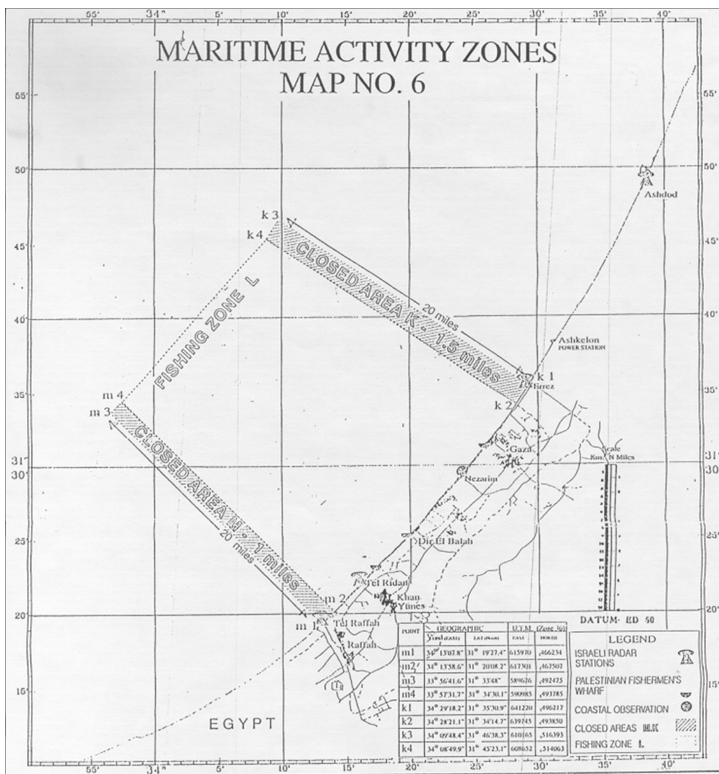


Figure 1: The Gaza-Jericho Agreement (1994) – Maritime Activity Zones Map

However, it is now apparent that Israel actually made a very significant concession to the Palestinians in the Gaza-Jericho Agreement by foregoing claims that it may have had to the natural resources located within the territorial waters offshore Gaza. As was stated in the Gaza-Jericho Agreement, the Palestinian territorial waters were to include the "surface and subsurface" of the waters offshore Gaza. Under Israeli law, the term "territorial waters" is defined as a "strip of open sea along the State's coast measured twelve nautical miles wide from the low tide point of the water on the coast".

⁴ United Nations Convention on the Law of the Sea ("UNCLOS").

The "Gaza Marine" Reservoir and the Origins of the Modern Doctrine

In 1994, at the time the Gaza-Jericho Agreement was being negotiated, there had not yet been discoveries of offshore oil or gas reservoirs in the waters of Israel or offshore Gaza. And in any case, the technology required for conducting such exploration was not yet readily accessible to the sides – therefore, it can reasonably be assumed that the concession that Israel made to the Palestinians was merely theoretical and devoid of any real meaning to the uneducated eye at that point in time.

It was only in 1999, when the first natural gas field was discovered offshore Gaza (referred to as "**Gaza Marine**") that a new hope emerged – on both sides – for commercial production of natural gas. Following the first discoveries of natural gas, each of the parties suddenly realized that any concession made in the maritime zones had real monetary significance. This realization considerably diminished the parties' willingness to make any more concessions without a comprehensive plan in place.

The assumed location of the Gaza Marine reservoir is approximately 19.4 nautical miles from the Gaza coastline (approximately 22.3 miles or 36 km) and is partly located within the waters for which the Palestinians had obtained a "territorial" claim under the Gaza-Jericho Agreement. Ironically, the geological structure of Gaza Marine straddles the southern extremity of Gaza's territorial waters and therefore some of it lays outside the determination of the territorial waters of Gaza.

In July 2000, after it was already clear that natural gas reserves had been discovered offshore Gaza, the leaders of the time convened a peace summit at Camp David in the United States ("**Camp David Summit**"). The parties were led by US President Bill Clinton, Israeli Prime Minister Ehud Barak and the Palestinian Authority Chairman Yasser Arafat. At the kickoff of the Camp David Summit, the parties clearly understood the significance of the natural gas discoveries and were prepared, from their points of view, to explore several plans of action for developing the reservoirs, either together or separately, and these options became part of their negotiation strategy.

While the parties were negotiating at Camp David seeking a solution to the Israeli-Palestinian conflict, other stakeholders began entertaining new concepts on how best to develop the newly discovered natural gas reservoirs in the Mediterranean.

The Camp David Summit ended in a resounding failure which ultimately led to the outbreak of the Second Intifada. Following the collapse of the peace process thereafter, the parties each decided to focus their efforts on alternative methods

for developing the reservoirs – and in Israel's case, a decision was made to start by developing the offshore reservoirs whose geological structure lay in their entirety on the Israeli side of the maritime border (i.e., reservoirs which came to be named "Noa" and "Mari-B").

When viewing the timeline below, the key events become clearer:

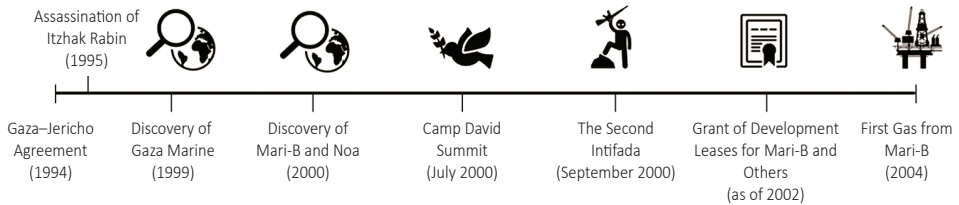


Figure 2: A timeline combining the diplomatic processes and the discoveries and developments of Israel's first natural gas reservoirs in the Mediterranean Sea

Shortly after the failure of the Camp David Summit, the Second Intifada broke out and thereafter Israel implemented its independent strategy for developing its natural gas reservoirs on its own. But yet, Israel continued to hold on to its security interests under the Classic Doctrine offshore Gaza in accordance with the principles of the Gaza-Jericho Agreement, while at the same time carrying out civilian initiatives to develop Gaza Marine and/or other reservoirs positioned on the Israeli side of the Maritime lines.

The Palestinians on their part tried, to the extent capable, to curry political support for the development of Gaza Marine – but of course without an agreement with Israel, they were unable to do so.

The Palestinian Authority was actually very keen on developing Gaza Marine as an obvious Palestinian interest. After all, the Palestinian Authority has very limited sources of energy and little to no independent natural resources or sources of income. The Palestinian Authority was (and is) very much dependent on importing resources for internal consumption primarily from Israel. Amongst other things, the Palestinian Authority imports from Israel electricity, water, fuel and natural gas creating a real dependency.

To the Palestinian Authority, the development of an offshore natural gas field of the size of Gaza Marine could have been an independent source of energy, and a vital source of cash flow which they desperately need ("**Gaza Marine Cashflow**").

Israel, for its part, was weary of developing Gaza Marine since a natural gas field of such magnitude would also entitle the Palestinian Authority to significant portions of the Gaza Marine Cashflow which would translate into a steady flow of unsupervised monies to them with no third party control or supervision. The Israeli concern was the possibility that the Gaza Marine Cashflow would be used for military buildup and funding terrorist organizations in Gaza.

To overcome the potential threat of such abuse, Israel offered the Palestinian Authority alternatives to direct access to the Gaza Marine Cashflow. Such alternatives included third party guarantees, assurances and external supervision to ensure that the Palestinian Authority would not be able to abuse the Gaza Marine Cashflow in favor of military buildup and terrorism.

Alas, the Israeli proposals were rejected by the Palestinian Authority, and the window of opportunity to develop the Gaza Marine field was squandered. At that time, Israel realized that there was no immediate hope of reaching an arrangement with the Palestinians on Gaza Marine and decided to pursue the natural gas reservoirs on the Israeli side and later to begin to import gas from Egypt. That being said, to this day the hope of developing Gaza Marine was never fully abandoned, and Israel has retained the ability to make use of the existing offshore platforms near Gaza (even if only theoretically) to receive the natural gas from Gaza Marine in the future.

The Naval Blockade of Gaza

From 1994 and until 2009, Israel continued to control the maritime zones offshore Gaza according to the Gaza-Jericho Agreement, a task that evolved to be a complicated security challenge for Israel. However, as of 2009 and shortly after (a) Hamas's ascent to power in Gaza; (b) the "Cast Lead" Military Operation; and, (c) Israel's interception of several significant weapon shipments destined for the Gaza Strip – Israel decided to enforce a total naval blockade on Gaza. The legality of said naval blockade was based on the laws of armed conflict at sea which adopted principles from (a) the San Remo Manual,⁵ (b) the London declaration,⁶ and (c) common international law. The decision to implement a naval blockade of this nature clearly over rid the understandings of the Gaza-Jericho Agreement, however as far as Israel was concerned, the imposition of a naval blockade was an existential imperative and it was left with no other choice.

⁵ "San Remo Manual on International Law Applicable to Armed Conflicts at Sea" 1994

⁶ "Declaration concerning the Laws of Naval War". London, 26 February 1909.

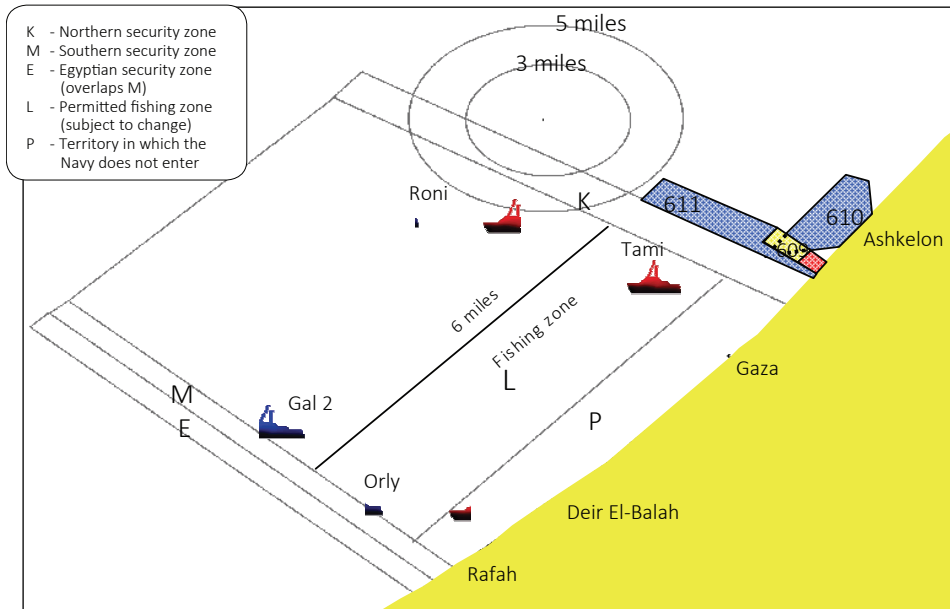


Figure 3: Map of the Naval Blockade on the Gaza Strip (from the Turkel Commission Report, 2010)

The naval blockade of Gaza was (and is) strictly enforced by the Israeli Navy. The maritime zones currently controlled by Israel are very similar to those established in the Gaza-Jericho Agreement however without the involvement of the Palestinian Authority. The naval blockade map indicated above includes a division of maritime zones where non-military vessels are allowed or forbidden to sail.

In this context, it is important to state the obvious – the principles of international law do not represent a single truth and the truth is open to interpretation. Indeed, it can be argued that the naval blockade of Gaza restricts one of the most important principles of the law of the sea which is the principle of Freedom of Navigation. The right to restrict Freedom of Navigation may be established only through international law, legal interpretation and moral justifications. The right to restrict the Freedom of Navigation is conditional on the recognized principles of international law and for part, under UNCLOS.

Following the Mavi Marmara flotilla incident Offshore Gaza⁷ ("**Mavi Marmara Incident**"), a UN committee was set up by the UN Human Rights Council⁸ (the "**Committee of the UN Human Rights Council**"). The Committee examined the Mavi Marmara Incident and overruled most of Israel's justifications of the naval blockade of Gaza.⁹ Israel did not take an active part in the Committee of the UN Human Rights Council and outright rejected its conclusions. In parallel, Israel investigated the events on its own through the Turkel Commission¹⁰ and reached opposite conclusions.

⁷ The legality of the naval blockade on the Gaza Strip was debated extensively following the Mavi Marmara flotilla incident, which occurred in May 2010. Recalling that a flotilla, which included several boats sailing from Turkey, departed en-route to the Gaza Strip with the intention of transferring humanitarian equipment to the Gaza Strip but with the undeclared intention of breaking the naval blockade imposed by Israel by force. The State of Israel had information that the organizers of the flotilla intended to create a provocation and attempt to break through the naval blockade by force to challenge the legality of the naval blockade and put the issue on the global agenda. The Israel Navy and its marine commando subdued the flotilla by force outside the territorial waters while it was on its way to Israel and before it reached the Gaza Strip. During the takeover at sea, the Israeli Navy soldiers were assaulted by the activists on the flotilla, who used clubs, bars, and knives. As a result, nine of those on board the Mavi Marmara were killed by IDF forces and another 20 were injured.

⁸ "Report of the international fact-finding mission to investigate violations of international law, including international humanitarian and human rights law, resulting from the Israeli attacks on the flotilla of ships carrying humanitarian assistance"

⁹ "The Mission finds that the policy of blockade or closure regime, including the naval blockade imposed by Israel on Gaza was inflicting disproportionate civilian damage. The Mission considers that the naval blockade was implemented in support of the overall closure regime. As such it was part of a single disproportionate measure of armed conflict and as such cannot itself be found proportionate [...] Furthermore, the closure regime is considered by the Mission to constitute collective punishment of the people living in the Gaza Strip and thus to be illegal and contrary to article 33 of the Fourth Geneva Convention".

¹⁰ The Turkel Commission established several legal principles which have underpinned, in terms of international law, the legality of the naval blockade of Gaza. *Inter alia*, the following conclusions were set forth: (a) the conflict between Israel and the Gaza Strip is an armed international conflict, (b) the purpose of the naval blockade that Israel has imposed on the Gaza Strip is, primarily, a military-security purpose, (c) the naval blockade on the Gaza Strip is legally imposed by Israel, and Israel fulfills the conditions for its imposition, (d) Israel fulfills its humanitarian duties that are applicable to a party imposing the naval blockade, including the prohibition on starving the population, abstention from preventing the supply of vital means to the civilian population, the transfer of medical supplies and the requirement for proportionality, and (e) international law does not give individuals or groups the freedom to ignore the fact of the imposition of a naval blockade, which is in compliance with the conditions for its imposition and which is being enforced accordingly, in particular where it fulfills the commitments toward neutral entities merely on the grounds that in the opinion of these individuals or groups its imposition violates the duties of the party imposing the blockade toward the entity subjected to the blockade.

Shortly thereafter in September 2011, the UN Secretary General published his own conclusions on the Mavi Marmara Incident ("**Palmer Report**")¹¹ which stated, inter alia, that the imposition of a naval blockade on Gaza by Israel was "a legal security measure intended to prevent weapons from reaching the Gaza Strip by sea and its enforcement is being done in accordance with international law".¹²

The "Guardian of The Walls" Operation and its Implications on The Future of Gaza

In May 2021 Israel was once again dragged into a military operation against the Hamas leadership in Gaza during the "Guardian of the Walls Operation". The military operation began in retaliation to massive rocket fire directed toward population centers in Israel from Gaza. The rockets were fired by Palestinian organizations led by Hamas. The Palestinian weapons that were used against Israel had been smuggled into or built in Gaza precisely as Israel had foreseen throughout all the years of peace negotiations. The Guardian of The Walls Operation lasted 11 days. Over 4,000 rockets and mortars were fired toward Israel from Gaza during the military operation. A large part of these "high trajectory" weapons were intercepted by Israel's Iron Dome system, but some landed inside Israeli territory. The rockets aimed toward Israel caused the death of civilians and foreign nationals and damaged homes and infrastructure. The rockets were detrimental to Israeli national resilience, undermined the sense of safety and security of the local population and ignited riots in Arab neighborhoods and towns in Israel.

In response to the rocket fire, the Israeli Defense Force ("**IDF**") employed a policy of hitting and destroying Hamas government centers in Gaza by toppling high-rise buildings housing key Hamas strongholds, hitting the homes of Hamas leaders and destroying other infrastructure used for battle. In addition, the IDF destroyed

¹¹ "Report of the Secretary-General's Panel of Inquiry on the 31 May 2010 Flotilla Incident", September 2011, Sir Geoffrey Palmer, Chair ("The naval blockade was imposed as a legitimate security measure to prevent weapons from entering Gaza by sea and its implementation complied with the requirements of international law").

¹² "The fundamental principle of the freedom of navigation on the high seas is subject to only certain limited exceptions under international law. Israel faces a real threat to its security from militant groups in Gaza. The naval blockade was imposed as a legitimate security measure to prevent weapons from entering Gaza by sea and its implementation complied with the requirements of international law... All States should act with prudence and caution in relation to the imposition and enforcement of a naval blockade. The established norms of customary international law must be respected and complied with by all relevant parties. The San Remo Manual provides a useful reference in identifying those rules".

underground tunnels spanning the Gaza subsurface which had been secretly built using massive financial resources over the years. The construction of these underground tunnels was evidently financed by foreign entities from outside Gaza. Such use of funds for military buildup and terrorism goes directly to the traditional Israeli position with respect to the possible uses of any future Gaza Marine Cashflow. Clearly, from an Israeli perspective, the events unfolded precisely as Israel had foreseen and they place a serious question mark over the ability to carry out any future negotiations on the development of Gaza Marine with respect to the Gaza Marine Cashflow, which undoubtedly would need to be monitored and supervised.



Figure 4: Iron Dome in action during Operation Guardian of the Walls¹³



Figure 5: Israeli natural gas platforms as military targets for Hamas

Ironically, during the "Guardian of the Walls Operation" Hamas even fired rockets toward the Israeli offshore platforms opposite the coast of Ashkelon even though strategically such offshore platforms could serve as vital infrastructure for the future development of Gaza Marine.

The result of the Guardian of the Walls Operation placed a heavy burden on the people of Gaza and caused havoc and destruction which has only increased the Palestinians' dependence on Israel. The devastation in Gaza following the Guardian of the Walls Operation is apparently tremendous, and the reconstruction of Gaza will require huge investments in the coming years. Where will such finances come from?

UNCLOS and The Modern Doctrine

The past events described above, have been detrimental to the prospects of finding a solution to the Israeli-Palestinian conflict. But looking ahead, and as will be further

¹³ *YNET*, Iron Dome interceptions over the community of Yatsits (photo: Elad Gruber) "Were you absent from work due to the security situation? These are your rights", May 2021 (By: Lital Dobrowitski)

examined hereto, the Modern Doctrines that have evolved and have the potential of bringing a positive effect in getting peace talks back on track. It is precisely out of a sense of shared responsibility and for the sake of future generations, that the parties must continue to try and map out common interests to form fertile ground for a sustainable solution.

Israel and the Modern Doctrine

The first indication of the emergence of Israel's Modern Doctrine can be deciphered from the draft Marine Areas Law which has been under discussion in the Knesset for several years ("**Proposed Law**").¹⁴ In the Proposed Law, Israel introduces its maritime goals which are clearly discernable. For the first time in Israel's history, the Proposed Law also includes a combination of economic and environmental interests alongside Israeli security and political interests with regards to its claims to the sea. The Proposed Law seeks to adopt certain aspects of UNCLOS into new Israeli legislation.

Since there is territorial and geographic continuity between Israel's Exclusive Economic Zone ("EEZ") and Egypt's EEZ to the south, one may deduce that the Modern Doctrine will be closely managed and monitored in coordination with Egypt.

Israel's maritime goals, inter alia, are to (a) strengthen Israel's prevention and detection capabilities within its EEZ; (b) exercise its sovereign rights; (c) ensure the development and exploitation of its natural resources; and (d) promote the protection of the marine environment. An additional vital interest to Israel is to establish and maintain "**Energy Security**".¹⁵

To ensure the development and exploitation of Israel's natural resources Israel has published a map indicating its offshore exploration blocks. Israel's offshore exploration blocks provide a visual depiction of the Modern Doctrine in the Mediterranean Sea.

Recalling that Israel has been engaged in oil and gas exploration and production for over twenty years and has accrued considerable knowledge and experience in this area. The offshore exploration blocks maps are accompanied by previous statistics and probabilities of discoveries based on previous exploration activity conducted in the region and a data room on the geology of the region.

¹⁴ Proposed Marine Areas Law–2017 (Section 1 – Goals).

¹⁵ "**Energy Security**" is the uninterrupted physical-availability at a price which is affordable, while respecting environment concerns (The International Energy Agency & The Tsemach Committee Report).

From the offshore exploration blocks map below, one can deduce that Israel has accomplished its existential needs in terms of governance and military control offshore Gaza and has begun its shift to a more operative approach focusing on the economic impact of establishing and controlling its EEZ.

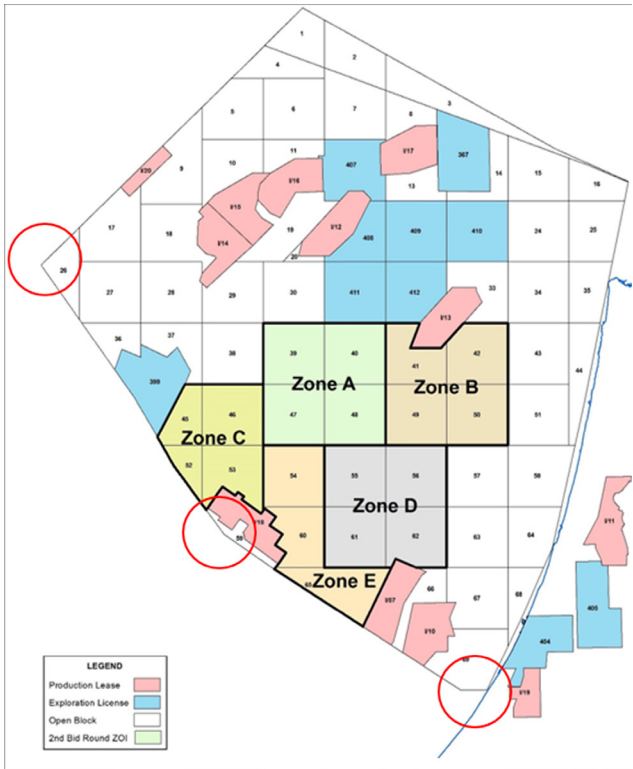


Figure 6: Map of the Competitive Process for New Exploration Blocks

In the offshore exploration blocks map, Israel has projected its semi-official maritime boundaries, according to its own interpretation, which have been adjusted according to the geology of the region, international agreements, and the principles of international law. Israel has declared, *de facto*, an EEZ.

Based on this offshore exploration block map (which purpose is completely different to the purpose of the map introduced during the Gaza-Jericho Agreement) Israel completed a competitive process which led to the granting of new exploration blocks to bidding concessionaires who are willing to carry out exploration in the area. In 2019, the competitive process focused on the southern region of the EEZ, near Gaza. Five companies won 12 new blocks during this proceeding. It can be

concluded that Israel will eventually allow these companies to explore and develop oil and gas reservoirs in Israel's southern maritime border region once again.

However, a point of concern to Israel on this matter are the semi-official maritime coordinates of its maritime borders identified on Israel's exploration map, which have not been finalized in binding maritime delimitation agreements with Israel's neighbors. The coordinates circled in red on the exploration map represent the meeting points between Israel and its neighbors' maritime boundaries and EEZ's.

Thus for example – a seemingly simple coordinate at the westernmost point of the Israeli EEZ, at the confluence of the maritime boundaries between Cyprus, Egypt and Israel (a three-way confluence) would require a tripartite agreement between the Cyprus, Egypt and Israel; similarly, at the center of the southern maritime border – at the confluence of the maritime borders of Egypt, Israel and the Palestinian Authority (a three-way confluence) would also require a tripartite agreement between Egypt, Israel and the Palestinian, and the same logic would apply to the easternmost, the meeting point between Gaza and the State of Israel.

The maritime boundaries established in the exploration block map are obviously inspired by the principles of UNCLOS, and foregoes (or simply ignores) the Classic Doctrine map set forth the Gaza-Jericho Agreement.

In other words, Israel is redrafting its maritime boundaries in accordance with the principles of UNCLOS and has effectively switched to a totally new method of viewing and understanding the boundaries of its EEZ.

The Israeli Modern Doctrine focuses primarily on establishing and managing Israel's rights in its EEZ, and has moved away from the Classic Doctrine which prime purpose was to establish military control over the maritime region of Gaza. Israel is now more interested in achieving recognized international maritime boundaries than establishing its control of the waters offshore Gaza.

UNCLOS is a universal document and is perceived as a constitution of sorts for the seas, and is not perceived to be a military document despite its various brushes against such issues. Importantly, Israel is not a signatory to UNCLOS, but makes effort to align its actions to customary international law and the principles of UNCLOS.

With respect to UNCLOS, Israel has developed a two-fold interest: on the one hand, Israel wants to preserve its grip on its natural resources in its EEZ and also to gain international recognition of its maritime borders, and on the other hand, Israel

wishes to maintain its strategic interest of negotiating from a position of strength vis-à-vis the Palestinians with respect to a future peace agreement.

In other words, Israel is gradually shifting the center of gravity of future negotiations through the filter of UNCLOS, which can be of service to both sides for finding a settlement for the Israeli-Palestinian conflict. And so (and not by accident) in the absence of Palestinian ability to break the naval blockade of Gaza imposed by Israel or to make any diplomatic progress following armed conflict and offences, a mutual process has begun of ridding each other of past agreements and developing Modern Doctrines which focus on achieving internationally recognized maritime boundaries and establishing ownership of offshore natural resources.

The principles of the Modern Doctrine are far more complex, far more international and require a deep skill and technical understanding with respect to international maritime law and oil and gas offshore development schemes (which neither side necessarily has abundance of) – but on the other hand, the principles of the Modern Doctrine have a better chance of bringing about actual results which addresses the real needs of both sides along with a clear economic facet.

But still, as has already occurred in the past, neither Israel nor its neighbors are waiting patiently to reach an agreement, and each side is also simultaneously pursuing options for developing new offshore reservoirs without obtaining consent from its partners on the other side of its side of the maritime border.

To demonstrate, both Israel and Egypt, are continually exploring their waters for new oil and gas reservoirs. On the Israeli side, new reservoirs have already been discovered – for example the Shimshon, Dalit concessions and others – and on the Egyptian side there have also been significant discoveries under the Zohr, North Theka and Nour concessions.

The Palestinian Authority and the Modern Doctrine

The Palestinians, too, have learned their lessons from the Gaza-Jericho Agreement and have realized that it would better serve their interest to concentrate on civil-economic interests rather than on the map forged from an Israeli security-political perspective.

In 2012, the United Nations granted the Palestinians a "Non-Member Observer State Status". Thus, by joining the United Nations as a Non-Member Observer State, the Palestinian Authority have opened new diplomatic possibilities which had until then been reserved exclusively to sovereign states.

Realizing that the maritime zones are of great strategic and economic value, it appears that the Palestinians are now just as eager as Israel to shake off past agreements and to adopt a new maritime map for themselves which from their standpoint covers all of their national aspirations.



Figure 7: Perception of the Maritime Zones From the Palestinian Perspective Since 2015

And indeed, the Palestinians have formed a Modern Doctrine of their own which includes far-reaching claims to the sea offshore Gaza which clearly contradicts past agreements with Israel with regards to control and claims over the territorial waters of Gaza.

In 2015, the Palestinian Authority became a signatory to UNCLOS under special status.¹⁶ In September 2019 the Palestinians unilaterally submitted a maritime map

¹⁶ "Declaration of the State of Palestine regarding the maritime boundaries of the State of Palestine in accordance with the United Nations Convention of the Law of the Sea", August 31, 2015.

to the UN which from their perspective constitutes a declaration of an EEZ within their maritime boundaries.¹⁷ The new Palestinian maritime map indicates that in their view, the maritime boundary of Gaza extends from the shoreline of Gaza at both ends along the maritime boundary lines of Egypt and Israel up to the Cypriote maritime border and totally separates between Israel and Egypt.

Additionally, in a complementary and semi-supportive way (apparently not coincidentally), a new Turkish political doctrine was issued which defines the southern maritime boundary of Turkey and/or the Turkish Republic of North Cyprus ("TRNC") as being connected to, with a direct maritime corridor and territorial continuity to the western maritime boundary of the sea opposite Gaza. Quite clearly, under this logic, Turkey would also be interested, if it had the chance, in reaching a parallel delimitation agreement with Israel at the point of confluence of the maritime border next to, or instead of Cyprus, and thus to abrogate the existing maritime delimitation agreement between Israel and Cyprus signed in 2010 on the delimitation of the western maritime boundary.¹⁸

Turkey, Cyprus, Egypt and the Modern Doctrine

The irony of the combined Turkish-Palestinian Authority position is that while the Palestinian Authority is using UNCLOS to establish its regional claim to an EEZ offshore Gaza, Turkey and the TRNC (which is not an internationally recognized state and are certainly not signatories to UNCLOS) stake their claims outside the context of UNCLOS in accordance with signatory older principles from the Convention on the Continental Shelf which predates UNCLOS.¹⁹

This is clearly a declarative strategy by Turkey and the Palestinian Authority to create an "alternative approach" to the newly forged Israeli-Egyptian positions from an adversarial standpoint, and to challenge new regional collaborations. A key interest is also to thwart potential routes for the construction of a subsea natural gas pipeline from Israel to Europe and/or to Egypt.

Moreover, the Turkish strategy challenges Cyprus' sovereign rights to an EEZ without obtaining Turkey's prior consent. As such, perhaps more importantly, the Turkish Modern Doctrine establishes claims of shared ownership over all of the natural

¹⁷ "Declaration of the State of Palestine regarding the maritime boundaries of the State of Palestine in accordance with the United Nations Convention of the Law of the Sea", September 24, 2019.

¹⁸ "Agreement between the Government of the State of Israel and the Republic of Cyprus on the Delimitation of the Exclusive Economic Zone" (December 2010).

¹⁹ "Convention on the Continental Shelf" (1964).

resources in the Cypriot EEZ. The Turkish strategy also attempts to create public sentiment that Turkey is a powerful, legitimate patron of the Palestinian people looking out for them at the international level.

Of course, in response to the publication of the new Turkish-Palestinian Modern Doctrine, Cyprus immediately submitted its objection to the United Nations regarding the Turkish claims over Cyprus' recognized maritime boundary and EEZ.²⁰

This is surely a development which adds another layer of complexity to an already volatile situation and which is intended to delay, disrupt, defy, and deter against any unilateral action on the part of any one of the parties in the Mediterranean without Turkish consent.

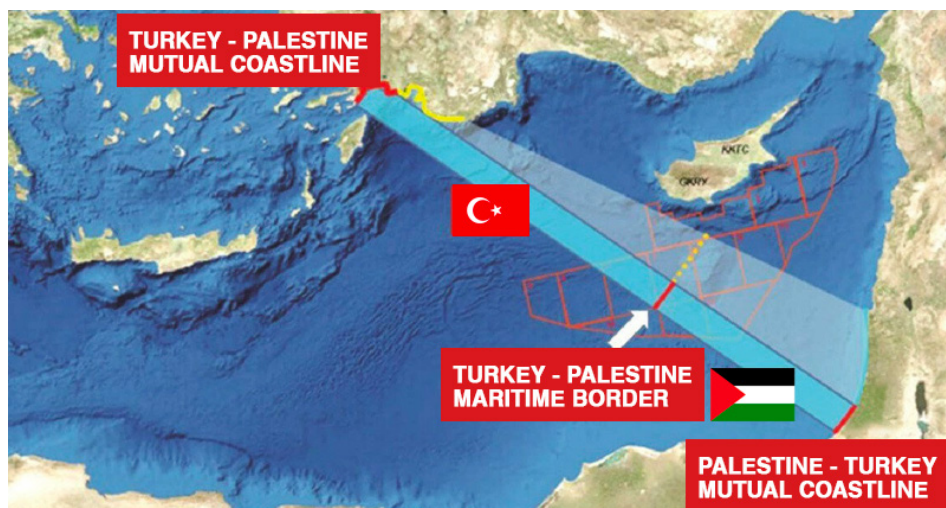


Figure 8: The Turkish-Palestinian interpretation of the territorial continuity between the EEZ of the Gaza Strip and that of the TNRC²¹

According to the Palestinian Modern Doctrine, all of the natural resources located in the so called EEZ offshore Gaza are attributed to the Palestinian Authority.

To these claims, Israel's response was promptly issued in January 2020. Israel filed an official objection with the United Nations concerning the Palestinian declaration

²⁰ "Letter dated 24 April 2020 from the Permanent Representative of Cyprus to the United Nations addressed to the Secretary-General".

²¹ Turkish-Palestine EEZ delimitation proposal causes panic in Israel and Greece, *United World International*, May 19, 2021.

of an EEZ. The legal grounds for the Israeli objection have been that the Palestinian Authority has no sovereign rights as an independent state in accordance with UNCLOS since it is not a sovereign state. In other words, Israel claims that only sovereign states have the right to declare their EEZ's in accordance with UNCLOS as follows:

Only sovereign states have the rights to maritime zones, including territorial seas and exclusive economic zones, as well as the right to declare maritime boundaries.²²

Moreover, Israel claims that the Palestinian Authority does not meet the definition of a "State" in accordance with international law and it therefore has no right to claim maritime zones.

The Palestinian entity does not satisfy the established criteria for statehood under general international law and therefore lacks the legal entitlement to such maritime zones.²³

In parallel, Egypt also filed an objection with the United Nations regarding the Palestinian EEZ under the Modern Doctrine, objecting to their depiction of the maritime boundary between Gaza and Egypt on the southern Gaza maritime border, but not for the same reasons as Israel.

According to the Egyptian position, the maritime space that the Palestinian Authority has claimed for itself as its EEZ, or a large part thereof, is actually within Egypt's EEZ. As such, a potential new maritime conflict has emerged between Egypt and the Palestinians.²⁴

But this may not necessarily play out in Israel's favor. It is important also to bear in mind that Egypt has no actual objection, in principle, to claims of sovereignty being made by the Palestinian Authority as if it were a sovereign state. As of today, Egypt and the Palestinian Authority have set up bi-lateral negotiation teams which are seeking a settlement on the maritime boundary matter between them.²⁵ The pièce de resistance from the Palestinian Authority's standpoint after such negotiations (if and when they will be successfully concluded) will be achieving international recognition in terms of sovereignty, from Egypt under UNCLOS which could consolidate its status as a de facto sovereign state – which is a primary Palestinian interest.

²² "Communication dated 14 January 2020 from the Permanent Mission of Israel to the United Nations addressed to the office of the Secretary-General of the United Nations".

²³ Ibid.

²⁴ "Communication from the Permanent Mission of Egypt to the United Nations transmitted to the Secretary-General", 31 December 2019.

²⁵ "Egypt to negotiate sea border with Palestine", *Al-Monitor* (November 2020)

Maritime Delimitation, Economic Interests, Development of Cross-Border Reservoirs and Natural Gas Export – Maximizing the Potential for Regional Cooperation

As it is gradually coming to play, there are many conflicting interests, interpretations and legal complexities in the Mediterranean Sea. An important factor to bear in mind is that in the Middle East there has always been invariably over-involvement of external state players and regional powers closely watching the maritime arena in order to understand, in real time, what the regional balance of power is.

Israel's gas reservoirs are quite ample and can satisfy Israel's and neighbor's energy needs far beyond their existential needs for years to come. Many other countries in the region (with emphasis on Europe) have acute shortages of independent energy sources and each are trying to decipher the potential of natural gas exports from the Mediterranean Sea for their own benefit. External involvement has become so extreme, that some countries in the region are willing to initiate, finance and accept constraints and dictations to win the vital reward and pave the way for the natural gas exports to reach them.

From a strategic perspective, the better Israel learns to leverage its special status as a natural gas exporter, the greater the benefits Israel will be able to reap. A smart strategic play by Israel will result in increased political, diplomatic, and economic clout for Israel.

And so, the evolution of the Israeli-Palestinian conflict is shifting to the sea. The shift has the potential to bring with it a comprehensive regional settlement. But the true challenge will be to successfully negotiate a string of inter-connected diplomatic and commercial agreements between multiple parties which will be highly technical by nature. The achievable goals of such agreements could include (a) international recognition of Israel's maritime boundaries; (b) determining the ownership of the offshore natural resources; (c) settling the division of profits with respect to the Gaza Marine Cashflow and other cross-border fields, and (d) development of new offshore oil and gas reservoirs which could be diverted for export – and all outside the context of the Classic Doctrine between the Israelis and the Palestinians.

Subsea Pipelines, Floating Infrastructure, Liquefaction and Regional Exports

But – to achieve all of the above, it is imperative to very clearly understand the technological aspects of deep-sea oil and gas exploration, unitization agreements and the various technical requirements for developing offshore infrastructure for this purpose.

There are many options for executing substantial offshore projects in the Mediterranean Sea. Israel and Egypt have already proven beyond reasonable doubt that investing in the development of deep-sea oil and gas reservoirs is diplomatically, technically and economically feasible with a high degree of certainty.



Figure 9: The Tamar Platform and The Mari-B Platform



Figure 10: The Future of the Mediterranean Floating Liquefied Natural Gas Extraction and Production Floating Liquefied Natural Gas (FLNG)

Energy experts believe that even as far as 2050 (at least) the world will still be consuming fossil fuels and byproducts derived from offshore oil and gas reservoirs. Therefore, there is still an urgent need to continue the development of oil and gas fields even during a time of climate change and the global paradigm shift to use of cleaner energy sources. Therefore, the window of opportunity for achieving the goals of the Modern Doctrines has not yet passed.

For example, if Israel and the Palestinians were to decide that Gaza Marine could be developed as a means to kick start the implementation of the Modern Doctrine in the Mediterranean Sea, the concept of reuse of existing offshore infrastructure near Gaza could be revisited immediately. The reuse of existing infrastructure would be a cost-effective measure and could shorten the development time of Gaza Marine significantly.

Another good example of the reuse potential of existing offshore infrastructure in the Mediterranean Sea is the reuse of the EMG gas pipeline offshore Gaza which was originally built to import gas from Egypt to Israel, and today is used to export Israeli gas to Egypt. The time for completion of the conversion of the EMG pipeline was significantly shortened and was conducted within a very strict budget not long after the EMG pipeline was acquired by its new owners – Noble Energy (now Chevron) and Delek Drilling.

Furthermore, additional projects have already passed the *proof of concept* phase including plans for mega-investments such as the construction of an offshore natural gas pipeline gas from Israel to Europe via Cyprus, or deep sea floating alternatives such as constructing several Floating Liquefied Natural Gas (FLNG) Facilities in the Mediterranean Sea for export purposes.

Conclusion & Recommendations

There is no doubt that the emerging Modern Doctrines represent a new starting position for future negotiations between Israel, Egypt, and the Palestinians. The Modern Doctrine has the potential to change the balance of power in the region so long as it remains outside the military-political context.

In the Modern Doctrine era, it will be possible, through exploration and development of offshore infrastructure and projects, to reach agreements on the maritime boundaries of the various states in the region and discussing ways for distributing profits and royalties between stakeholders with regards to such oil and gas developments. It will also be possible to make sure that the use of any cash flow from such projects is put to further use for regional development, rather than military and terror buildup.

The financing for such mega projects could be provided by state-sponsored stakeholders called upon which have a vested interest in developing the region (such as the UAE, Gulf States, Turkey and others). As the tensions are relieved through further negotiation, fruitful collaboration may emerge and investors will seek to get involved.

It is imperative to remember that the people of Gaza are suffering from overpopulation, shortage of raw materials, lack of financing and lack of energy sources and the Modern Doctrine could primarily bring hope to the people of Gaza.

To summarize, the achievable interests through future negotiations and the development of the Modern Doctrine are as follows:

1. A permanent settlement of the maritime boundary's disputes between Israel, Egypt and the Palestinian Authority.
2. The further development of cross-border oil and natural gas reservoirs (and/or oil and gas reservoirs on either side of a recognized maritime border).
3. The continuous supply of natural gas, raw materials or electricity to Gaza and regional players directly from offshore infrastructure.
4. The construction of purpose-built offshore infrastructure, or the re-use of existing offshore infrastructure including artificial islands offshore Gaza for energy project purposed.
5. The financing and investments in the energy-sector by state-sponsored stakeholders in the region.

A Model for an Israeli Academic Marine Monitoring System

Semion Polinov and Shaul Chorev

The prosperity and safety at sea of many coastal nation-states are associated with the maritime domain in their region. For several decades, maritime domains have undergone a significant process of geopolitical and environmental changes (Bueger, 2015; Bueger & Edmunds, 2017). Demographic growth and rising living standards are constantly increasing the pressure on the marine environment, forcing it to generate resources, and contributing to the shift away from land-based resources to find new resources at sea (Tournadre, 2014). The discovery of new resources and the technological development that allows them to be extracted increases the economic importance of Exclusive Economic Zones (EEZs) (Katsanevakis et al., 2015). In recent years, the use of the maritime domain for various purposes has increased. This is due to increased demand for the uses and activities that have historically existed in the area, such as sports and recreation, as well as fishing and shipping, and as a result of the emergence of new key players on the scene; primarily the discovery of natural gas and subsequent activities related to the extraction and processing of gas. The increasing pressure on the maritime domain such deliberate oil spills (Polinov et al., 2021) and the exploitation of its resources (Kark et al., 2015) as a result increase the pressure on the marine ecosystem (Halpern et al., 2008, 2015). The marine ecosystem provides critical services and functions as the basis for many human activities at sea (Cheung et al., 2009). It is home to a variety of marine species and provides ecosystem services such as stocks of marine food for fisheries and water for desalination, as well as regulatory services such as fertilizer processing and CO₂ sequestration (Planning Administration, 2016) to increase Israeli maritime security (Fig. 1).

Maritime security has been a buzzword in recent years (Bueger & Edmunds, 2017), while climate change and pandemic are among the main factors that weaken the maritime security of coastal countries (Agarwala & Polinov, 2020; Germond & Mazaris, 2019). State Maritime Safety achieves its meaning through identifying the participants in the process, identifying existing and potential problems and acting out of the desire to find approaches and solutions for them, while the practical meaning will always vary depending on the real situation. Therefore, striving for a universally acceptable definition of maritime safety and technological platforms is counterproductive (Bueger & Edmunds, 2017).

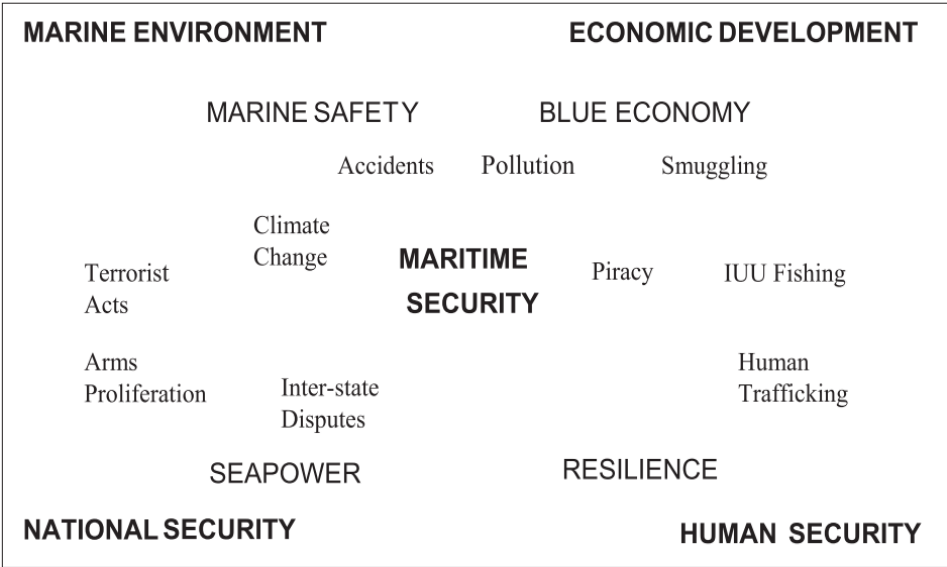


Figure 1: Range of threats for Israeli maritime security that the National Maritime Monitoring System should track (Bueger, 2015)

In this article, we try to develop geospatial concept to deal with the multilingualism of the concept, with a focus on Israel's maritime realm. The current model, based on a study of existing monitoring systems such as the Sea Coastal Monitoring System, is a consortium of supercomputers for modeling and managing large databases, whose members include Italian universities, national research centers, and private enterprises and is engaged in a wide range of research (Serra, 2021).

Israeli Maritime Security

Israel's EEZ area in the Mediterranean is about 24,000 km² (vs 20,500 km² according to the 1967 Israel border) and can meet many of the needs of society, the economy, and the environment (Planning Administration, 2020). It contains enormous potential energy resources, is a major source of domestic water production, and also contains valuable natural and heritage resources (Rettig, 2017). The maritime domain is the main commercial and infrastructure bridge to the rest of the world and can be seen as a future land reserve for infrastructure development and perhaps even urban development. At the same time, the sea area is also Israel's "blue lungs," offering vast open seascapes and opportunities for recreation and entertainment (Gour Lavie, 2018). In recent years, marine domain, due to nascent human activities, has become an arena of conflict between these uses and the natural and heritage resources it

harbors (Fröhlich, 2016; Kark et al., 2015; Laubier, 2005). Moreover, the technological improvement increases the more complicated (Chorev, 2020). However, there has been no overall maritime planning so far, and there are currently no strategies about this area, especially when compared to the level of administrative concern and planning efforts set aside for the land-based portion of Israel (Technion, 2015).

This article presents a conceptual model of regional monitoring system of the sea-neighboring territories of Israel based on modern methods of remote sensing of the sea and data processing in Geographic Information Systems (GIS), with the main goal of ensuring the range of threats to Israel's Maritime security.

Israeli Academic Marine Monitoring System (IAMMS)

The proposed IAMMS aims to develop long-term knowledge in the field of oceanography, oil and gas, marine environment, regional security and foreign policy, mobility of goods and people, maritime law and security, with a focus on relevant areas for Israel's maritime security (see Fig. 2):

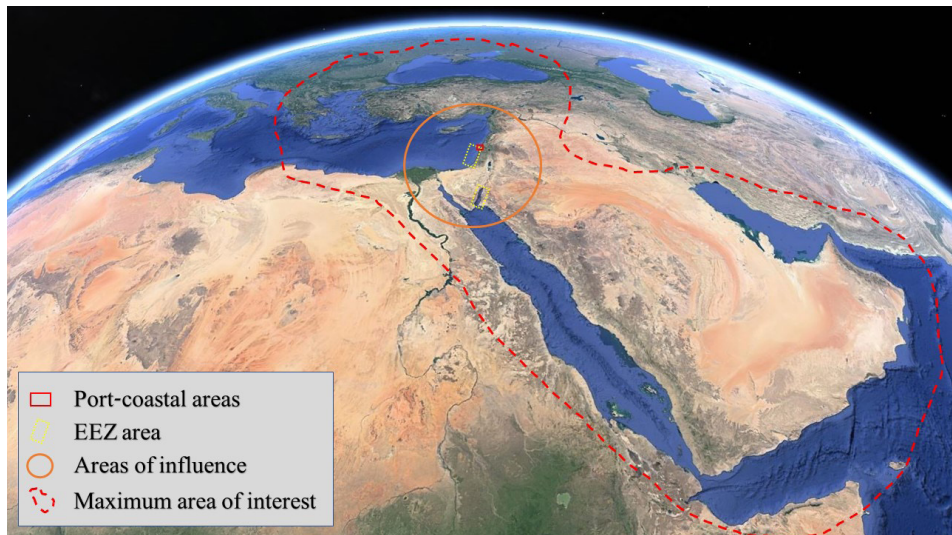


Figure 2: Proposed areas for the Israeli Maritime Environmental Monitoring Program

1. Ports/coastal area: an area with high sensitivity due to the presence of a large number of infrastructures important to the state, dense populations along the coastlines.
2. EEZ: an area in which Israel has the full right to extract useful natural resources, but also because of "freedom of navigation" all types of ships are free to sail

through this area. Due to the dominant southwestern currents, the coastal zone is heavily influenced by various processes in this area.

3. Area of influence: the different types of processes of origin in this territory in many cases do not have a direct impact, but rather have an impact indirectly through political and economic processes, for example, Turkish geophysical research in the EEZ of Cyprus.
4. Security: remote areas in which Israel is conducting activities that can have a significant impact on Israeli maritime security. An example is the Iranian attack on ships (with Israeli ownership) in the Persian Gulf and the impact of these attacks on the freedom of navigation of ships under Israeli ownership.

In 2021, the Eastern Mediterranean and surrounding regions were characterized by environmental instability. One of the oil spill incidents occurred in February 2021—an oil spill from an unspecified source (possibly an Iranian tanker that left the Suez Canal) reached the coast of Israel (Ministry of Environment Protection, 2021), without any early detection at sea, which led to severe pollution of Israeli territory. In addition, in 2021, the desalination plants stopped several times due to sea pollution, apparently due to algal blooms, also without early warning. The ongoing pollution problem of the Baniyas in Syria, which miraculously did not reach the coast of Israel, continued to pour oil for three months; there are also potentially dangerous sources of pollution of the sea. In most cases, Israelis and decision-makers are aware of such ecological incidents, with late forestry opportunities to react as early as possible and thereby reduce potential harm.

In the Red Sea region, the signing of the Abraham Accords brought an increase in the number of tankers shipping to the terminal in Eilat. About five oil tankers arrived in the first months of 2021 from Saudi Arabia. While we know little about the ships that arrived at the port of EAPC Eilat oil terminal and their ecological history, it is possible to say with a high level of accuracy that this made a certain negative contribution to the local marine ecology, apparently without a detailed environmental analysis and compliance with the Ministry of Environmental Protection's rules or its approval, which led to the suspension of work. At the same time, several kilometers away in the port of Aqaba, most of the time at least one tanker would be in the process of unloading while another one would be waiting (see Fig. 3).

Another significant incident was the Suez Canal congestion on March 23, 2021, by the "*Ever Given*" cargo ship (Fig. 4), which lasted for about a week. This instantly affected at least 400 ships and led to significant economic damage to the maritime industry (\$15-17 billion), the remnants of which will appear in the global economy for a long time (Man-Yin Lee et al., 2021).

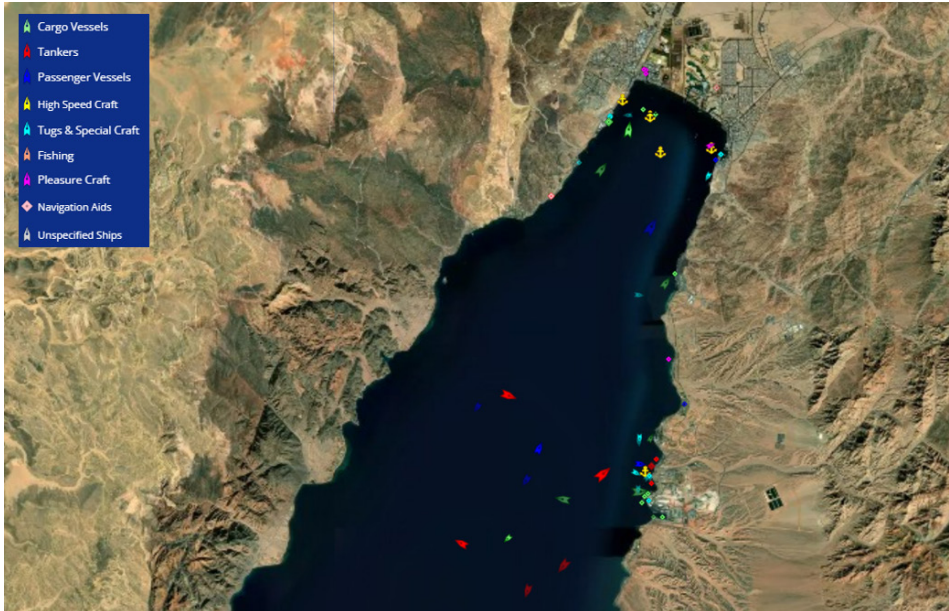


Figure 3. Vessels in Gulf of Aqaba. Red vessels represent oil tankers (source: www.marinetraffic.com, 24/11/2021, 16:00). Eight tankers in Aqaba port, zero tankers in Eilat port.

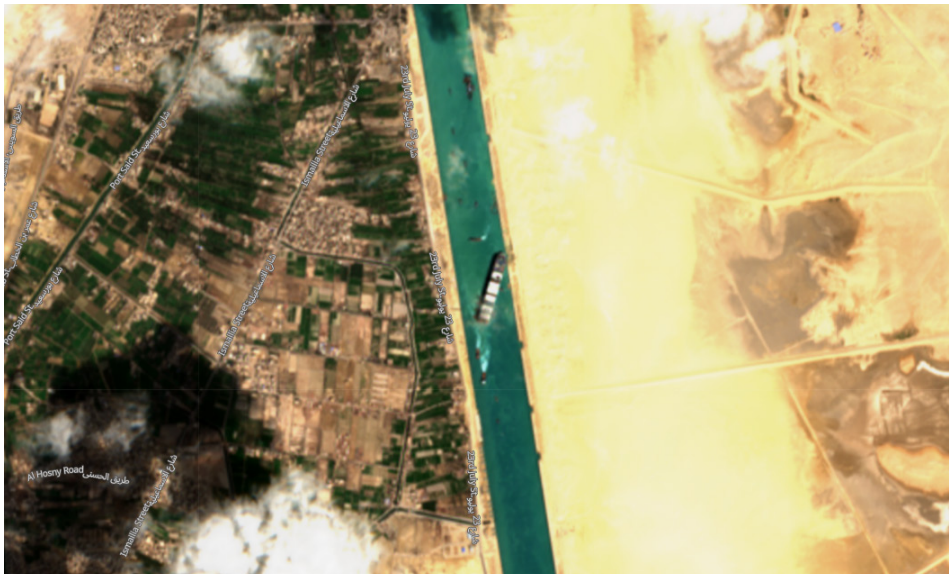


Figure 4. Satellite image of Sentinel-2 showing the "Ever Given" stuck in the Suez Canal (29/03/2021).

Overall, 2021 has been characterized by a significant increase in activity in the Red Sea region, both military and with incidents of attacks on ships as part of the Israeli-Iranian campaign and civilians.

Levels of Israeli National Monitoring Platform

- **Early detection:** Early detection of events in the marine environment that could affect the national security of Israel: desalination, seawater quality, port management, protection of seabed infrastructure, mapping the impact of various maritime activities—all highly dependent on the seawater quality.
- **Validation:** A remote sensing platform could be used as a validation method for the processes that take place in the marine domain.
- **Evaluation:** Evaluation of short-term and long-term marine environmental processes, such as sea surface temperature (SST) or sea salinity.
- **Analyzing:** Spatial and temporal processes analysis in nearby areas that could potentially affect Israeli maritime security.

Methodology

The proposed IAMMS describes the general principles of the system with the main purpose of integrating, maintaining, and supporting monitoring, planning, legislation, research, and study of processes in the seas and oceans for the various strategic needs of Israel. The purpose of this platform is to collect relevant information based on various data sources such as remote sensing, buoys and data processing using Geographic Information System (GIS) methods for efficient and fast spatial and temporal monitoring of Israel's marine environment in the Mediterranean Sea and the Red Sea.

Remote Sensing

Remote sensing is the process of detecting and monitoring objects and their physical characteristics by measuring reflected radiation at a distance (usually from satellites, aircraft, and drones) without any physical contact. An important aspect of remote sensing is the "footprint/spectral signature" of the particular object. By constant monitoring of a certain area with the uses of spectral analysis techniques, it is possible to determine in advance various physical changes of the object even before the human eye can observe these changes. The current number of satellites and their support systems, with daytime time coverage and a high spectral and geometrical resolution, currently monitors a variety of objects, regardless of weather conditions. Organizations such as NASA and the European Space Agency (ESA) provide free

public domain satellites, thereby allowing them to observe and provide results in near real-time.

Sentinel-1

This mission is composed of a constellation of two satellites, Sentinel-1A and Sentinel-1B, which share the same orbital plane. They carry a C-band synthetic-aperture radar instrument that collects data in all kinds of weather, day or night. This instrument has a spatial resolution of down to 5 meters and a swath of up to 400 kilometers.

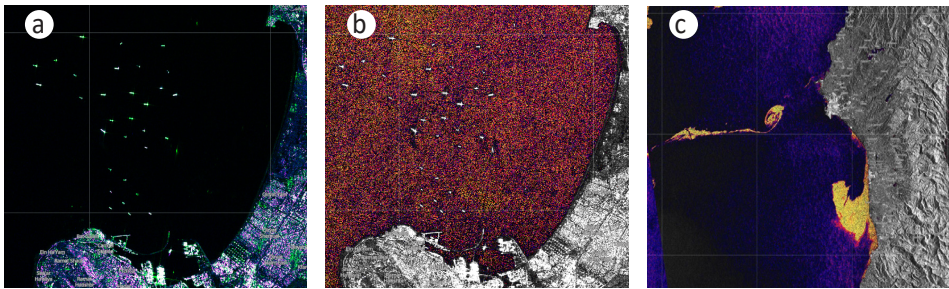


Figure 5: Sentinel-1 images of Haifa Bay (left and center) and detection of the oil spill from the Baniyas Refinery (Syria) during August–September 2021 (right). The left figure enhances the urban area, center, and right figures by using a mathematical index for the detection of oil spills (right) and algae bloom in Haifa bay (center)

As shown in Figure 5, it is possible to distinguish ships in the port area of Haifa, despite weather conditions. Using mathematical indices (Figure 5 [right]), it is possible to analyze the content of the pollution (oil, algae, etc.) in seawater. With a repetition time of approximately two to three days in Israeli latitudes, Sentinel-1 images allow Israel to perform constant spatial and temporal analysis.

Sentinel-2

The Sentinel-2 satellite carries a single multispectral instrument with thirteen spectral channels in the visible/near-infrared and short wave infrared spectral range.

Within the thirteen bands, Sentinel-2 images provide a wide range of coastal and marine observations. The ten-meter spatial resolution of RGB channels allows object detections with a size larger than ten by ten meters (see Figure 6). Moreover, information gathered in "Infrared" and "Short Wave Infrared" spectrums can be applied in marine environmental monitoring, disaster management, and mapping of human footprint.

Sentinel-5

Sentinel-5 is focused on air quality and composition-climate interaction with the main data products being O₃, NO₂, SO₂, HCHO, CHOCHO, and aerosols. Additionally, Sentinel-5 will also deliver quality parameters for CO, CH₄, and stratospheric O₃ with daily global coverage for climate, air quality, and ozone/surface UV applications.

Nighttime Lights

Remote sensing of nighttime lights (NTL) offers a unique ability to monitor human activity from space during the night by measuring low lights. Since the 1990s, many studies have taken advantage of the ability to monitor artificial lights from space and quantify the relationships between human activity and other variables or nighttime brightness, as well as quantify the extent and rate of human activities (see Fig. 8). In the past decade, nighttime light remote sensing images show significant application potential in the marine domain, such as mapping shipping activities (Zhong et al., 2020). The Visible Infrared Imaging Radiometer Suite (VIIRS) instrument is considered to be one of the most popular in the academic field with a spatial resolution of 350 to 750 meters.

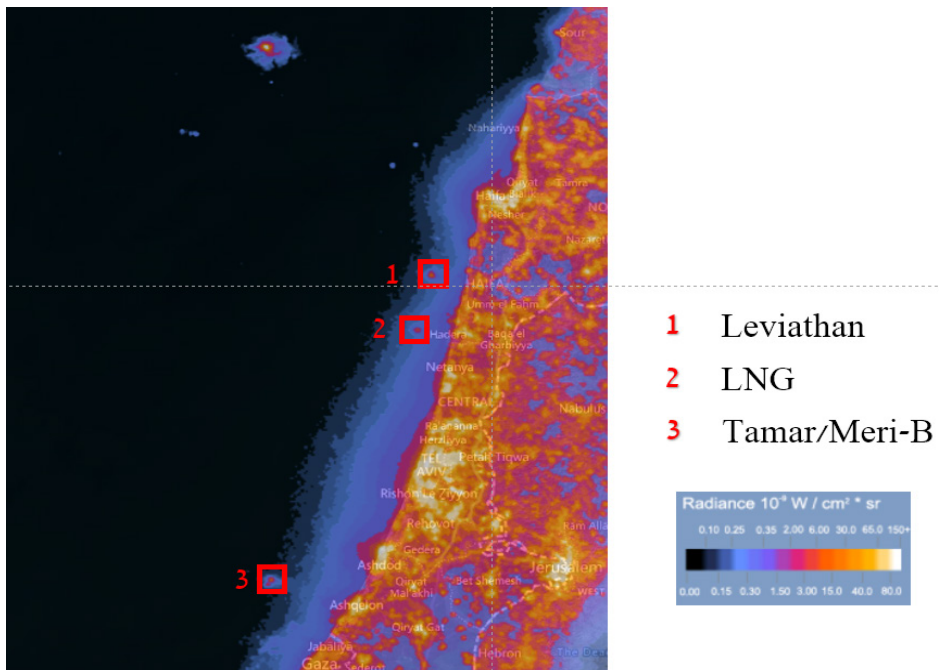


Figure 9: Average NTL over Israel EEZ in the Mediterranean Sea in 2020

As presented in Figure 10, NTL data indicated a stable amount of NTL from 2013 to 2019 and two periods (end of 2018 to end of 2019, middle of 2020 to August 2020) of a significant decrease in the overall sum of NTL produced in the vicinity of the exploded Beirut dock, which points to an attempt to lower the nighttime lighting in the area. Using suitable computer systems and creating logical laws, such changes can be detected in real-time.

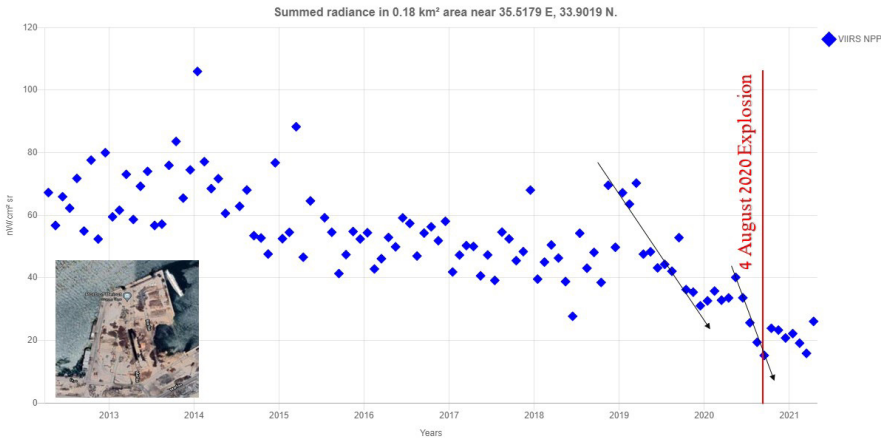


Figure 10: Analysis of NTL values above the explosion on 4 August 2020 Beirut dock, using VIIRS

Automatic Identification System (AIS)

One of the most important technological advances in the maritime industry over the past decade has been the introduction of an Automatic Identification System (AIS). Its tracking system allows—based on the GPS transmitters on the ship—free reporting of the ship's position every five seconds to five minutes. In addition, the signal includes additional information about the age of the vessel, its flag, and other stable and dynamic information. Millions of signals are analyzed using artificial intelligence and other algorithms to detect ship anomalies and avoid collisions and other accidents. The data that can be collected from AIS data can provide a broad overview of various aspects of maritime safety.

Israeli Organizations and Their Datasets

In addition to the widespread free and open access to data provided by NASA, NOAA, ESA, and other organizations, Israeli datasets should also provide free access and be integrated into such a global monitoring systems, primarily for data validation and calibration. For example, the Israeli Coastal and Marine Engineering (CAMERI) and

the Israel Oceanographic and Limnological Research (IOLR) allow limited access to the collected data for local and foreign researchers.

Besides presented datasets in this article, the IAMMS could be fed by additional datasets provided by free access such as Global Monitoring for Environment and Security (Copernicus) and European Marine Observation and Data Network (EMODnet), etc., that provides a wide range of oceanographical, physical, chemical, and biological data.

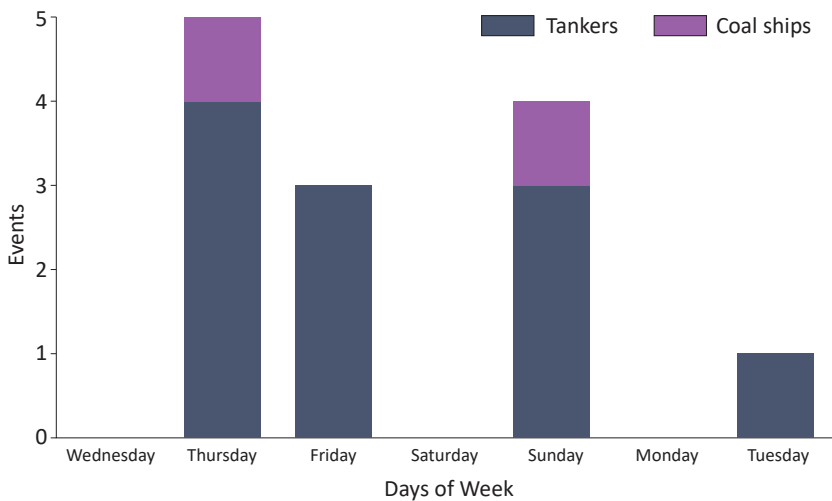


Figure 11: An example of weekly shipping statistics of the Hadera coal power plant and oil tankers in Haifa ports

Conclusion

the last two years have clearly demonstrated the global dependence on navigation. Israel, on the other hand, is in an even more sensitive environment, while it is easy to influence state security from the sea. The oil pollution of Israel's shores in February 2021 highlighted the weaknesses in Israel's maritime security in civil emergencies scenarios. Moreover, the fact that 70% of Israel's drinking water is desalinated water, which leads to a high dependence on access to clean seawater. Therefore, Israel needs to develop an independent open-access database of the Israeli maritime domain that will combine all of the methodologies and data sources: remote sensing, AIS, buoys, and other marine sensors and databases. The current development of remote sensing technologies and computational capabilities will expand the information gathered and analyzed about objects in the sea in real-time, to include

not only the location of the investigated object but also their spatial and temporal signature. GIS technologies will be used as analytical tools to perform such analysis. Such a database must be made available to a wider academic audience for research and will be instrumental in improving Israeli maritime and geostrategic research and the monitoring of deep-sea areas while facilitating the effective response to any type of event, whether it be the result of an accidental (human-made) or natural event. Finally, the findings should be open-access and transparent to international maritime organizations, governments, policymakers, and stakeholders in formulating effective strategies for monitoring the marine environment.

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Estimate of the Cost of Protecting the Sea Ports in Israel Against Cyber Threats¹

Itai Sela

Introduction

The global economy is dependent on the civil maritime industry to a large extent, not to say completely. The implications of disruption of the supply chain due to cyber attack are not limited to a small number of raw materials-dependent manufacturing sectors; they affect a vast array of consumer products which are dependent on the maritime supply chain.

The weaponization of the cyber space and the increasing involvement of state and non-state players in cyber attacks against critical infrastructures, including the use of private entities and advanced technologies in order to achieve strategic value, make the maritime arena extremely vulnerable. The cyber threat highlights the attacker's advantage and exposes the defender's vulnerabilities. Over the past decade, the civil maritime industry (vessels, passenger ships, shipyards, ports, terminals, and energy infrastructures) has become highly dependent on computer and control systems which are based on operational technology. These systems are mostly based on obsolete operating systems, do not have security updates and patches, have limited (if any) monitoring capabilities, and most of them have no cybersecurity. These technology gaps, the weaknesses caused by the man-machine interface, the reliance on the human factor as a solution for coping with the cyber threat and the reliance on non-binding recommendations, all together make it difficult to analyze the implications and losses actually caused by maritime cyber attacks.

This article analyzes the cyber threat [the act of inserting malware into information technology (hereafter IT) or operational technology (hereafter OT) systems, with the intention of achieving military, intelligence or business objectives] with emphasis on OT systems within the civil maritime industry. It assesses the cost of the threat and the required solution for protecting all of Israel's ports, while recommending a conceptual shift in the cybersecurity of the civil maritime industry.

The main findings in this article indicate that the direct and indirect cost of the cyber threat from a single attack on the four ports in Israel is estimated at an average of

¹ This article is part of my thesis written under the guidance of Prof. Shaul Chorev, Head of the Maritime Strategy & Policy Research Center, The Social Science School International Relations Division, and Dr. Doron Nissani, Business Management School.

approximately \$1.7 billion. At the same time, the cost of the solution for that threat according to the proposed 'Inside-Out' cyber defense approach, is estimated at an average of approximately \$3.5 million per year, which is less than one quarter of one percent of the cost of the cyber threat itself. Decision-makers called upon to discuss the issue of coping with the cyber threat to the operational systems hesitate to decide as to the investment in cybersecurity for operational systems in their organization due to the complexity, cost and information gaps. However, the intensification of the scope and nature of the cyber attacks on maritime assets in general and on sea ports in particular indicates that the trend is gaining momentum, and that it is becoming more likely that the operational systems of the Israeli sea ports will be attacked in the near future. Therefore, this article reflects the nature of the threat, the defensive concepts and the accounting calculation between the cost of the threat and the cost of the solution, in order to enable decision-makers in Israel (managements and regulators) to assess, from a new perspective, the defensive concept and its cost, against the cost of the threat and the damage which may be incurred as a result of one cyber attack against the sea ports in Israel.

The cyber threat to the civil maritime industry

Over the past decade, industries in general and the maritime industry in particular have become increasingly dependent on OT computer systems serving as a man-machine interface and helping in the management of critical operations. In the civil maritime industry and its components (the shipping sector, ports and terminals sector, shipyards, and energy infrastructures), the operational technology plays significant roles in running critical functions. This technology is based on obsolete, unmonitored operating systems which are not interconnected, and they are dependent on updates and maintenance which is sent from information systems, and which usually do not have cybersecurity. The growing demands made to the maritime industry to increase efficiency and improve the quality of the service it delivers to its customers is totally dependent on the quality of the communication, the logistics, the OT systems and the IT systems, all of which expose the sea ports and the various maritime platforms to cyber attacks, which are on a continual upwards trajectory.²

Rid & McBurney (2012) define cyber weapons as malware used to achieve military or intelligence goals as part of a cyber attack. Its appearance has made the maritime industry in general, and the OT systems in particular, more exposed and more

² Ido Ben-Moshe and Itai Sela, Maritime Policy & Strategy Research Center, University of Haifa (2020), *The cyber threat to the ports front*.

vulnerable. In this article, the use of the term 'cyber threat' describes the act of inserting malware into computing systems (OT and IT), with emphasis on the OT systems.

Studies indicate on the one hand that the response to the cyber threat in the maritime arena has been low, that the number of reported attacks does not reflect the actual number of attacks (Jensen, 2015), that the potential inherent to the maritime cyber threat is about to become the most severe business threat in future (Schauer et al, 2017), and the maritime industry is not prepared to cope with these risks in an environment based on modern OT systems (Silgado, 2018).³ On the other hand, due to understanding of the threat and its potential implications on the world economy, non-binding recommendations have been issued for cyber security in the sea ports and in maritime platforms which are reliant on the human factor. They believe humans are able to successfully cope with the cyber threat and that this is their responsibility. This has been said despite the understanding that human error is the main cause of maritime accidents (Luo & Shin, 2019, Arslan et al., 2016), particularly in an environment rife with technological changes (Pomeroy & Earthy, 2017). This sharpens the gap between the prevailing concept within the industry that still considers the human factor to be the main problem, and the fact that it also singles him out as being responsible for a solution.

In Israel, the government decided in 2011 on "advancing national cyberspace capabilities", and set up the National Cyber Bureau within the Prime Minister's Office.⁴ In 2015, the Bureau was renamed National Cyber Directorate,⁵ and finally in 2017 it was merged with the National Cybersecurity Authority to form the National Cyber Directorate.⁶ In 2015, the government defined the term Cybersecurity as the entirety of the measures intended to prevent, mitigate, investigate and cope with cyber threats and cyber events and to reduce their impact and the damage they cause, prior to their occurrence, while they are occurring and after them. it determined "that protecting the normal, safe functioning of cyberspace is the State's

³ Silgado, D.M. (2018). *Cyber-attacks: A digital threat reality affecting the maritime industry*. World Maritime University.

⁴ Prime Minister's Office, Israel (2011). Government decision 3611, Advancement of the National Capability in Cyberspace [Hebrew]

⁵ Prime Minister's Office, Israel (2015). Government decision 2443, Advancement of National Regulation and Government Cybersecurity Leadership [Hebrew].

⁶ Prime Minister's Office, Israel (2017). Government Decision 3270, Merging the National Cyber Directorate .

vital national, security goal and a national interest vital to its national security."⁷ In 2016 the transfer of responsibility for "vital computerized systems" to the National Cyber Organization was arranged in accordance with the Regulation of Security in Public Entities Law (1998), in which the Directorate is specified as the instructor of various systems and organizations, including maritime companies and infrastructures (Ashdod Port Company, Haifa Port Company and Petroleum & Energy Infrastructures Ltd.).⁸

Operational Technology in the Sea Ports

There are, on average, 332 central OT computerization systems in a sea port, which are based on a variety of vendors, operating systems, and applications. This operational technology serves as an interface linking man and machine, thereby assisting in performing the critical functions. The maritime operational technology is unique in that this technology is based on obsolete operating systems such as Windows XP/7, and most of them nowadays are no longer supported by Microsoft⁹ and security updates are no longer released. Most of the OT systems are not permanently connected to external networks, most of them do not have protective and defensive systems installed, such as antivirus, and if such are installed, they are usually out of date, which complicates maintenance and constitutes cybersecurity vulnerabilities.

Figure 1 below presents the deployment of the operational systems in a sea port such as: various cranes such as Rubber Tyred Gantry cranes (RTG), which arrange the containers inside the port grounds, and Ship To Shore cranes (STS), which load and unload containers from ships at an average speed of 26 moves per hour, transport vehicles, the system for routing and managing the maritime picture, breakers, gates and portside vessels. These systems operate on separate networks, which among them use "Ethernet", "Serial" communication and also wireless communication, which transfers data (loading or unloading plans and operation and maintenance instructions) from the port control center (Terminal Operating System – TOS) to a wide range of internal and external port systems.

⁷ Prime Minister's Office, Israel (2015). Government decision 2443, Advancement of National Regulation and Government Cybersecurity Leadership [Hebrew]; Prime Minister's Office, Israel (2015). Government decision 2444, Advancement of National Preparedness for Cybersecurity.

⁸ Israeli Knesset (2017), Center for Research and Information, Regulating the Responsibility for Cybersecurity in the Government and in Public Bodies.

⁹ Microsoft, Support for Windows XP ended; Microsoft, Support for Windows 7 ended

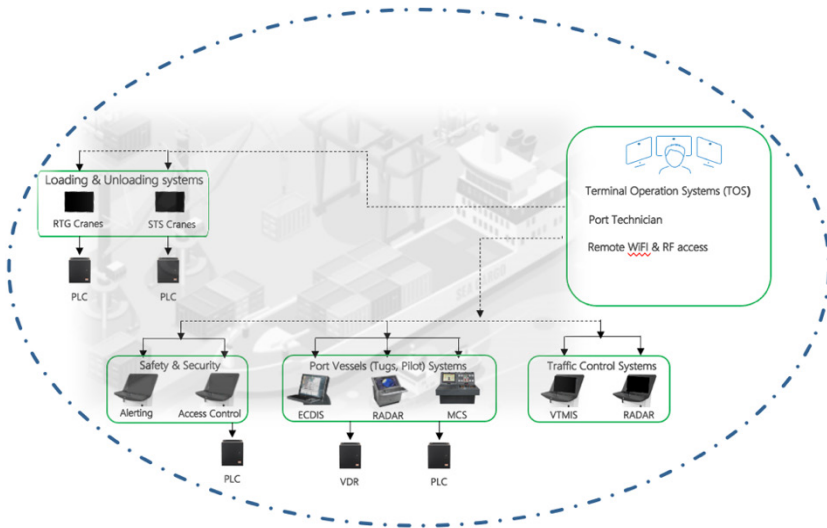


Figure 1: Deployment of main OT systems in a sea port

Operational technology system attack vectors

There are two types of vectors that attackers use to penetrate and damage OT systems in the maritime working environments and particularly in the sea ports. One is the External Attack Vectors. These vectors find the vulnerabilities of the information network, which the attacker exploits in order to insert the attack code from the external information systems into the internal operational technology systems. The attacker does this by using various techniques such as manipulations and deceit. In sea ports, the threat of using an external attack vector in order to harm operational systems is significant because the port has many interfaces with external bodies with different characteristics. In many cases, the information network is connected directly to the Terminal Operating System, which is connected to the operational network. Also, some of the everyday communication with the port operational systems are based on WiFi and RF networks, which are exposed to takeover and abuse as a vector for penetrating the operational network. The second kind of attack vector is the Internal Attack Vector, where users with access rights use the OT systems, such as crew members, technicians and other service providers, who in most cases unwittingly perform routine actions, thereby inserting the attack code from the external information network into the internal network and into the OT systems themselves.

Figure 2 below illustrates the internal attack vectors and the insertion points from the information network into the operational system in the port. For example, the port technicians and the system manufacturers routinely perform remote maintenance of the operational systems via cellular communication, RF and WiFi, or locally on the systems by connecting a computer or detachable memory device (USB). In doing so, they insert the attack code from the IT system into the OT system, which spreads to the rest of the OT systems.

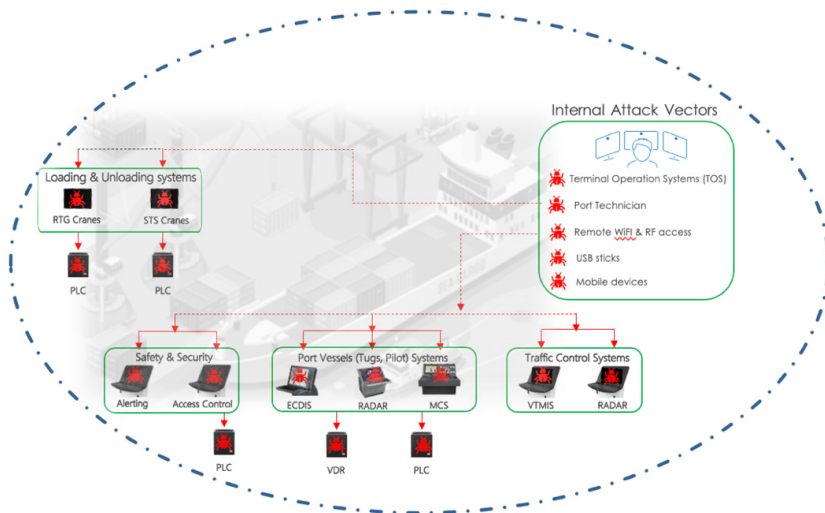


Figure 2: Internal attack Vectors in the port and the spread of the attack to all OT systems

Defense Approaches

In protecting the operational systems in the sea ports, two main approaches can be defined: the 'Outside-In' defense approach (which is now common in sea ports), which defines the external attack vectors as the main threat with which it has to contend, and the 'Inside-Out' defense approach, which provides a protection solution to both the external and internal attack vectors.

The defense approach which is based on '**Outside-In**' technology defines the external attack vectors as the main threat with which it has to contend. In this approach, the coping strategy is similar to installing fences around a secured site. It copes with the cyber threat through the use of a variety of technologies originating from protection of IT systems, such as deployment of a firewall, which prevents entry of unwanted communications into the organizational internal network. Installation of antivirus and disarm systems, which scan files before using them and which issues an alert

to the user upon detection of a malicious file with a recognized signature based on a list which gets updated from time to time. Efficient use of antivirus programs requires a continuous Internet connection, or routine updating of the new malicious file signatures. Without these updates, the effectiveness of the antivirus diminishes considerably. Another technology is network monitoring, which requires sensors to be deployed at various points throughout the network. Its main goal is to detect and alert on irregular network activities. These systems usually require a control center and a human factor to supervise and respond when necessary. This technological concept has several weaknesses: exposure to human error, false alarms, mistaken diagnosis, analyst burnout and a real difficulty in protecting operational systems against the threat of internal attack. These vulnerabilities may lead to a situation where malware succeeds in penetrating the operational network, and from there it can propagate to all of the OT systems. Quite often, these attacks penetrate the OT systems without the users' knowledge, and only months later and at a specific timing will they be activated, causing considerable damage without being able to respond.

A defense approach based on '**Inside-Out**' technology focuses on implementation of an active preventive protection technology in each one of the OT systems throughout the port, thereby delivering a protective solution to both attack vectors (the external and the internal), by implementing protective layers with various capabilities which enable protection, detection and alerting in three dimensions: EXE files, communication, and devices. All of this is done on each one of the OT computerization systems in the port. This approach does not require routine updates, it does not require the users to be trained or to have any pre-existing cyber knowledge, a connection to the Internet or a list of updated malware signatures. It is suitable for protecting both legacy and new systems or whether or not these are connected to the network. It enables the manufacturers and the technical personnel secure remote installation and maintenance, it enables the port operators to present a secure, up-to-date situation status of the cybersecurity on each one of the OT systems and it is therefore more suitable for protecting the OT systems operating in the sea ports.

In fact, the main difference between the two defense approaches is that in the '**Outside-In**' approach, if the malware has succeeded in getting past the protection systems (the perimeter fence), it gains access to a large number of OT systems, all interconnected over internal networks and totally unprotected. On the other hand, in the '**Inside-Out**' defense approach, the malware has got to attack each and every OT system separately, and even if it succeeds in penetrating one system, the damage is going to be localized only, and the recovery process will be shorter and much

easier. Figure 3 below shows the deployment of the protective software on all of the OT systems in a sea port.

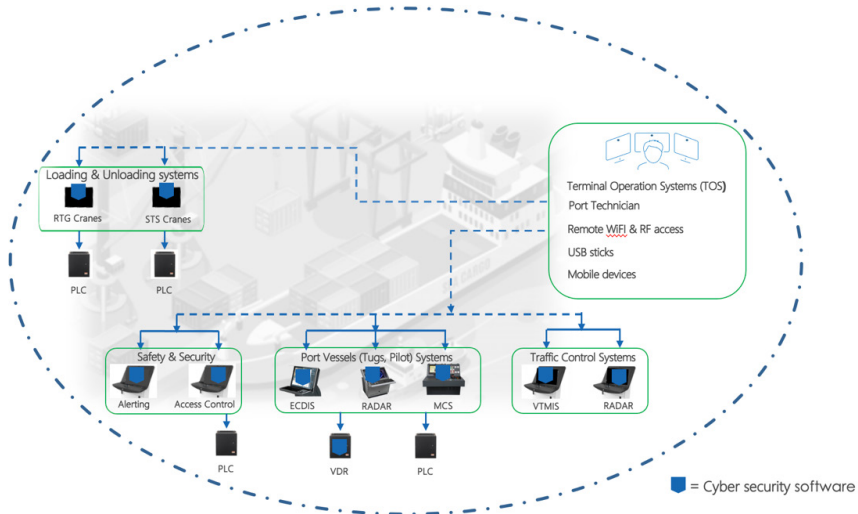


Figure 3: The 'Inside-Out' defense approach in a sea port

Threat cost analysis

A study done at Cambridge University will facilitate the analysis of a cyber threat to the Israeli ports. The study examined the impacts of three cyber attack scenarios on several large ports in the Asia-Pacific region. The researchers estimate that the damage from the worst-case scenario, codenamed "Shen Attack", of a cyber attack against approximately 15 ports in Japan, Malaysia, Singapore, South Korea and China, could incur losses of approximately \$109.8 billion.¹⁰ It described an attack through a computer virus which first attacks in a ship, spreads to the ports, and leads to severe disruptions and financial losses through the use of three severity levels, which are felt the world over due to the global connectivity of the maritime supply chain. The researchers estimate that an attack of this magnitude, which affects the sea ports, would inflict significant economic damage to a wide range of businesses due to reduced output and consumption, the costs of the response and the dimension of the supply chain. In a scenario which simulated an attack against nine ports, approximately 1,427,783 TEU were impacted for a period of between four and seven days until complete recovery. The direct financial damage (damage

¹⁰ LLOYD'S (2019), University of Cambridge and Lloyd's, (2019). Shen Attack: Cyber risk in Asia Pacific ports.

to trade and businesses in the countries of the ports due to delays in deliveries) totaled approximately \$36.8 billion and the indirect loss (damage to commerce and businesses in the countries with which the affected port has maritime trade relations due to delays in delivery) totaled approximately \$19.1 billion, thus the total amount of the damage was approximately \$55.9 billion.

The following assessment is based on the scenario of an attack on nine ports which is the more conservative scenario (the amount of financial damage per TEU was the lowest). It can be assumed that the average impact of a delay in the handling of one TEU would be equivalent to direct financial damage of \$25.7 thousand (the quotient of \$36.8 billion by 1,427,783 TEU), indirect financial damage of approximately \$13.3 thousand (the quotient of \$19.1 billion divided by 1,427,783 TEU), and to approximately \$39.1 thousand (the quotient of \$55.9 billion divided by 1,427,783 TEU). Based on these assumptions and referring to a cyber threat as a country-level threat according to the DNV definition (targeted cyber attacks using sophisticated means, abundant resources, good technical capabilities, good knowledge of the systems and a high level of motivation),¹¹ the damage that can be caused to the four Ports of Israel (Ashdod, Haifa, Israel Shipyards and Eilat) can be estimated. With a GDP of approximately \$370.2 billion in 2018,¹² we can calculate the number of TEU's handled in Israel per day (the quotient of 2,940,917 TEU divided by 365 days),¹³ we get a result of 8,057 TEU and we multiply by the number of days of the business disruption due to the cyber attack (multiplying 8,057 TEU by four days and seven days) and we get a number equal to 32,228 TEU as a minimum, and 56,399 TEU as a maximum, which were impacted by the cyber attack. To calculate the direct damage, we multiply by \$25.7 thousand (the value of the direct damage per TEU unit) and we get the minimum direct damage of \$828.2 million, and a maximum direct damage of \$1.4 billion. To calculate the indirect damage, we multiply by \$13.3 thousand (the value of the indirect damage per TEU unit) and we get the minimum indirect damage of \$428.6 million, and a maximum indirect damage of \$750.1 million. To calculate the total damage, we multiply by \$39.1 thousand (the total value of the damage per TEU unit) and we get the minimum total damage of \$1.2 billion, and a maximum total damage of \$2.2 billion.

¹¹ IUMI (2018), DNV GL releases first cyber security class notations.

¹² The World Bank, UNCTAD, World Bank national accounts data, and OECD National Accounts data files.

¹³ The World Bank, UNCTAD, Container port traffic.

Response cost analysis

To estimate the cost of the response to the maritime cyber threat, taking into consideration the complexity of estimating the threat cost, the difficulty in proving loss, the appropriateness and the ways of implementing the various solutions, methods were examined for recognizing assets, their value to the organization, the threats, their impact, technological vulnerabilities, the probability and the need to select a risk mitigation strategy.

Jerman-Blažič (2008) compared the cost of the threat to the cost of the response and estimated that the optimal investments in information security is roughly 36.8% of the potential loss emerging from the threat. Srinidhi et al. (2015) point out that managers have incentives to invest more in cyber security than investors, and how cyber insurance minimizes over-investment on the part of managers in specific assets in favor of improving the cyber security. Wang (2019) suggests an innovative insurance model based on cyber threat-adjusted coverage with emphasis on the Risk Assessment sharing in the investment in security.

So far, most of the efforts to deal with the maritime cyber threat in general, and in the sea ports in particular, and to estimate the resulting costs – have focused on the insurance aspects and on monitoring, risk management and training solutions. Less estimation work has been done on solutions based on a technology-based 'Inside-Out' defense approach and on what is the cost of the protection required in order to significantly mitigate the cyber threat on the sea ports.

Table 1: The costs of the solution in US dollars¹⁴

	Total quantity	Number of operational systems in a single Port	Average operational systems in a single Port	Annual cost of protecting one operational system in US dollars	Annual cost of protecting a single Port in US dollars	Annual cost of protecting all the Ports in US dollars
Sea ports in Israel	4	77–586	332	300–5,500	99.6 thousand 1.82 million	398.4 thousand 7.3 million

Cost comparison: threat versus solution

To help decision-makers in the field of risk management of cyber threats to the sea ports in Israel, table 2 shows the costs of the threat versus the costs of the solution for protecting the sea ports in Israel. The comparison is presented in percentages, and within that taking into consideration the optimal investment in

¹⁴ Proven Data (2020), *How Much Does Cyber Security Cost?* Common Cyber Security Expenses & Fees.

protection, approximately 36.8 percent of the cost of the cyber threat, as defined by Jerman-Blažič (2008). The table data clearly indicates that the cost of the solution for protecting against the maritime cyber threat to the sea ports in Israel is significantly lower than the definition of the optimal percentage of investment in defense. This is given that the most expensive cost of the protection solution (annual cost of approximately 5,500 dollars for protecting one operational system) for Israel's ports totals approximately 0.88 percent of the cost of the direct threat, and approximately 0.6 percent of the total cost of the threat.

Table 2: Costs of the threat versus costs of the solution

Asset type	Cost of direct threat in US dollars	Total cost of threat in US dollars	Cost of solution per year in US dollars	Difference in percentages versus direct cost of threat per year	Difference in percentages versus overall cost of threat per year	Low cost of direct/ total damage versus high cost of protection in percentage points
Sea ports in Israel (4)	828.2 million 1.4 billion	1.2–2.2 billion	398.4 thousand 7.3 million	0.028–0.88	0.018–0.6	Direct 0.88 Overall 0.6

Conclusion and Insights

As a consequence of the technological development in sea ports, the connectivity, threat complexity and the strategic importance of the sea ports to the State of Israel's security and economy, decision-makers (port managements and regulators) should evaluate the existing cybersecurity approaches and their costs.

The findings of the calculated analysis indicate that the cost of the solution to the threat of one cyber attack on Israel's four sea ports is less than a quarter of one percent of the cost of the threat itself. In view of this, it is advised to consider adopting the 'Inside-Out' defense approach through implementation of multi-layered cybersecurity solutions, which are compliant with the protection standards against a state-level threat, thereby enabling the sea ports in Israel to mitigate the security gaps. At the same time, state incentives must be created, the regulation has to be adapted and the responsibility for coping with the cyber threat to the sea ports' operational technology systems must be shifted from the human factor to active technological solutions.

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Government Subsidies for the Maritime Sector Around the World: Commercial Shipping, Efficiency and Improved Productivity, Shipyards, Air Pollution, Research and Development, etc.¹

Ofir Kafri

Introduction

Countries around the world help their maritime sector through subsidies.² This assistance is given in areas like infrastructure, research and development, air pollution, manpower, energy, and shipping. Subsidies serve to advance goals such as the ability to compete in the international system, prevention of environmental pollution, and maintenance of a maritime fleet for periods of national emergency. Countries employ a variety of subsidies such as tax breaks, easing of payments and extending credit under favorable terms. Experience from around the world shows that subsidies can help advance political aims but there are also cases of failures and damage.

This article presents subsidies in several fields within the maritime sector, which are in use around the world. The article will not go into details on tax benefits, which are discussed in an article in the Maritime Strategic Evaluation for Israel 2020/21.³ The article presents ways in which subsidies are applied and several advantages and disadvantages that have been identified due to their use in the various countries. Due to the limited scope of this article, it does not cover all of the fields of the maritime sector, nor does it cover all of the pros and cons of applying subsidies. The article presents examples for the use of subsidies in countries such as the United States, China, Sweden, South Korea and Singapore. Finally, conclusions will be presented which may serve Israel, should it come to decide on the use of such tools.

¹ This article is not to be considered as consulting, legal or other and should not be used for any purpose beyond its academic purpose. Due to the scope limitation the article does not contain all the issues and complexities of the presented subjects.

² There are various definitions for the term subsidy. There are also several ways to categorize subsidies. For further reading: G. Schwartz & B. Clements "Government subsidies," *Journal of Economic Surveys*, 13(2) (1999), 119–148; European parliament. Directorate general for internal policies. *Global Fisheries Subsidies*, 2013, p. 21; P. J. Barwick, M. Kalouptsidi & N. B. Zahur, *Industrial policy implementation: Empirical evidence from China's shipbuilding industry*. Working paper, Cornell University and Harvard University, 2021.

³ Ofir Kafri, "Tax Benefits under Special Tax Regimes for the Shipping Industry," In Shaul Chorev and Ehud Gonen (eds.), *Maritime Strategic Evaluation for Israel 2020/21* (Haifa: Maritime Policy & strategy Research Center, University of Haifa, 2021), pp. 326–335.

Subsidies in various fields of the maritime sector

Subsidies for shipyards and for shipbuilding in local shipyards

Subsidies for the shipping sector and for shipbuilding are given by various countries such as China, South Korea, and the United States.⁴ Subsidies are given for various matters in shipyards, such as labor costs, infrastructure development, and technology application. Examination of test cases around the world shows that while subsidies in the shipyards industry can have undesirable consequences, certain subsidies succeed even if sometimes temporarily.⁵

China employed various subsidies to support its shipyard industry in areas such as production, investment and infrastructure.⁶ China has succeeded in increasing its share of the global shipbuilding market, among other things, thanks to the government assistance policy.⁷ It is important to note that while some of the subsidies were successful, others were unhelpful and even distorted the sector.⁸ An example of a subsidy that was implemented is the Scrap and build subsidy scheme, for which new ships were ordered from Chinese shipyards. The official goal of the program

⁴ See for example the China case study: Center for Strategic and International Studies. *Hidden Harbors: China's State-backed Shipping Industry*. July 8, 2020.

⁵ OECD. (2017). *Imbalances in the Shipbuilding Industry and Assessment of Policy Responses*. OECD Publishing, Paris, pp. 22–68.

⁶ For further reading on subsidies and the development of the shipbuilding industry in China, see the following sources: OECD. (2021). *Report on China's shipbuilding industry and policies affecting it*. OECD Science, Technology and Industry Policy Papers No. 105. OECD Publishing, Paris; L. C. Lee Daniel and P. Parmentier. (2021). *State-owned enterprises in the shipbuilding sector*. OECD Science, Technology and Industry Policy Papers, No. 98. OECD Publishing, Paris.

⁷ Beyond subsidies, the success in enlarging the shipbuilding industry in China is attributed to additional reasons, such as relatively low manpower costs and setting up shipyard groups. For more elaboration: M. Kamola-Cieślak (2021). *Changes in the Global Shipbuilding Industry on the Examples of Selected States Worldwide in the 21st Century*. *European Research Studies*, 24(2B), 98–112.

⁸ In the Chinese case, subsidies that helped lower production costs and increased investment were more successful. Furthermore, subsidies which were focused on efficient companies were more successful than subsidies which were given to all of the companies in the industry. Subsidies which were intended to bring new players into the sector were considered less successful. To a certain extent, subsidies caused overcapacity in the shipbuilding industry. This overcapacity was exacerbated during periods of low demand for ships. For more elaboration: P. J. Barwick, M. Kalouptsidi, & N. B. Zahur (2021). *Industrial policy implementation: Empirical evidence from China's shipbuilding industry*. Working paper, Cornell University and Harvard University.

was to have old, polluting ships scrapped, to increase business in the shipyards and to strengthen the sector.⁹

Another example is Japan, which provided subsidies, among other things, for training and temporary transfer of manpower from the shipyard industry to other sectors due to downsizing.¹⁰ In the Swedish case, subsidies were provided for the shipyard industry in the past, when it was experiencing difficulties. For example, support was provided for research and development, for purchasing of ships, etc. The purpose of the subsidies was to help cope with a slump in orders and thus prevent unemployment and the collapse of the shipyards. The subsidies were discontinued in 1985 due to increasing costs and economic unfeasibility. Despite the subsidies, there was a decline in shipbuilding capacity in the early 1980s. The sector, which suffered from competitive difficulties, shrank considerably after the subsidies were discontinued.¹¹

In the United States, the Merchant Marine Act of 1936 created a subsidy which addresses the building of ships of certain kinds in local shipyards – Construction Differential Subsidy (CDS) – which was applied until 1983.¹² One of the goals of the subsidy was to help shipyards in the United States through paying part of the price difference for building ships in local shipyards compared with competitors in other countries.¹³

Government publications claimed that the subsidy is one of the drivers of distortions in the shipbuilding industry. The shipyards had been suffering, among other things, from problems in their managerial innovation and streamlining, and

⁹ M. Kalouptsi, (2018). Detection and impact of industrial subsidies: The case of Chinese shipbuilding. *The Review of Economic Studies*, 85(2), 1111–1158.

¹⁰ The shipbuilding industry manpower headcount in Japan shrank from 185,000 in 1980 to 91,000 in 2008. For further reading on the shipbuilding industry in Japan: OECD. (2016). *Peer Review of the Japanese Shipbuilding Industry*. OECD Publishing, Paris.

¹¹ OECD. (2017). *Imbalances in the Shipbuilding Industry and Assessment of Policy Responses*. OECD Publishing, Paris, pp. 44, 50, 56–57; B. Carlsson, *Industrial subsidies in Sweden: macro-economic effects and an international comparison*, *The Journal of Industrial Economics* 32(1) (1983), pp. 1–23.

¹² For further reading about the subsidy and its impact on the economy and on the shipbuilding sector in the United States: U.S Congressional Budget Office. *U.S. Shipping and Shipbuilding: Trends and Policy Choices*. 1984, pp. 101–107.

¹³ U.S. Department of Transportation. Maritime Administration. *The Maritime Administration's First 100 Years: 1916–2016*. Last updated: March 25, 2019; R. C. Moyer (1977). Maritime subsidies: problems, alternatives and tradeoffs. *The Journal of Industrial Economics*, pp. 53–68.

the subsidies perpetuated and even exacerbated these problems, to a certain extent. A government report recommended that future subsidies focus on the problems which had impacted the shipyards' competitiveness, such as faulty efficiency and obsolete infrastructures.¹⁴ Nowadays, shipyards receive grants for improving efficiency, competitiveness and quality of work, as well as for training and manpower improvement.¹⁵ In addition, under the Federal Ship Financing Program (Title XI), credit guarantees are given for the shipbuilding in the United States and for improving the infrastructures in the shipyards.¹⁶

Subsidies for commercial shipping

Some countries provide subsidies for owners and operators of ships of various kinds, for operating the craft, for buying and selling of tools, repairs, etc. The subsidies are given in various forms such as credit under preferred terms, guarantees, tax benefits, grants and reduction of compulsory payments.¹⁷ In addition, subsidies are given by the purchase of shares, service provision agreements, debt write-offs etc.

For example, China finances upgrading of Chinese-owned shipping companies through a variety of subsidy programs like grants and loans under preferred terms.¹⁸ Other countries, for example Japan, give loans under favorable terms to shipping companies from state-owned banks. In addition, countries like Spain and France grant, under certain conditions, state guarantees for credit extended to shipping companies.¹⁹

Another example is the United States, which provided assistance in financing operating expenses of local shipping companies which met certain conditions. The subsidy was called Operating Differential Subsidy (ODS).²⁰ The assistance was

¹⁴ U.S. Congress. Office of Technology Assessment. *An Assessment of Maritime Technology and Trade*. Washington, D.C.: OTA-O-220. October 1983, pp. 85–116.

¹⁵ U.S. federal register. journal of the federal government of the United States. *Small Shipyard Grant Program; Application Deadlines*. A Notice by the Maritime Administration on October 1, 2021.

¹⁶ U.S. Federal Ship Financing Program (Title XI). Last updated: October 6, 2020.

¹⁷ See for example subsidies which are given in the form of tax benefits for the shipbuilding industry worldwide: O. M. Merk (2020). Quantifying tax subsidies to shipping. *Maritime Economics & Logistics*, 22(4), 517–535.

¹⁸ *Reuters*. China gives 4 shipping lines \$293 mln to upgrade fleets. September 30, 2014; COSCO Shipping Holdings. Annual report. 2020.

¹⁹ International Transport Forum Policy Papers. 2020. *Maritime Subsidies Do They provide Value for Money?* OECD, pp. 24–25.

²⁰ U.S Maritime Administration. *The Maritime Administration's First 100 Years: 1916–2016*. Last updated: March 25, 2019.

intended to make the operating costs of United States shipping companies equal to those of other countries, whose costs were lower. The payments were given for wages, insurance and other expenses.²¹

Another example is South Korea, which in 2018 established a body called KOBC (Korea Ocean Business Corporation), which provides subsidies to shipping companies and other entities in the maritime sector.²² It was established as part of a multi-year plan intended to deal with problems in the maritime sector, such as the reduced competitiveness and a growing technological disparity. The plan is part of a strategy intended to turn South Korea into a leading power in the global maritime sector by 2030.²³ Until the end of 2020, KOBC helped companies in the maritime sector with a total of 5 trillion South Korean Won.²⁴ It provides assistance and services, such as guarantees for investments, acquisition and operating vessels under preferred terms for the shipping companies, and acquisition and mediating shares of shipping companies. In addition, it invests in maritime infrastructures around the world in order to, among other things, reduce the costs of the shipping industry.²⁵

Manpower subsidies

Certain countries like Norway, Germany, South Korea, and Israel provide subsidies related to manpower in the maritime sector. In some of the countries, the subsidies are given due to a decline in the use of local manpower in shipping.²⁶ This, among

²¹ G. McCalley (1978). *Approval of Operating-Differential Subsidies under Section 605 (c) of the Merchant Marine Act of 1936: A New Standard for "Adequacy"*. *Duke Law Journal*, 1978(1), 252–270.

²² Korea Ministry of Oceans and Fisheries. *Strategy to Become a Global Leader in Shipping*. June 29, 2021.

²³ According to the South Korean government, the program is successful and there is an improvement in certain parameters of the maritime sector, such as revenues from shipping. It should be noted that there are other factors, such as favorable conditions for business in the global maritime industry, which affect the improvement trend besides the multi-year plan and the activity of the KOBC. Therefore, the extent to which the subsidies have had an effect is currently unclear. For further reading on the strategy for development of the maritime sector, milestones and success indices of the program: Korea Ministry of Oceans and Fisheries. *Sectoral Policies. Backgrounds-Strategies for Becoming a Shipping Powerhouse*.

²⁴ Fitch Ratings. *Fitch Assigns Korea Ocean Business Corporation's First-Time 'AA-' IDR; Outlook Stable*. March 30, 2021.

²⁵ Korea Ocean Business Corporation. *Management Strategy*. 2018.

²⁶ In the case of Britain, difficulties arose due to the use of a tonnage tax to deal with the drop in the use of local manpower in shipping. For more elaboration on the following sources: V. Gekara (2010). "The stamp of neoliberalism on the UK tonnage tax and the implications for British

other things, is due to competition with lower-cost manpower from other countries such as the Philippines.

The subsidies are given in areas such as financing wages, assistance in training and studies and funding insurance. The assistance is provided, among other things, in the form of grants and tax benefits.²⁷ For example, in Singapore there is an MCF-Manpower program which provides subsidies for training and improvement of manpower. Assistance is also given to improving the human resources management.²⁸ Another example is the United Kingdom, which provides a program of assisting the funding of training for maritime positions, named SMarT (Support for Maritime Training).²⁹

Subsidies for improving efficiency and increasing productivity

Subsidies for improving efficiency are offered by several countries. For example, Singapore offers several programs for improving productivity and efficiency – for example the MCF-Productivity program. This program provides assistance for the adoption of technologies, as well as for improving work processes.³⁰

Research and development subsidies

Subsidies for research and development are granted in various areas such as ship propulsion technologies, hardware and software in information systems, information gathering sensors and pollution reduction systems. Countries such as France, the United States, Germany and the United Kingdom provide subsidies for research in the maritime domain.³¹ For example, the MIINT-RD program in Singapore, which provides subsidies for development of technologies in the maritime industry and their implementation.³² Another example is the European Union, which provides subsidies for research in a variety of areas within the maritime domain.³³

seafaring", *Marine Policy* 34, pp. 487–494; H. Leggate and J. McConville (2005). "Tonnage tax: is it working?", *Maritime Policy & Management*, Vol. 32(2), pp. 177–186.

²⁷ [Maritime Subsidies Do They provide Value for Money?](#) pp. 13–14, 20.

²⁸ Maritime and Port Authority of Singapore. [Maritime Cluster Fund \(MCF\)](#). Last Updated: July 1, 2021.

²⁹ U.K Maritime and Coastguard Agency. [Support for maritime training \(SMarT\)](#). Last updated: July 1, 2021.

³⁰ [Maritime Cluster Fund \(MCF\)](#).

³¹ [Maritime Subsidies Do They provide Value for Money?](#) p. 16.

³² Maritime and Port Authority of Singapore. [Maritime Innovation and Technology \(MINT\) Fund](#). Last Updated: 5 April 2021.

³³ European Commission. [Funding & Tenders portal](#). European Maritime and Fisheries Fund (EMFF).

Development of maritime shipping lanes

Subsidies for developing shipping lanes are intended to assist, among other things, in the reduction of pressure on overland transport infrastructure, reducing air pollution and creating new transport routes. For example, the United States provides grants for development of infrastructure for local shipping lanes.³⁴ The European Union offers grants for development of maritime transport routes such as the assistance program of the CINEA (European Climate, Infrastructure and Environment Executive Agency).³⁵

Subsidies for development and improvement of port infrastructure

Countries help improve and develop ports by various means, including grants and loans. For example, in the United States, the PIDP (Port Infrastructure Development Program) allocates grants on a competitive basis for improving infrastructure for transferring goods through ports, specifically for achieving objectives such as improving safety, efficiency, and for reducing the effects of climate change.³⁶ Another example is the European Union, which offers subsidies for development of ports as part of several initiatives such as the European Regional Development Fund (ERDF).³⁷

Subsidies for preserving a civilian fleet for times of war or for national emergencies

In the United States, the MSP (Maritime Security Program) pays civilian shipping companies to place ships and maritime infrastructures at the disposal of the Department of Defense (DOD) in case of an emergency.³⁸ The United States pays for a certain number of civilian ships, which have been selected to be available upon demand. Civilian merchant vessels of various kinds are selected for this program. The vessels are registered in the United States, are engaged in international trade and are suitable for the needs of military transport. In addition, the program gives the Department of Defense access to maritime transport infrastructures such as terminals and other facilities, logistics management services and manpower.³⁹

³⁴ U.S. Maritime Administration. *America's Marine Highway*. Last updated: September 3, 2021.

³⁵ European Commission. *Maritime – Projects by transport mode*.

³⁶ U.S. Maritime Administration. *About Port Infrastructure Development Grants*. Last updated: April 21, 2021. <https://www.maritime.dot.gov/PIDPgrants>

³⁷ European Commission. *Maritime Ports*. Last update: September 26, 2021.

³⁸ U.S. Department of Homeland Security. *United States Coast Guard. Flag State Control Division (CG-CVC-4). Maritime Security Program*.

³⁹ U.S. Department of transportation. Maritime Administration. *Maritime Security Program (MSP)*. Last updated: February 4, 2021; U.S.A Federal Register. *Daily Journal of the United States*

Subsidies for reducing air pollution

Air pollution due to shipping and port activities worldwide causes considerable harm to the health of the population and the environment. Its effect on climate change is expected to increase in the future with the expected increase in pollution from shipping.⁴⁰ Studies show that air pollution from shipping around the world has resulted in death, disability and chronic harm to health.⁴¹ Israel's ports, particularly the Haifa Port area, suffer from severe air pollution due to the activities in the ports and the shipping.⁴²

Air pollution due to shipping activity is currently being discussed internationally. Attempts to reduce the air pollution are being done at the international level, in some of the countries and in some of the shipping companies and in the ports.⁴³ Subsidies are another tool that can in certain cases help in this area, in addition to regulation.⁴⁴

There are countries which are planning or are working to provide subsidies for reducing air pollution from shipping, among them Germany, Singapore, the United

Government. Maritime Security Program. 12.01.2017; U.S.A Congressional Research Service. U.S. Maritime Administration (MARAD) Shipping and Shipbuilding Support Programs. January 8, 2021.

⁴⁰ According to an estimated forecast, maritime shipping's share in gas emissions, such as carbon dioxide, is set to increase from 2,2% in 2012 to around 17% of the global gas emissions in 2050; D. Heine & S. Gäde (2018). Unilaterally removing implicit subsidies for maritime fuels. *International Economics and Economic Policy*, 15(2), 523–545.

⁴¹ V. Eyring, I. S. Isaksen, T. Berntsen, W. J. Collins, J. J. Corbett, O. Endresen, ... & D. S. Stevenson (2010). Transport impacts on atmosphere and climate: *Shipping. Atmospheric Environment*, 44(37), 4735–4771; V. Eyring, J. J. Corbett, D. S. Lee, & J. J. Winebrake (2007). Brief summary of the impact of ship emissions on atmospheric composition, climate, and human health. Document submitted to the Health and Environment sub-group of the International Maritime Organization, 6.

⁴² Israel. Ministry of Environmental Protection. *Feasibility study conducted with Ministry of Environmental Protection funding: Ships in the ports of Ashdod and Haifa create severe NOx and SOx air pollution*. 28.11.2019; State Comptroller. *Special Comptroller Report Aspects of government measures regarding environmental pollution in the Haifa Bay*. June 2019.

⁴³ Examples of attempts to reduce shipping air pollution: S. Gössling, C. Meyer-Habighorst & A. Humpe (2021). A global review of marine air pollution policies, their scope and effectiveness. *Ocean & Coastal Management*, 212, 105824; International Maritime Organization. *IMO's work to cut GHG emissions from ships*; T. Lee & H. Nam (2017). A study on green shipping in major countries: in the view of shipyards, shipping companies, ports, and policies. *The Asian Journal of Shipping and Logistics*, 33(4), 253–262.

⁴⁴ Voluntary measures taken by ship owners and ports, which are reliant solely on subsidies without regulation are sometimes insufficient. Due to the dire consequences to public health, it has been claimed that it would be better to combine these two tools in order to achieve a better-optimized outcome.

Kingdom, South Korea and Norway.⁴⁵ Such subsidies are given to ships, ports and other entities. The assistance includes benefits in port fees, taxes, registration costs in the shipping register, implementation of cleaner technology, and services provided to ships which meet certain criteria. In addition, subsidies are given for scrapping old ships and building less-polluting ones, etc.⁴⁶

For example, in order to reduce pollution from shipping activities, the New York and New Jersey Port Authority runs the Clean Vessel Incentive (CVI) and in Singapore there is a Green Ship Programme.⁴⁷ Another example is countries like Denmark, Sweden and Netherlands, where discounts are given on port payments and services related to air pollution reduction.⁴⁸ Yet another example is countries like the United Kingdom, which provide subsidies for research and development intended to reduce shipping pollution.⁴⁹ The European Union helps in funding testing of possibilities for improving port infrastructures in favor of reducing air pollution.⁵⁰

Subsidies for fuel and energy

Subsidies are given for polluting fuels which are in use in shipping, and sometimes a tax exemption is given on the outcome of the pollution from these fuels.⁵¹ For

⁴⁵ See for example, [programs in Singapore, the United Kingdom, South Korea and Norway in this field: Singapore. Maritime green initiative. 2021; U.K Department for Transport. Clean maritime plane. 2019; Norwegian Ministry of Climate and Environment. The Government's action plan for green shipping. 2019; Korea Ministry of Oceans and Fisheries. Sectoral Policies – Shipping Ports Maritime Affairs. "2030 Greenship-K Promotion Strategy" to Dominate the Global Green Ship Market.](#)

⁴⁶ For further reading on the advantages and disadvantages of using policy tools such as subsidies in dealing with air pollution from shipping: P. Balcombe, J. Brierley, C. Lewis, L. Skatvedt, J. Speirs, A. Hawkes, & I. Staffell (2019). How to decarbonise international shipping: Options for fuels, technologies and policies. *Energy conversion and management*, 182, 72–88.

⁴⁷ Subsidies for reducing air pollution from shipping, which are given in Singapore and in New York: Maritime and Port Authority of Singapore. [Extension of the Green Ship Programme under the Maritime Singapore Green Initiative](#). Shipping Circulars No. 12 of 2019; Port Authority of New York and New Jersey. [Clean Vessel Incentive Program](#).

⁴⁸ Finnish Transport and Communications Agency. [Economic incentives to promote environmentally friendly maritime transport in the Baltic Sea region](#). May 11, 2020, pp. 80–83.

⁴⁹ U.K Department of Transport. [£20 million fund to propel green shipbuilding launched](#). March 22, 2021.

⁵⁰ For example, subsidies from the European Union for funding an activity in Barcelona port in Spain, which is intended to test technologies for air pollution reduction: [World Ports Sustainability Program \(WPSP\). Port of Barcelona implements alternative fuel use to improve air quality](#). January 28, 2019.

⁵¹ For more information on fossil fuel subsidies in various countries, see the following database: OECD. [Fossil fuel support data and Country Notes](#).

example, Italy, Portugal, Australia and Greece exempt certain types of shipping activities from paying excise tax on fuels. Countries such as Sweden and Finland exempt local commercial shipping from an energy tax. These subsidies make it difficult to transition to less-polluting fuels and sometimes create the conditions for less efficient and economical use of polluting fuels.⁵²

Many countries provide subsidies on the use of cleaner energy from shipping activity. The subsidies are supposed, among other things, to help narrow the gap between the costs of regular, polluting fuels which are cheaper, and less-polluting energy. For example, Sweden subsidizes the use of electricity from a land-based infrastructure by hoteling ships in order to reduce air pollution. Another example is the European Union, which has been involved in funding electricity-powered ferries. Recharging infrastructure were built for the ferries in two ports in Sweden and Denmark.⁵³ These subsidies are intended to reduce the severe health damage caused to the population due to shipping air pollution.⁵⁴

Subsidies for fishing vessels

China, the United States, South Korea, the European Union countries and many other countries offer government subsidies in the fishing shipping industry.⁵⁵ The global subsidies of the fishing sector total \$35.4 billion in 2018 terms.⁵⁶ Subsidies are given for acquisition and building of vessels, vessel repairs and manpower costs. Additional assistance is given – for example purchasing of surplus fishing products, improving port infrastructures and the logistics chain in the sector and funding of research. Studies and reports from international organizations have claimed that certain fishing subsidies have led to overfishing, which has been harmful to the marine environment and to the fishing industry.⁵⁷ As a result, in some cases,

⁵² For further reading on energy subsidies: Maritime Subsidies Do They provide Value for Money? pp. 22–23, 32–33, 45–46, 59–60.

⁵³ OECD. ITF. Decarbonising Maritime Transport. The Case of Sweden. 2018.

⁵⁴ J. J. Corbett, J. J. Winebrake, E. H. Green, P. Kasibhatla, V. Eyring, & A. Lauer (2007). Mortality from ship emissions: a global assessment. *Environmental science & technology*, 41(24), 8512–8518.

⁵⁵ For further reading on fishing subsidies in various countries: W. E. Schrank, & U. Wijkström (2003). *Introducing fisheries subsidies*. Rome: Food and Agriculture Organization of the United Nations.

⁵⁶ U. R. Sumaila, N. Ebrahim, A. Schuhbauer, D. Skerritt, Y. Li, H. S. Kim, ... & D. Pauly (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy*, 109, 103695.

⁵⁷ OECD Review of Fisheries 2020. OECD Publishing, Paris.

countries have given subsidies to reduce fishing.⁵⁸ Currently there is an international effort in place regarding fishing subsidies, where one of its goals is the prevention of further damage to fisheries around the world.⁵⁹

Advantages of using subsidies in the maritime sector

There are several advantages to using subsidies in the maritime sector.⁶⁰ The following advantages are a partial list, resulting from experience gained worldwide:

1. Subsidies can help advance state goals in the maritime sector which would otherwise have been difficult to achieve. Sometimes a state has to intervene, in the absence of any other interested party, or in the absence of ability to advance certain goals which are in the national interest.
2. In certain cases, subsidies can help solve an economic, structural or other failure in the maritime sector. This is due to the fact that in some cases there is an interest, in the maritime sector, to maintain the current state or there is no sufficient incentive to alter the state in the private sector.
3. In some cases, subsidies help retain and develop international competitive capability in the shipping sector.
4. Subsidies can improve efficiency, output and innovation in the maritime sector if they are planned and implemented correctly and optimally.
5. Subsidies can help advance areas in which the process sometimes has an inherent financial risk, such as long-term and/or costly research and development.

Failures in the use of subsidies in the maritime sector

1. A situation may arise in which organizations which receive subsidies will benefit from an advantage over competitors and, as a consequence, the market will suffer from distortion and competition will be negatively affected. It has been claimed that in some cases this happened in the fishing industry.⁶¹ In other cases,

⁵⁸ Martini, R. and J. Innes. (2018). Relative Effects of Fisheries Support Policies. OECD Food, Agriculture and Fisheries Papers, No. 115. OECD Publishing, Paris; European parliament. Directorate general for internal policies. *Global Fisheries Subsidies*. 2013.

⁵⁹ World Trade Organization (WTO). Factsheet: Negotiations on fisheries subsidies.

⁶⁰ For further reading on the advantages of using subsidies: M. B. J. Clements, M. G. Schwartz, & R. Hugounenq (1995). *Government subsidies: concepts, international trends, and reform options*. International Monetary Fund, pp. 6–8; WTO. World Trade Report. *Exploring the links between subsidies, trade, and the WTO*. 2006.

⁶¹ European parliament. Directorate general for internal policies. *Global Fisheries Subsidies*. 2013, p. 13.

a tonnage tax, which included also onshore facilities like terminals, distorted the competition.⁶²

2. There are cases where subsidies do not create the right conditions for achieving the planned outcome.⁶³ This may result in the subsidy becoming a state expense devoid of any benefit. These cases are caused by various factors, such as mistaken planning and application of the subsidy. In some cases, countries do not recognize failed subsidies due to the lack of impact studies after they have come into use.⁶⁴ An example of such a failure is the case of a subsidy in China, which was intended to encourage re-registration under the state flag of ships which had moved to foreign shipping registries. In this case, China offered marginal benefits, which did not amount to an incentive to reregister and the plan failed.⁶⁵
3. High levels of investment or complexity of the process of receiving the subsidy sometimes constitute an obstruction, which prevents the optimal application of the subsidy.
4. Subsidies can in certain cases be detrimental to processes of restructuring and innovation, as well as being detrimental to good quality management. Subsidies can sometimes introduce a distortion in the market, which then discourages attempts for improving services because the revenues or the profit are guaranteed. An example of this is subsidies which were given in the past in the shipbuilding industry in the United States, which had been suffering from efficiency problems, problematic management and outdated infrastructure.⁶⁶
5. Subsidies, which had not been properly analyzed or designed, taking into consideration their potential impacts, can lead to erroneous results and even be

⁶² [Maritime Subsidies Do They provide Value for Money?](#)

⁶³ Finnish Transport and Communications Agency. Economic incentives to promote environmentally friendly maritime transport in the Baltic Sea region. 11 May 2020, pp. 63–65.

⁶⁴ A study of the ITF and OECD claims that countries rarely conduct annual impact studies on maritime subsidies. In addition, the study criticizes the quality of the studies in this field, which have been made public. For further reading: [Maritime Subsidies Do They provide Value for Money?](#) pp. 34–36.

⁶⁵ China gave incentives under the STFSR (special tax-free ship registration) policy, which were intended to attract the Chinese shipping back to the Chinese register after they had moved to flags of convenience. The plan failed due to bureaucratic obstructions and insufficient incentives. For more elaboration: J. Chen, K. Li, X. Liu, & H. Li (2017). The development of ship registration policy in China: Response to flags of convenience. *Marine Policy*, 83, 22–28.

⁶⁶ U.S. Congress, Office of Technology Assessment. An Assessment of Maritime Technology and Trade. Washington, D.C.: U.S., OTA-O-220. October 1983.

harmful.⁶⁷ For example, subsidies which spurred growth in fishing fleets and in fishing activity were among the causes for harm to the sustainability of fisheries in certain areas of the world and, later on, to a shrinking of the sector in several countries.⁶⁸

6. Domestic and external processes can influence the results of subsidies given in the maritime sector in a given country. Certain areas in the maritime sector are sometimes influenced by events in other sectors of the state's economy and by developments in the international system. As a result, subsidies might fail and become harmful. For example, there is a cyclic process in the global shipyard industry, which leads to fluctuations in the demand for certain kinds of vessels. As a result, subsidies, which are given to increase shipyard business, can be less successful in times of decline in global demand.⁶⁹

Analysis and conclusion

Subsidies in the maritime sector can be an important, efficient tool for Israel in order to achieve its goals. The experience in application of subsidies worldwide shows that properly-planned application, focused and optimal use of this tool can help advance issues which are in the national interest. At the same time, subsidies which have been specified, planned and implemented wrongly can be harmful and cause resources to be wasted.

Following are some conclusions from the use of subsidies in the maritime sector in various countries. These conclusions are not a comprehensive listing of all of the experience in the field around the world, but they can serve as a source that will be helpful for decision-making in this field in Israel:

1. The purposes of providing the subsidy must be specified in order to be able to optimally plan and implement the tools which will be used. This way it will also be possible to assess the success of the subsidy and to make adjustments if necessary.

⁶⁷ Sometimes there are unforeseen consequences to the use of subsidies. M. B. J. Clements, M. G. Schwartz, & R. Hugounenq (1995). *Government subsidies: concepts, international trends, and reform options*. International Monetary Fund.

⁶⁸ Patrick, L. (2010). *OECD Insights. Fisheries While Stocks Last?* OECD Publishing; *OECD Review of Fisheries 2020*. OECD Publishing, Paris.

⁶⁹ C. Ferrari, M. Marchese, & A. Tei. (2018). *Shipbuilding and economic cycles: a non-linear econometric approach*. *Maritime Business Review*; OECD. (2017). *Imbalances in the Shipbuilding Industry and Assessment of Policy Responses*. C/WP6(2016)6/FINAL. OECD Publishing, Paris.

2. To the extent possible, a subsidy is supposed to deal directly and pointedly with a specific issue. It is better not to use a sweeping benefit with the intention that perhaps part of it will trickle down and help achieve the goal. Sweeping subsidies which do not directly, pointedly address the problem sometimes have undesired consequences, cause inefficient expenditure of resources and introduce distortions in the marketplace.
3. Before implementation, it is advisable to identify the subsidy's effects, including on other sectors. In the course of implementing the subsidy, effects which had not been identified from the outset have to be examined and adjustments to the subsidy need to be made accordingly.
4. The optimal, most effective type and aspect of the subsidy need to be identified and implemented. For this, it is advisable to carry out an early examination of the characteristics of the problem, the impacts on the domestic market and on the international market and so forth.
5. It is recommended that all of the possible options be explored, in addition to the subsidies, in order to match the optimal tool for the issue we are working to address. Additionally, the possibility of including other tools along with the subsidies should be examined, in order to reach the desired outcome. There are cases where other tools are preferable to subsidies, for example, using structural changes in the maritime sector and regulation, which is unrelated to subsidies.
6. It is important to identify the reasons for the problem we are seeking to fix through the use of subsidies. Sometimes the causes require different handling, rather than subsidies. There are even cases where the use of subsidies will exacerbate or perpetuate failures, which are harmful to the efficient, optimal business in the shipping sector.
7. If using a subsidy, which succeeded in solving a problem in another country, it has to be adapted to the characteristics and environment of the local maritime sector. It should be noted that in some cases subsidies, which were successful in a specific situation and environment, have failed when applied to other countries without sufficient adjustment.
8. Subsidies should be planned in such a way that they will prevent obstructions to their optimal application and to the achievement of the goals for which they are applied in the first place. Experience around the world shows cases of administrative, regulatory, economic obstructions, which impaired the implementation of subsidies.
9. While the subsidy is in use and following it, it is recommended that it be re-evaluated. This includes, among other things, its effect and degree of accomplishment of the goals that had been set. According to the results, if necessary, adaptations and changes will be made.

Financial and Other Benefits Through Using Flag of Convenience in the World: Panama, Marshal Islands, Malta, Cyprus and The Bahamas¹

Ofir Kafri

Introduction

Registration of vessels in FOC (flag of convenience) countries has accelerated since the 1950's.² In 1988, this registration has overtaken Traditional Maritime Countries scope (TMC).³ Nowadays, most of the vessels in the world, by DWT (Deadweight Tonnage), are registered in flag of convenience countries.⁴ Israel was also influenced by the use of flag of convenience and part of the vessels under Israeli ownership were registered in these countries.⁵

The main flag of convenience countries provide various benefits for vessels registered in their maritime registries. For example, in parts of these countries tax benefits and other governmental subsidies are given.⁶ In addition, there are benefits for the

¹ This article is not to be considered as consulting, legal or other and should not be used beyond its academic purpose. Due to the scope limitation the article does not contain all the issues and complexities of the presented subjects.

² There are different definitions to the term flag of convenience and this article will not elaborate on this issue. In this article, the definition of the ITF (International Transport Workers' Federation) is used. Hereinafter is the definition and the list of flags of convenience countries of the ITF and examples of additional definitions: International Transport Workers' Federation (ITF). *Flags of convenience*; Oliver Covey, "Review of Flags of Convenience: An International Legal Study by Boleslaw Adam Boczek". *University of Chicago Law Review*, 30(191) (1962); Zoya Özcayir, "Flags of Convenience and the Need for International Co-operation". *International Maritime Law*, 7(4) (2000), pp. 111–117; *The Oxford Companion to Ships and the Sea* (2 ed.). Oxford University Press. 2006.

³ A. Bergantino, and P. Marlow, "Factors influencing the choice of flag: empirical evidence". *Maritime Policy and Management*, 25(2) (1998), p. 157.

⁴ UNCTAD. *Review of Maritime Transport 2020*. November 12, 2020, p. 44.

⁵ For further reading about Israeli seamanship and flag of convenience as well as examples of governmental activity related to the domain: Israel. Department of the Transportation, *The Israel Port Authority Statistical Yearbook Seamanship and Ports – 2020*. pp. 91, 102; the Ministry of Transportation. *The Israel Port Authority The crisis and the recovery* Last update: August 2013; *The Knesset Proposal of Seamanship Law (Foreign Seacrafts Controlled by an Israeli Body)*, 2004; *Proposal of Internal Revenue Tax (Taxing Revenue from the activity of seacrafts by tonnage)*, 2018. Explanations.

⁶ O. M. Merk, "Quantifying tax subsidies to shipping". *Maritime Economics & Logistics*, 22 (2020), pp. 517–535.

registration of vessels such as relatively low administrative payments and a swift registration process, simple to carry out. Additional benefits include temporary registration in lenient conditions, registration of mortgages on vessels in convenient conditions, and few limitations regarding kind, age and tonnage of the vessels. Part of the flags of convenience enable dissimulating information about the owners of the vessels and other related entities, financial and other activities.⁷

The use of flag of convenience influences in various ways the maritime sector of countries and the international system as well as the maritime environment and other factors. For instance, flags of convenience caused the reduction of the scope of the civil fleet in various countries. In addition, research showed that flags of convenience sometimes create conditions which weaken the enforcement of international treaties regarding safe activity at sea. Vessels flying certain countries' flags of convenience were inclined to environmental pollution events, problematic working conditions, regulatory breaches and low salary. Additionally, in certain cases unsafe vessels were operated, unskilled manpower was employed and the ability to compete in the maritime sector was impaired.⁸

The large-scale passage of vessels to registration in FOC made countries act in attempt to deal with this issue.⁹ Countries reacted by using several methods:¹⁰ governmental subsidies were extended along with other benefits, secondary ship registries were established with easier requirements, regulatory changes were made, services given to registered vessels were ameliorated, etc.¹¹ It should be noted that sometimes this competition led to facilitations which harmed countries.¹²

⁷ For the world classification of countries by the level of financial secrecy: Tax Justice Network. *Financial Secrecy Index – 2020 Results*. February 18, 2020.

⁸ T. Alderton, and N. Winchester, "Flag states and safety: 1997–1999", *Maritime Policy & Management*, 29 (2002), pp. 151–162; M. Luo, L. Fan, and K. X. Li, "Flag choice behaviour in the world merchant fleet". *Transportmetrica A: Transport Science*, 9(5) (2013), pp. 429–450.

⁹ Merk, "Quantifying tax subsidies to shipping".

¹⁰ Sometimes these methods were also applied as part of the competition with other, non FOC countries.

¹¹ Trying to get vessels to register anew in the national maritime registry was one of the reasons for extending benefits by the countries. cf. examples in the UE directives: EC. 2004. Community guidelines on state aid to maritime transport. *Official Journal of the European Union*, 2004/C 13/03. Brussels: European Commission.

¹² For example, the international activity for dealing with damages incurred as a result of tax competition: OECD. *Addressing Erosion and Profit Shifting*. February 12, 2013; OECD. *Action Plan on Base Erosion and Profit Shifting*. July 19, 2013.

Due to the limitation on the scope of this article, it will review and demonstrate succinctly the following subjects. First, reasons for moving registration to flags of convenience will be described. Then, I will present several case studies of Flag of Convenience in the World that are considered among the largest in the world: Panama, Marshal Islands, Malta, Cyprus and The Bahamas. In the case studies some of the benefits extended to registered vessels will be exemplified. The article will present issues in regulation related only to registration in maritime registries and will not delve into other advantages in the field of maritime law in the case studies.¹³ A few methods countries use to deal with the influence of flags of convenience on them will also be analyzed. Finally, some conclusions and suggestions that may help Israel in contemplating the possibilities of taking care of the influences of flags of convenience on the country, will be presented.

Reasons for moving to registration in FOC countries

There are various reasons for vessels' registration in FOC countries. The weight and centrality of some of the reasons changed through the years.¹⁴ Many studies note economic, political, security, regulatory and administrative reasons. Examples of economic reasons were the offering of subsidies and other benefits, manpower costs and vessels operating, regulatory costs, etc.¹⁵ Also influential were factors

¹³ For examples of maritime law legal issues analysis in case studies and other sources in this area cf.: Y. Baatz (ed.), *Maritime law*. Taylor & Francis (2020); C. Hill, *Maritime law*. Informa Law from Routledge (2017); R. Force, A. N. Yiannopoulos, and M. Davies, *Admiralty and maritime law* (Vol. 1). Beard Books (2005); Julian Clark (Contributing editor), *International Comparative Legal Guides (ICLG). Shipping Laws and Regulations*, 2021; Andrew Chamberlain, Holly Colaço and Richard Neylon (eds.), "The Shipping Law Review" *The Law Reviews*, 8 Edition, 2021; Lexology, Lawrence Rutkowski (ed.), *Ship finance*, Law Business Research, 2021; Legalease. *Legal 500. Shipping*. 2nd Edition, November 2020.

¹⁴ For example, use of tax benefits and other means by countries competing with flags of convenience led to that in recent years the importance of part of the reasons for passing, changed.: ITF, "Maritime Subsidies: Do They Provide Value for Money?", *International Transport Forum Policy Papers*, No. 70. OECD Publishing, Paris (2019), pp. 36–37.

¹⁵ For further reading of studies presenting various factors influencing the decision making regarding the passing to flags of convenience: Bergantino and Marlow, "Factors influencing the choice of flag"; H. A. Thanopoulou, "What price the flag? The terms of competitiveness in shipping", *Marine Policy*, 22(4–5) (1998), pp. 368–369; P. Marlow, and K. Mitroussi, "Shipping taxation: Perspectives and impact on flag choice", *International Journal of Shipping and Transport Logistics*, 3 (2011), p. 349; K. Mitroussi, and M. Argyrou, "Institutional performance and ship registration", *Transportation Research Part E-logistics and Transportation Review*, 85 (2016), pp. 90–106.

such as the state of the vessels, the type of ship, its age, commercial use, possibilities of dissimulating the owners or the operators of the vessels.¹⁶

Case studies

There are certain differences between main FOC as for the characteristics of registered vessels among which are the type of vessel, average age, assessed value, etc.¹⁷ The benefits and incentives given in these countries are varied and sometimes the emphases in the diverse incentives given, differ. In certain cases, there are unique incentives for a specific maritime sector, preferred geopolitical location and particular international legal arrangements. For example, the Bahamas constitute a convenience flag under which a large number of Cruise ships are registered due to benefits for this sector.¹⁸

Republic of Panama

The maritime registry in Panama is the largest vessel registry in the world today in Deadweight Tonnage.¹⁹ Panama hardly puts any limitations on the citizenship of vessel owners registered in the state.²⁰ It is possible to register a vessel with no tonnage limit and also a vessel older than 20 years under a few provisions. Furthermore, Panama allows registration of vessels of different kinds under few limitations.²¹ A Bareboat Charter may be registered as well as a ship already registered in a foreign registry.²² As a result, almost any vessel may be registered in Panama.²³

Mortgages of vessels and temporary registration of a vessel which is in a building process may be done. In addition, the registration process is quick and can be

¹⁶ Luo, Fan, and Li, "Flag choice behaviour in the world merchant fleet".

¹⁷ UNCTAD. *Review of Maritime Transport 2020*. November 12, 2020.

¹⁸ *Top 10 flag states 2019*. *Lloyd's List*, December 3, 2019.

¹⁹ F. Piniella, J. Alcaide, and E. Rodríguez-Díaz, "The Panama Ship Registry: 1917–2017", *Marine Policy*, 77 (2017), pp. 13–22.

²⁰ For reading on Panama legislation regarding vessel registration: *Panama Ship Registry*. National Legislation.

²¹ A seacraft registration requires abiding by some provisions. The definition of the term vessel in the Panama legislation is very broad. *General de Marina Mercante*. Law 57 of August 6, 2008.

²² In order to carry out the registration in the maritime registry some conditions have to be met. See the definition of the term Bareboat Charter (charter of a vessel with no crew nor fuel): *Cambridge dictionary*. *bareboat charter*. Cambridge University Press, 2020.

²³ Registration of a vessel in Panama which is also registered in another country requires meeting a number of provisions: *Consulate General of Panama in New York*. Maritime Section, 2021.

performed in a large number of missions in the world. The registration of vessels in the maritime registry allows exemptions from various taxes such as Revenue Tax on a certain international commercial activity.²⁴ In addition, Panama is considered a country which allows some financial confidentiality and weaknesses regarding control of financial activity in it were noted.²⁵ In 2021, the country appeared on a European Union list of countries that do not cooperate regarding the amending issues in the area of taxation (EU list of non-cooperative jurisdictions for tax purposes).²⁶ It is considered, according to some studies as a tax haven.²⁷

Panama offers discounts on payments related to registration of vessels, compulsory annual payments and other costs. For example, discounts are given for new vessels, vessels less than five years old and vessels which are part of a group.²⁸ Another incentive is the existence of double taxing treaties with a number of countries and agreements regarding taxation in the maritime sector with the USA, Cyprus and additional countries.²⁹ Panama has signed agreements meant to alleviate somewhat the activity of seacrafts registered under its flag with countries such as Singapore and China.³⁰

²⁴ There are a number of conditions to be met in order to get tax benefits in Panama. For reading about the tax regime in Panama in general and in the maritime sector cf.: Ernst and Young. *Worldwide Corporate Tax Guide*. 2020, pp. 1293–1308; PricewaterhouseCoopers (PWC). *Worldwide Tax Summaries*. Panama, 2021.

²⁵ For further reading on financial confidentiality and control of money laundering in Panama cf.: International Monetary Fund. *Western Hemisphere Dept. AML/CFT Issues in Panama: Background and Policies*, April 21, 2020; Tax Justice Network. *Financial Secrecy Index 2020*. Narrative Report on Panama.

²⁶ Council of the EU. *Taxation: EU list of non-cooperative jurisdictions*. October 2021.

²⁷ For further reading of studies presenting tax havens, definitions of the term as well as limitations of these studies: C. Chavagneux, R. Palan, and R. Murphy, *Tax havens: How globalization really works*. London: Cornell University Press, 2010; J. Garcia-Bernardo, J. Fichtner, F. W. Takes, and E. M. Heemskerk, *Uncovering Offshore Financial Centers: Conduits and Sinks in the Global Corporate Ownership Network*. *Scientific reports*, 7(1) (2017), 6246; T. R. Tørsløv, L. S. Wier, and G. Zucman. *The missing profits of nations* (No. w24701). National Bureau of Economic Research, 2018; R. Phillips, M. Gardner, A. Robins, and M. Surka, *Offshore Shell Games 2017*. Institute on Taxation and Economic Policy and US PIRG Education Fund, 2017; J. R. Hines Jr, "Treasure islands", *Journal of Economic Perspectives*, 24(4) (2010), pp. 103–126.

²⁸ Lexology. *Law Business Research*. Ship finance – Panama, 2021.

²⁹ Ernst and Young, *Shipping Industry Almanac*, pp. 339–355.

³⁰ Maritime and Port Authority of Singapore. *Singapore and Panama Ink MoU to Strengthen Maritime Relations*. September 19, 2019; Consulate General of Panama in HK. *Panama renews maritime transport agreement with China*. July 22, 2021.

Republic of Malta

In 2020, the maritime registry of Malta was considered the sixth largest in the world in DWT.³¹ Malta advertises as an advantage its membership in the EU, its economic stability and its being an international maritime center providing various services. In the Maltese maritime registry, there are few limitations on owners' and the vessel's crew citizenship. There is an arrangement in the for a vessel of non-EU citizens may be registered. According to the Maltese registry the costs of registration are relatively low and discounts are offered to vessels of specific kind that are under the age of ten.³² The Maltese maritime registry also claims that there are almost no limitations on the sale or transfer of shares of a company that is an owner of a Maltese ship. In addition, the maritime registry notes that there are few limitations on sale and mortgaging of vessels and some advantages regarding mortgages are offered.³³ Malta offers an incentive of tonnage tax for vessels of certain kinds and for activities of managing a ship instead of revenue tax, under certain conditions.³⁴

Malta offers incentives to ship owners and additional elements regarding registration of ships over 1,000 tons.³⁵ In addition there are a number of benefits related specifically to shipping companies.³⁶ There is also a registry of Bareboat Charter which get an array of benefits.³⁷ In the case of yachts there are benefits such as low costs of registration and tax relief.³⁸ Malta has a number of double taxing treaties and agreements with several countries. In 2020 it was ranked 18th in the world for financial confidentiality. In certain areas it provides possibilities for concealment of

³¹ UNCTAD. [Review of Maritime Transport 2020](#). November 12, 2020, p. 44.

³² Directives regarding registration of seacrafts and the 1973 Merchant Shipping Act of Malta: Transport Malta. [Malta – A Guide to Ship Registration](#); Legislation Malta. [Merchant Shipping Act](#). Chapter 234.

³³ Transport Malta. [Mortgages](#); Transport Malta. [Ship Registration](#).

³⁴ For further reading about the provisions for getting tonnage tax and the tax regime in Malta in general: PricewaterhouseCoopers (PWC). [Malta – Corporate – Taxes on corporate income](#). Last reviewed September 3, 2021; Deloitte. [International Tax](#). Malta highlights. January 2021; International Comparative Legal Guides (ICLG). [Shipping Law – Malta](#). 2021.

³⁵ Malta Ship Registry. [Ship Registration](#).

³⁶ KPMG. [Ship Registration in Malta](#). 2021.

³⁷ The registration of certain kinds of seacrafts as Bareboat Charter in Malta requires meeting a number of conditions. For more elaboration: Transport Malta. [Bareboat Charter Registration](#).

³⁸ U.S. Department of Commerce. International Trade Administration. [Malta – Country Commercial Guide](#). Last published date: October 19, 2020; Transport Malta. [Why choose the Malta Flag](#).

data on financial activity.³⁹ The state, according to a number of studies, has the characteristics of a tax haven.⁴⁰

Republic of Cyprus

In 2020, the Cyprus maritime registry was ranked 11th in DWT of vessels.⁴¹ In Cyprus various kinds of vessels can be registered.⁴² The state allows the registration of certain types of vessels whose age is over 25 years.⁴³ In addition, registration of Bareboat Charter may also be done.⁴⁴ Cyprus offers tax benefits to vessel owners, charters and ship managers. For example, ship managers can get tax benefits on crew management profits, dividends from profits, etc.⁴⁵ In the year 2019 the European Commission acted against Cyprus claiming that it enabled a significant VAT reduction for chartering yachts in contradiction to the European Commission directives.⁴⁶ Cyprus provides some degree of confidentiality as to financial activity and was ranked 27th in the world in 2020.⁴⁷ A number of studies show that the state has characteristics of a tax haven.⁴⁸

³⁹ For further reading: Moneyval. Council of Europe. *Anti-money laundering and counter-terrorist financing measures – Malta*. Fifth Round Mutual Evaluation Report. July 2019; Tax Justice Network. *Financial Secrecy Index. Malta (MT)*. Reporting Period: 2020. February 20, 2020.

⁴⁰ For further reading of studies and grading of tax havens cf. footnote 27.

⁴¹ UNCTAD. *Review of Maritime Transport 2020*. November 12, 2020, p. 44.

⁴² The carrying out of a registration is subject to meeting a number of conditions and limitations. See for example the following legislation regarding the registration of vessels in Cyprus: The Merchant Shipping (Registration of Ships, Sales and Mortgages) Laws of 1963 to 2020 (Law 45/1963 as amended).

⁴³ The registration of vessels over a certain age requires meeting conditions that Cyprus has set. Republic of Cyprus – Shipping Deputy Ministry. *Circular No.:10/2019*, paragraphs 2.2–2.4. May 23, 2019.

⁴⁴ The registration of Bareboat Charter is done subject to certain conditions. Republic of Cyprus – Shipping Deputy Ministry. *Types of Registration*.

⁴⁵ Tax benefits are given following meeting a number of conditions. Examples of legislation on the issue of taxation in the maritime sector in Cyprus and data about said tax: The Merchant Shipping (Fees and Taxing Provisions) Laws of 2010–2020 (Law 44 of 2010 as amended); The Tonnage Tax for Ship Managers (Special Provisions and Requirements) Notification of 2010 (P.I. 511/2010); PricewaterhouseCoopers (PWC). *Tax Facts & Figures 2021 – Cyprus*. January 2021, pp. 20–22.

⁴⁶ European Commission. *Commission takes further steps to end illegal tax breaks in the Italian and Cypriot yacht industries*. July 25, 2019.

⁴⁷ Tax Justice Network. *Financial Secrecy Index 2020*. Narrative Report on Cyprus.

⁴⁸ For further reading of studies and grading in the area of tax havens cf. footnote no. 27.

Cyprus offers various subsidies beyond tax benefits, related to the maritime sector.⁴⁹ The state has signed bilateral agreements with about 25 countries meant to enable a preferential treatment for vessels registered under its flag.⁵⁰

Republic of the Marshall Islands

The maritime registry of the Republic of the Marshall Islands (RMI) is the 3rd largest in the world by DWT.⁵¹ The RMI offers a number of benefits such as vessels registration with no tonnage limitation. In addition, it is possible to register a vessel the age of which is over 20 years old.⁵² According to the company running the maritime registry, the final owners' details, i.e., the Beneficial Owners, are not accessible to third parties subject to certain reservations. Another benefit is the registration of vessels in a relatively short time in various locations around the world.⁵³ There are a number of benefits for various kinds of yachts such as comfortable registration conditions, bonus in compulsory payments and easier activity conditions.⁵⁴

The Maritime Act 1990 of the RMI sets a number of conditions regarding the maritime registry.⁵⁵ According to Article 203, a few entities may register vessels such as an approved foreign maritime entity.⁵⁶ An additional benefit is that there is almost no citizenship restriction on the vessel's crew and owners. Furthermore, according to the Business Corporations Act (1990) the RMI exempts certain kinds of businesses defined as non-resident entities from various taxes such as companies and partnerships.⁵⁷ According to state publications, exemptions from revenue

⁴⁹ Ernst and Young. *Shipping Industry Almanac*, pp. 119–124.

⁵⁰ International Comparative Legal Guides (ICLG). *Cyprus: Shipping Laws and Regulations*. 2021.

⁵¹ UNCTAD. *Review of Maritime Transport 2020*. 12 November 2020, p. 44.

⁵² The RMI puts up a number of conditions for considering allowing the registration of seacrafts in these cases. For example, a bulk carrier the age of which is 15 years or over has to undergo a compulsory check prior to the registration in the maritime registry. Other seacrafts from the age of 20 also have to undergo a check prior to the registration.

⁵³ International Registries, Inc. (IRI). *Vessels Eligible for Registration in the RMI*.

⁵⁴ There are various conditions which yachts have to meet to get benefits. For example: International Registries, Inc. (IRI). *Yacht-General Information*.

⁵⁵ *The Maritime Act 1990 of the Republic of the Marshall Islands*. updated as of September 2016.

⁵⁶ Republic of the Marshall Islands. *Vessel Registration and Mortgage Recording Procedures*. MI-100. Rev. Jun, 2018, pp. 8, 11.

⁵⁷ In order to get tax exemptions some conditions and limitations have to be met. Reference to the tax exemptions can be found in a number of legislation acts of the RMI. See for example: Republic of the Marshall Islands. *Business Corporations Act 1990*. Section 12; Marshall Islands Revised Partnership Act. Title 52 – Association Law Chapter 2. Exemptions for non-resident

tax, corporate tax etc., are extended subject to a number of conditions.⁵⁸ The RMI was defined in 2019 by the EU as a state which does not cooperate in mending malfunctions in the taxation area. It was noted that there are, among other things, arrangements which enable the transfer of profits to its jurisdiction with no real economic activity.⁵⁹ According to a number of studies there existed certain aspects of a tax haven.⁶⁰

Commonwealth of The Bahamas

The maritime registry of The Bahamas was ranked in 2020 8th in the world by DWT of vessels.⁶¹ In The Bahamas there is a tax regime which extends incentives such as absence of tax on capital gains and on the revenues of companies under certain conditions. In addition, there are benefits regarding various compulsory payments.⁶² Furthermore, in The Bahamas there is the possibility for confidentiality to some degree relating to certain financial and commercial activities. It is ranked 22nd in the world in financial confidentiality.⁶³ According to a number of studies there are, aspects of a tax haven.⁶⁴

According to the BMA (Bahamas Maritime Authority) which is responsible for the maritime registries, a large array of kinds of vessels can be registered subject to

entities. Section 73; Marshall Islands Limited Partnership Act. Title 52 – Association Law Chapter 3. Section 73; Swiss Institute of Comparative Law. Legal Opinion on Maritime Registration. E-Avis ISDC 2018-15. April 6, 2018.

- ⁵⁸ Trust Company of the Marshall Islands, Inc., *Associations Law*. November 2017, pp. 5–6, 50–52.
- ⁵⁹ The RMI claims that it has set regulation meant to lessen the use of sovereignty as tax haven including in the maritime area. The RMI has been taken off the black list of the EU in 2019. Republic of the Marshall Islands. *Economic Substance Regulations*, 2018, as amended, through August 29, 2019; Council of the European Union. *The EU list of non-cooperative jurisdictions for tax purposes – Marshall Islands: final legislation and assessment under criterion 2.2 11*. October 2019; Lexology. *Law Business Research. Ship finance – Marshall Islands*. 2021, pp. 44–45.
- ⁶⁰ For further reading of studies and grading in the area of tax havens cf. footnote 27.
- ⁶¹ UNCTAD. *Review of Maritime Transport 2020*. 12 November 2020, p. 44.
- ⁶² Incentives and benefits in The Bahamas are extended subject to certain conditions. For elaboration on the tax regime: Ernst and Young. *Worldwide Corporate Tax Guide 2021*. July 2021, pp. 123–127; Bahamas Investment Authority. *Guide for Investors. Ship Registry*. 2011; Ernst and Young. *Worldwide Personal Tax and Immigration Guide 2020–2021*, pp. 108–112; Deloitte. *International Tax. Bahamas highlights*. January 2021.
- ⁶³ FATF. *Anti-money laundering and counter-terrorist financing measures – The Bahamas*. Mutual Evaluation Report. 2017, pp. 117–122; CFATF *Follow-Up Report – The Bahamas*. 2018; Tax Justice Network. *Financial Secrecy Index. Bahamas (BS)*. Reporting Period: 2020.
- ⁶⁴ For further reading of vessels and grading in the area of tax havens cf. footnote no.27.

relatively few limitations. It is claimed that the process of registration is swift and various services for vessels are offered in a number of localities around the world. Subject to certain conditions registration of Bareboat Charter vessels registered in another country's registry can be done.⁶⁵ The registration of yachts is carried out with relatively few reservations, e.g., there are no limitations on the citizenship of the vessel's crew and the owners.⁶⁶ The Bahamas have an agreement with China which allows for vessels registered there rebates on payments and additional benefits while visiting ports in China.⁶⁷

Methods used by countries for dealing with the passage of vessels to flags of convenience

Countries act in various ways in an attempt to deal with the passing of vessels registered in their jurisdiction to flags of convenience countries.⁶⁸ Such methods include subsidies, secondary registers that provide easy conditions and alleviating regulations.⁶⁹ Additional methods are the extension of a swift and alleviating service for actions related to the registry of vessels, the offering of worldwide services, use of legal and maritime status of the state for registered vessels, the use of assisting international agreements, few limitations on citizenship of the vessels' crew and owners and more.⁷⁰

⁶⁵ Bahamas Maritime Authority. [Bahamas Advantages](#).

⁶⁶ The registration shall be done following meeting some conditions. It should be noted that yachts are extended additional benefits such as few limitations on selling and mortgaging of the seacrafts. Bahamas Maritime Authority. [Benefits of registering a yacht in The Bahamas](#).

⁶⁷ Bahamas Maritime Authority. [Bahamas Preferential Maritime Agreement with China](#).

⁶⁸ For example, it was claimed that incentives extended by some of the traditional maritime countries sometimes reduced the differences between the traditional and the FOC countries. See the following research: Bergantino and Marlow, "Factors influencing the choice of flag", p. 159.

⁶⁹ Benefits meant to reinforce the maritime registry were not always successful. For example, in 2007, China started extending benefits in the framework of the STFSR (special tax-free ship registration) policy meant to get back the registration of ships that passed to flag of convenience. The plan suffered from administrative obstructions and weak benefits which made for its failure. For elaboration of the subject: Chen, J., Li, K., Liu, X., and Li, H., "The development of ship registration policy in China: Response to flags of convenience". *Marine Policy*, 83 (2017), pp. 22–28.

⁷⁰ See for example the advantages of registering vessels of various kinds in Singapore: Maritime and Port Authority of Singapore. [Benefits of SRS](#). 2021.

The USA is an example for a state which extends tax benefits to vessels registered there. E.g., operators and ship owners under USA flag who bought a ship or replaced a ship with a new one may get a deferment of revenue tax under certain conditions. According to the MARAD (Maritime Administration of the USA) the plan intends to deal with the competition difficulties created among the operators of ships under USA flag opposed to ships registered in countries with no tax. The aim of the plan is to aid the renewal of the civil fleet.⁷¹

Another example for extending benefits is Germany which offers various subsidies for ships registered in German registries such as tax benefits, reduced payments and financing of comprehensive insurance for accidents and illnesses.⁷² Another benefit is the preference in getting certain services in ports around the world stemming from agreements between Germany and about 80 other countries. Germany provides protection and aid for vessels and their crews in certain cases through its diplomatic missions.⁷³ It should be noted that Germany has also established the GIS (German International Shipping Register) that offers alleviating conditions for certain vessels. This registry was defined by the ITF as a convenience flag.⁷⁴

The establishing of Second ship registry with alleviated conditions by countries which are not FOC is another method. Countries have started to operate second registries in order to strengthen their competitiveness, inter alia, aiming at the passage of seacrafts to flags of convenience.⁷⁵ The second registries are aimed at enabling conditions that are closer to those offered in the flags of convenience registries such as the use of foreigners. In certain cases, this method proved successful regarding the problem of ships passing to registration under flags of convenience.⁷⁶ It should be noted that the extent of the success in using this tool for increasing or conserving the commercial fleet varies among countries.⁷⁷

⁷¹ U.S Maritime administration. [Capital Construction Fund](#). Last updated: July 15, 2021.

⁷² Benefits on behalf of the government of Germany are extended under certain conditions. For example: German Federal Ministry of Transport and Digital Infrastructure. [Changing to the German flag](#). Subsidies, Fees.

⁷³ German Federal Ministry of Transport and Digital Infrastructure. [Advantages of the German flag](#).

⁷⁴ International Transport Workers' Federation (ITF). [Flags of convenience](#).

⁷⁵ Yin, J., Fan, L., and Li, K. "Second ship registry in flag choice mechanism: The implications for China in promoting a maritime cluster policy". *Transportation Research Part A-policy and Practice*, 107 (2018), pp. 152–165.

⁷⁶ Thanopoulou, H. A., "What price the flag? The terms of competitiveness in shipping". *Marine Policy*, 22(4–5) (1998), 359–374, pp. 368–369.

⁷⁷ Yin, Fan and Li, "Second ship registry in flag choice mechanism".

Second international registries were established in countries such as France (FIS), Norway (NIS) and Denmark (DIS).⁷⁸ E.g., the international maritime registries of Denmark and Norway are ranked, in Deadweight Tonnage, at the 14th and 15th places respectively out of all maritime registries in the world.⁷⁹ In some cases it was claimed that the second registries became flags of convenience, such as the FIS (French International Ship Register).⁸⁰

Conclusion

The passing of vessels to registration under flags of convenience creates a challenge for countries which are negatively affected. Some of the countries chose to use different methods aiming to stop this trend and deal with its effects. Countries have used methods such as extending subsidies, regulatory alleviations, a second maritime registry, providing swift and efficient services, supporting international agreements and treaties, alleviations through legal and maritime status of the country and legal aid.

How successful were the countries' dealings with the passing of vessels to FOC? The results were mixed. Different reasons affected the results such as the kinds and characteristics of the methods used, the availability of sufficient resources and the scope of the costs of the treatment, the economic and commercial situation in the international maritime sector, etc. In certain cases, countries chose not to deal with this problem for reasons like the costs surpassing the benefits, investing resources in promoting other subjects in the maritime sector and lack of a national interest.

A number of lessons arise from the accumulated experience in the international maritime sector. Hereinafter is a list of a few points which may help decision makers in Israel when they consider the subject:

1. First it should be examined whether there are a national interest, abilities and sufficient benefits in investing resources in this endeavor. Sometimes investing in other issues within the maritime sector may be more beneficial for the country.

⁷⁸ Sources on the international maritime registry of Denmark (DIS): SSornn-Friese, H., and Iversen, M.. "The establishment of the Danish International Ship Register (DIS) and its connections to the maritime cluster". *International Journal of Maritime History*, 26(1) (2014), pp. 82–103; Danish Maritime Authority. *About the Danish ship registers*.

⁷⁹ See for example the differences between the international maritime registry of Norway (NIS) compared to its national maritime registry (NOR): Norwegian Maritime Authority. *Registration of commercial vessels in NIS/NOR. What distinguishes NIS from NOR?*

⁸⁰ International Transport Workers' Federation (ITF). *Flags of convenience*.

2. The state should set goals for adapting the right tools for the task. Not setting goals or choosing too general goals might bring about an unwanted outcome. Furthermore, incentives and benefits focused on achieving the goals directly should be chosen so that no uncalled-for results will arise or that there will be an inefficient squandering of resources. Setting goals will enable the reexamination of the success of the process and carrying out adaptations if needed.
3. Actions for the strengthening of the maritime registry should relate to characteristics of the vessels of interest for registration. The enlargement of the maritime registry for vessels which are not beneficial to the state's interest or that their benefit is marginal at best, is an unwanted result. There are known problematic cases in the world such as registration of vessels with no added value for the economy, old and polluting ships which have caused damage or registration of vessels which is temporary and unstable in the long run.
4. The state should examine the tools and their optimal characteristics for obtaining the state's goals.
5. The state should align with the efficient and innovative countries in the international maritime sector as to the quality of the services it provides to this sector. It should be noted that a positive influence stemming from improvements and the extension of benefits may be impaired due to failures of the state in this area.
6. What happens in competitive registries in the international system should be examined so that the correct and efficient treatment is chosen. It is also important to map the characteristics, such as needs and interests of the vessels which may be the target for incentives for registration in Israel.
7. It is recommended that the state sets a strategy for this issue and act accordingly. This will enable, *inter alia*, the optimal integration of methods, treatments of weaknesses and leveraging strengths. The absence of a strategy might lead to waste of resources, focusing on erroneous goals, etc.

Reform in the Ports of Israel – Vision and Reality

Arieh Gavish

In 2005, Israel's commercial ports underwent a reform. The reform applied to the Port of Haifa, the Port of Ashdod and the Port of Eilat, which had been incorporated as "governmental corporation", headed by the Director General of the Israel Ports Authority. The Ports Authority was established in 1961 by former Chief of Staff Haim Laskov, structured along the lines of a military organization. The reform got underway after many years of underperformance in the ports, particularly in terms of the labor relations between management (the Israel Ports Authority which operates under the Ministry of Transport) and the workers who were organized in a large number of different unions, backed by the Histadrut labor federation.

The Knesset replaced the structure and law (the Ports Authority Law 1961) with a new structure for the ports under a new law (the Shipping and Ports Authority Act, 2004). A government company was established – the Ports Development & Assets Company LTD – in short, the Israel Ports Company (IPC), and the ports' lands were put under its jurisdiction. Each port was turned into a government company (Ashdod Port Company, Haifa Port Company, Eilat Port Company), and it was decided that the Ashdod and Haifa Port companies would be privatized, although the State would retain control, while the Port of Eilat would be fully privatized at 100% of its value. The privatizations were supposed to have ended five years after the reform got underway, meaning in 2010. The regulation as assigned to the Shipping and Ports Administration, which was upgraded into an Authority. The reform was supposed to achieve the following goals:

- Competition.
- Increased efficiency.
- Curtailing the power of the unions – this goal was never declared in public, nor was it included as an official goal of the reform.

At this time, several questions arise:

- Has the reform in the ports since 2005 been successful?
- Will the start of operation of the Bayport Terminal (in the Haifa Port) and the Southport Terminal (in the Ashdod Port), which is scheduled for the end of 2021, improve the ports' performance?
- Could we expect real competition, meaning advanced competitiveness among the various bodies working in unloading and loading of cargoes in Israel's ports?

- Is it right to have the Israel Ports Development & Assets Company Ltd. (IPC) continue to exist in its current state?
- Is it good for competition? Is it justified?
- Is IPC currently operating with conflicting interests, which constitute a market deficiency?

Before I set about discussing the above mentioned questions, I would like to correct a misconception shared by many people. The two new terminals which are referred to as ports, the Bayport Terminal and the Southport Terminal, are not ports but rather they are terminals. They are yet another authorized corporation within the port, the Bayport Terminal within the Port of Haifa and the Southport Terminal within the Port of Ashdod. The main reasons why I recommend they be called terminals are:

1. The Bayport Terminal and the Southport Terminal are located within the areas of jurisdiction of the Haifa Port and the Ashdod Port respectively (the areas of jurisdiction of the ports of Haifa, Ashdod and Eilat are defined separately by the Minister of Transport in a specific regulation for each port within the Ports Regulations).
2. The two companies operating the terminals (SIPG and TIL) lease the terminal land from the IPC and in addition they pay leasing fees.
3. IPC is the landlord of these two terminals as well as of the Port of Eilat.

I therefore recommend that the following definition be used: the Bayport Terminal and the Southport Terminal, are located in the Haifa Port and the Ashdod Port respectively. Thus, we will do justice to the semantics and to the nature of these terminals.

Has the reform in the ports been a success? Has it yielded a real improvement in the ports' performance?

Many people hoped the 2005 reform in the ports would cure the ports' substandard performance, which included strikes, long wait times for ships outside the port due to workload, ships being docked in the ports and along the docks for inordinately long times, much damage to cargo (sometimes including severe injuries to workers) etc.

The current situation in the ports indicates that the reform has failed to achieve its goal. There is a lot of waiting, strikes still occur – some of them illegal, cargoes take a long time to be loaded and unloaded, occupational accidents afflict workers and cause damage to cargoes, and the list goes on.

I would be an understatement to say that customers of the ports are dissatisfied with the ports' performance. The users complain time and again about the ports' performance. They also recommend how to improve the situation (recruit new workers, improve the operational queue, technological improvements, improve procedures, and so forth). I assume that if a real customers' satisfaction survey were to be conducted as to the ports' performance, the result would be decidedly unflattering. Regretfully, the general feeling is bad in this respect.

Therefore, in my opinion the success of the reform should be examined from a more distant standpoint, in other words, we will know whether the reform has succeeded only far in the future. Furthermore, it would be appropriate to examine whether the reform in the ports was a success in a thorough study, including a large number of port characteristics.

The substandard performance in the ports dictated radical change. The 2005 reform in the ports expresses the best and the most of the improvements which were achievable under those days' circumstances (political, organizational, labor union-government, etc.). That reform should be considered as a first stage in a long and inevitable **process** of restructuring the ports. The following principles should be noted in the implementation of the reform in the ports:

- Privatization – today there no longer any doubts as to the potential contribution this measure can make.
- The passing of the regulation of the ports to the Israel Shipping and Ports Authority, which is a professional body within the Ministry of Transport.
- The disbanding of the Israel Port Authority and the setting up of a different organizational structure, thereby "weakening" the strength of the unions and preventing them from keeping their stranglehold in their domain.
- The improvement of the ports' performance – streamlining, lowering costs, improving processes, innovation, etc.

None of these things even hints at harming the terms and status of the port workers. I believe that the current terms of employment of the port workers have been achieved legally, however, giving a group of workers the power to shut down Israel's foreign trade is simply untenable. The 2005 reform was an **unavoidable first step** toward dealing with the deficiencies of the monopoly called the Israel Port Authority.

The results of operating the Israel Shipyards docks since 2009 as a private port company are proof of the necessity of privatization and initiation of competition between the terminals. In its 12 years in existence, the Israel Shipyards Port Company

has exhibited healthy growth in the amount of cargo it handles. In 2009 the company handled 0.5 million tons of general cargo, which accounted for 16.8% of all the general cargo in the ports. In 2020 the company handled 1.712 million tons of general cargo, out of a total of 4.119 million tons in the four ports, which accounted for 42.5% of all the general cargo in the ports. This is in contrast to the Haifa Port Company with 967 thousand tons, or 24.1% of the total general cargo in the ports, the Ashdod Port Company with 1,339 million tons, or 33.1% of the total general cargo in the ports and the Port of Eilat company with 149 thousand tons or 0.04% of the total general cargo in the ports (all data are from the 2020 statistical yearbook of the Israel Shipping & Ports Administration, the actual results may vary slightly). The Israel Shipyards Port is able to handle any cargo it chooses. For various reasons the management of the Israel Shipyards Port decided to specialize and handle general cargo, including bulk: cement, grain, etc. The Israel Shipyards Port is a tangible example of a small private port company (terminal), limited in its dock capacity that, through proper management, creativity and working correctly, delivers outstanding service to its customers and even yields decent profits for its owners.

The Israel Port Authority had been responsible for the three ports (Haifa, Ashdod, Eilat). In its lifetime, from 1961 to 2005, it was both a port operator and a port regulator – effectively a glaring conflict of interests. This is just like allowing the cat to guard the cream. Anyone that had been involved in this sector during the Israel Port Authority period is painfully aware of how deeply the Ministry of Transport was involved in operations – the ministry responsible for the ports, which had also to be the regulator of their operations. Officially, the Ministry of Transport was the regulator of the main trade ports of Haifa, Ashdod, Eilat. In practice the Ministry of Transport was no more than a rubber stamp. The Israel Port Authority also had many achievements to its credit: substantially reducing the workforce headcount, development of the ports, introduction of new technologies and resources into the ports, and more.

I have no intention to review the Israel Ports Authority performance throughout its existence (1961–2005), for better or for worse. One thing, however, is clear: as the main artery of the State of Israel's foreign trade at peace and in war, the role of the Israel Port Authority was highly important and it had a major influence on Israel's economic situation. The Israel Ports Authority's shortcomings outweighed its advantages and for this reason the 2004/5 reform was made. The Israel Ports Authority was disbanded, the Ports Authority Law of 1961 was scrapped and replaced by the Shipping & Ports Administration Act of 2004. The main points of the reform are:

- Transferring the regulation under the Israel Shipping and Ports Administration and turning it into an Authority.
- Cancellation of the Israel Ports Authority Staff and turning it into the Israel Ports Development & Assets Company Ltd. (IPC), a government corporation for its entire lifetime.
- Setting up three government companies (Haifa Port Company, Ashdod Port Company, Eilat Port Company).
- It was decided that the three government companies would be privatized within five years – a move which failed to take place. The Port of Eilat Company was privatized as planned but belatedly, in 2013, while the Ashdod Port Company and the Port of Haifa Company have to date not been privatized.

Later on, the infrastructure for the two new terminals was designed and built (the Bayport Terminal and the Southport Terminal). A tender was issued to operate the new terminals, the companies which would operate them were selected (SIPG-Shanghai International Port Group – a subsidiary of the Port of Shanghai in China to operate the Bayport Terminal, and TIL – Terminal Investment Limited – a subsidiary of the MSC shipping company – to operate the Southport Terminal). These terminals are scheduled to begin operations in the final quarter of 2021, upgrading the competition between the terminals for container loading and unloading.

The start of operation of two new container terminals (the Bayport Terminal and the Southport Terminal) is a momentous, highly significant milestone. The Bayport Terminal began operations on September 1, 2021 while the Southport Terminal is supposed to start operations at the end of 2021. Initially operations will be in trial mode for half a year to a year, followed by full-scale operations afterward. The opening of these new terminals raises questions within Israel's ports sector, which for years had been a government monopoly and various parts of it still are monopolies, some say ham-fisted monopolies.

Following are a few characteristics of the new terminals. The two terminals are very similar in their characteristics. To understand the issues in this article, I shall elaborate on a few characteristics they both share:

1. Dock length – 700–800 meters.
2. Container storage space very near the dock.
3. Deep water dock – planned depth near the dock – 17.3 meters (neither the Port of Haifa nor the Port of Ashdod reach such depth). Achieving such depth near the docks is the result of dredging – the dock floor is specially encased

and depth maintenance work continues regularly. Recently the Ashdod Port Company deepened Dock 21 in order to turn it into a dock suitable for container megaships, to a depth of 17.3 meters.

4. The location of these terminals – literally at the port mouth, after the port entry channel, in Haifa in the eastern part of the port, in Ashdod in the northern part of the port. This parameter indicates a shorter maneuvering time for ships arriving at these terminals. In addition, a turnaround diameter of approximately 600 meters has been designed for each dock.
5. The terminal is going to be operated by a **private** company, SIPG in Haifa and TIL in Ashdod. The two winning companies in the tender are international with plenty of experience in operating container terminals where millions of containers are loaded and unloaded every year.
6. There is an entry and exit gate to each terminal, separated from the gates of the Port Company of Haifa and of the Port Company of Ashdod, and of course from other corporations operating in the port.
7. Each company chose a **TOS** – the Terminal Operating System – a computer system for managing all of the port activities.
8. Eight ship to shore gantries – STS – in each terminal.
9. Container storage areas with gantry cranes. All the gantries are operated via the TOS system which operates and controls throughout the entire terminal, automatically or semi-automatically.
10. The porters (the port operational workers), the terminal workers will be Israelis, management members can be foreigners.
11. The two companies operating the terminals are private enterprises. This will give the terminal managements a great deal of management flexibility, something that does not exist today in the Port Companies (Haifa, Ashdod).

Having presented these data, we can now make a better-grounded assessment that the planned competition between the terminals is missing several elements. **Is there going to be real competition in the terminal sector between these terminals and Haifa Port and Ashdod Port companies?** In my opinion, there will be competition between the new terminals and the port companies, however this is not going to be real, sophisticated, fair free-market competition.

The Terminals of Haifa Port Company and Ashdod Port Company will be missing a few elements: Dock depth; Dock length; Previous generation gantries, information systems. The Haifa and Ashdod port companies will be employing unionized, highly-paid workers with generous collective bargaining agreements. Clearly there is going

to be a great deal of diversion of containers from the existing port companies (Haifa, Ashdod) to these new terminals. What is the percentage of cargoes that will be diverted? This remains unclear, but the existing port companies are working to deal with this question. Their working assumption is that at least 50% of the cargoes (containers) are going to switch to the new terminal. The preparations and the coping of the port companies with the age of competition are being done in various ways, they have not necessarily chosen the same path. I will describe the main points of the future plans drawn up at the Haifa Port Company and at the Ashdod Port Company in their preparations for this new age.

Haifa Port Company

Generally speaking, the Haifa Port Company's strategic plan from several years ago¹ is being implemented, thus the Haifa Port Company will be prepared for competition with the Bayport Terminal. The privatization of the Port Company through the introduction of a strategic investor will improve the Haifa Port Company's ability to compete and will enable it to cope with this adversary that is forming in front of its eyes. Here are the main improvements required:

1. The port privatization – introduction of a strategic investor with international experience in loading and unloading of containers, that will invest in development and in the operational processes, such that the Port will be fit for competing with the private terminals.
2. The investor/operator should develop the unused dock of the Carmel Terminal, deepen it as a deep-water dock similar to that of the Bayport Terminal so that container Megaships (approximately 18000 TEU's) will be able to enter the port to load/unload containers.
3. Development of the northern portion of the eastern dock such that Panamax ships will be able to load/unload general cargo.
4. Development of the Kishon East dock for general cargo.
5. Upgrading of the Kishon West dock for general cargo.
6. Manpower agreements (early retirement incentives etc.).
7. Raising and lengthening the booms of the ship to shore gantries STS.

¹ Aryeh Gavish, "The Activity of the Ports in Israel – The Port Operating Model by Means of the Israel Port Company Using the Landlord Method and by Means of the Port Authority", in Shaul Chorev and Ehud Gonen (eds.), *Maritime Strategic Evaluation for Israel 2019/20* (Haifa: Maritime Policy and Strategy Research Center, University of Haifa, 2020).

Ashdod Port Company

Generally speaking, the Ashdod Port Company's strategic plan from several years ago² is being implemented, thus the Ashdod Port Company will be prepared for competing with the Bayport Terminal. Here are the main improvements required:

1. Deepening of dock 21, converting half of it for container loading and unloading, with the second half having pneumatic installations for grain unloading.
2. Grain unloading by building a special conveyer from dock 21 to the port's inland terminal, a distance of approximately 2.3 km from an existing grain silo. After the grain conveyer will be built from dock 21 to the Ashdod Port's inland terminal, the grain cargoes will be transferred in bulk through the conveyer (expected within two to three years from now). This will replace the current grain unloading, which is done through grabs into a truck, which transports the grain to the silo in the Port's inland terminal.
3. Restructuring agreements, retiring veteran workers.
4. Recruitment of young manpower.
5. Dock 25 might be used (this matter is in dispute between the workers and the management. The workers demand that dock 25 be part of the Ashdod Port, while IPC has not yet approved the workers' demands.)
6. Investment in innovation processes and start-ups.

Should IPC continue to exist as the landlord in the current age of competition?

During the debates over the reform in the ports sector in 2003 and 2004, the issue of the Israel Ports Development & Assets Company Ltd. (IPC) as landlord of the ports arose. Some suggested that the municipalities of Haifa and Ashdod should become the landlords of their respective ports. However, IPC became the landlord of the three ports: Haifa, Ashdod and Eilat.

In addition, it was decided that the Marine Department of the Haifa Port and that of the Ashdod Port would remain within their organizational structure in the Haifa Port Company and the Ashdod Port Company. The decision to leave the Maritime Departments within the Port companies was apparently a concession to labor union pressures, which were content with the existing organizational structure. They

² Ibid.

felt stronger within the Haifa Port Company and the Ashdod Port Company, and therefore they refused and did not move to IPC.

The reform in the ports, therefore, was incomplete. It was decided that after the privatization of the three ports, which was planned for 2010, the Maritime departments of Haifa and Ashdod would move over to IPC. This would have made IPC a full-scale landlord of the three ports, including the Port Companies (Haifa, Ashdod, Eilat) and of all of the authorized corporations in the ports. Within this framework, the Marine Departments of the Port Companies of Haifa and Ashdod would move over to IPC. In the Port of Eilat, due to its small size, the issue of transferring the Marine Department there to IPC was not discussed.

In reality, the following things happened:

- Only the Eilat Port Company was 100% privatized as planned, albeit belatedly, in 2013.
- The Haifa Port Company and the Ashdod Port Company have not been privatized to this day. There is a plan to privatize the Haifa Port Company, and for this a tender was issued, and is currently in its final stages. IPC is supposed to choose a concessionaire out of the existing candidates, thereby effectively privatizing the Haifa Port Company. Clearly, this way it will be possible to compete against the Bayport Terminal and the small and efficient Israel Shipyards Port.
- At the Ashdod Port Company there is no talk at all of privatizing the port, despite the inherent advantages. It is actually hard to assume they are not thinking about it.
- The marine departments of the Haifa Port Company and the Ashdod Port Company were transferred to IPC at the end of 2020 following protracted discussions, ten years after the original target date. IPC set up two subsidiaries to operate the maritime domain of the Haifa Port and Ashdod Port – the Government Company Marine Transport Haifa and Government Company Marine Transport Ashdod. One has to bear in mind that the employees in the marine departments in the Port companies moved over to the IPC subsidiaries (approximately 100 employees in each department) voluntarily according to an agreement that there would be no change in their terms of employment or wages, including their remaining under a collective bargaining agreement for many years.

According to the Shipping and Ports Authority Law, 2004, IPC is committed to fulfill two main functions:

1. IPC manages the ports' real estate, it is the owner of the jurisdiction in the ports on land and at sea. Each port's area of jurisdiction (Haifa, Ashdod and Eilat) is defined in the Ports Regulations. On land, IPC leases areas to various corporations.
2. IPC is responsible for planning and developing the ports, including their maintenance, promotion and encouragement of competition between the various entities operating in the ports.

Authorized corporations within the Haifa Port on the land section:

- Israel Shipyards and its subsidiary, the Israel Shipyards Port.
- Bayport Terminal.
- Haifa Port Company.
- The Fuel Port Company – Government Company Petroleum & Energy Infrastructures Ltd. (Energy Infrastructures).
- Dagon Silos – the Gadot Company recently won the concession to operate the silo, including unloading of grain and distribution to the importers.
- Chemicals Terminal – IPC recently received the terminal workers and it now operates the terminal.
- Israel Navy Base – leased to the Ministry of Defense.
- The Shavit Marina and Fisherman Wharf – owned and operated by IPC.

Authorized corporations in the Ashdod Port on the land section:

- Southport Terminal.
- Ashdod Port Company.
- Dock 11, 12 ICL (Israel Chemicals Ltd.).
- Ashdod Israel Navy Base.
- Operation of Dock 30 – IPC operates Dock 30 to unload bulk cement.
- Dock 25 – the responsibility for operating dock 25 is in dispute between the workers and the management.

The marine space at the Haifa Port and the Ashdod Port extends from the port, 3 nautical miles into the high seas. Within the ports' marine jurisdiction, IPC is responsible for operating the Haifa Port Control, through a VTS (Vessels Traffic Service) system, and employees that are merchant marine veterans or Israel Navy veterans. These employees are part of the marine departments, which are now part of IPC subsidiaries. They are named Haifa, Ashdod Marine Services Ltd.

Nothing in the Shipping and Ports Law 2004 hints to the need, or even the intention, to turn IPC into the landlord at the ports. This is despite the fact that IPC fulfills roles and tasks typical of a landlord in the ports, such as: dealing with sea pollution in the port basins and in the marine territory, maintaining navigation aids at the entrance and exit from the port, managing the information systems (Sea Information Systems), which interfaces with a new foreign trade system belonging to the Tax Authority, ports development, port infrastructure maintenance, etc.

The decision to transfer the marine departments from the Haifa and Ashdod Port companies to IPC is part of the decision to make IPC the ports' landlord. But if the intention is to make Israel Ports the real landlord by the book, then additional activities have to be transferred to it, which are currently under the Corporations. For example, assigning the responsibility for land and sea security to Israel Ports. Nowadays most of the aspects of security are handled by the Security Departments of the Haifa and Ashdod Ports Companies. Also, the Shipping and Ports Authority Act 2004 has to be updated.

In most of the world's ports, the port landlord is the municipal authority, because:

- The municipality knows better than anyone else what is good for the city as far as the port is concerned.
- The municipality has an inherent interest in the success of the port and in increasing its profitability since this improves its own profits and stimulates the growth of the city.
- The municipality will develop the port in various areas according to business plans, the needs of the region and expected profits.
- The municipality is best-positioned to market the port.
- The municipality will safeguard the city residents' interests in terms of dangerous goods, air pollution, and other nuisances which may be caused by the port.

While planning the port reform in 2003 and 2004, a decision was made that Israel Ports Company (IPC) would only fulfill the two main tasks listed above (Shipping and Ports Authority Act 2004). The intention to turn Israel Ports into a full-scale landlord of the ports was scheduled for execution only when the marine departments would be transferred from the Port Companies to Israel Ports Company, even though part of Israel Ports Company activities definitely reflect its status as landlord of the three ports.

Israel Ports Company is a landlord of the three ports (Haifa, Ashdod, Eilat) is an undesirable market failure, especially in the age of the new terminals. In certain

areas, IPC operates with a clear conflict of interests (for example in operating the chemicals terminal in the Haifa Port). Now is the time to consider transferring the landlord status from Israel Ports Company to a different body. I recommend that the option of closing down Israel Ports Company be considered and to transfer all of its tasks, including the landlord status, to a different body.

Following are the main reasons why Israel Ports cannot be a full landlord of the ports.

1. IPC is an administrative body, far removed from the experience of operating ports or issues related to running ports, such as: port operations, port security, marine services, sea pollution, marine navigation aids etc. Israel Ports Company main strength and experience as an administrative body is in control, supervision, using planners, managing statutory processes and so forth. There is no doubt that IPC will have difficulties running marine transport subsidiaries of Haifa Port and Ashdod Port.
2. There is no way of knowing how will IPC market the ports and the terminals? Whom exactly will it market? Which one will it prefer - the Haifa Port Company or the Ashdod Port Company? Which port will IPC prefer as a transshipment port – the Haifa Port Company/Bayport Terminal or Ashdod Port Company/Southport Terminal?
3. The ports development component can and should be transferred to another body. Any such body that will be selected can do this quickly, efficiently while delivering real solutions for the needs of the country and the respective city. Indeed, this is not a simple task, it's even complicated and difficult, but it can be done. I am in no doubt that the experience that has accumulated in the Israel Ports Company will be implemented among the special port departments that will be set up in the new body that will be selected.
4. It is wrong and misleading to claim that the professional knowledge accrued in Israel Ports Company is priceless and cannot be transferred. The experienced IPC employees can be transferred to the body that will be selected to be the ports' landlord.
5. Shipping & Ports Authority (ASP) will continue to be the ports regulator. A Senior Port Engineering and Operation Division was set up in ASP at the start of the port reform in 2005. This division is responsible for all of the activities in the ports and marinas in the State of Israel. This body might need to be strengthened, as it will be supervising, controlling, serving as the address for user complaints on anything related to the ports and to the operational queue. It is, therefore, clear that I object to the continuation of the existence of the port administrations

which were set up in 2007 as a temporary solution in the agreement between IPC and ASP. There is no need for these administrations and there is no need for regulating port managers. The division that was set up in ASP will fulfill all of the regulatory functions in the ports, ranging from supervision and control of the operational queue, development plans and budgets to proactive accident prevention measures in the ports and setting appropriate standards for the ports.

Conclusion

The ports sector, which is critical to the State of Israel, is about to be reinforced in 202w with two advanced container terminals. This same year the Haifa Port Company should be privatized and in the future the Ashdod Port Company will also be privatized.

The reform of 2005 in the ports was a necessary step in a protracted process of healing the festering ills in Israel's commercial ports (Haifa, Ashdod, Eilat). It is still early to judge the success of the reform in the ports. We are merely 16 and a half years into its implementation and we are still waiting for the private terminals in the Haifa Port (the Bayport Terminal) and the Ashdod Port (Southport Terminal) to begin operations. The successful experiment of allowing the Israel Shipyards Port Company to operate as a private terminal shows that we are on the right course. It will be interesting to see what will happen after the private terminals begin their operations, to be followed by the privatization of the Haifa Port Company and Ashdod Port Company.

The competition we can expect: I have no doubt there will be competition between the various players in the ports sector. The State of Israel needs to ensure that the competitiveness of the old terminals improves so that they will be able to compete against the new private terminals, which are on the verge of beginning operations.

The place of Israel Ports Company (IPC) in general and as a ports' landlord in particular: I recommend that the issue of the continued existence and operation of IPC undergo be given serious consideration, preferably outside the box. This is advisable not only due to the tremendous savings its closure would yield, along with the reassignment of its roles to other bodies, but also due to the fact that it constitutes a market failure and operates with conflicting interests.

