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Whole-of-Government Frameworks for Maritime Security

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On the morning of February 17, 2021, the State of Israel woke to a large-scale ecologic disaster when thousands of tons of tar spilled to its shores, in an event that was known in Israel as "Zefet Ha'seara" (literally translated to English as Tar of the Storm), known worldwide as the 2021 Mediterranean oil spill.[1] Preliminary investigations indicated that the tar originated from a vessel sailing off coast of Israel, which was considered as the prime suspect. However, since the event no one took responsibility for the damage to the ecosystem and the cleanup expenses. Consequently, the Israeli Minister of Environmental Protection (at the time), Gila Gamliel, instructed the Sea Pollution Prevention Fund to use its budget to finance the emergency clean-up operations.[2] On the second day of the event, hundreds of experienced teams and volunteer groups arrived at Israeli beaches to minimize the damage for the 160 km strip as much as possible. Several of the volunteers were hospitalized due to intoxicated tar fumes, which was only one of the oversights in the event.[3] Minister Gamliel claimed that since 2008, the government has neglected to legislate a national response and preparedness program for marine pollution, which includes NIS 15 million to establish a maritime intelligence monitoring system to alert against sea pollutions. Moreover, the legislation would require local authorities to prepare for sea pollutions with proper equipment and additional staff for the responding teams. In May 2021, a memorandum regarding those issues was published and closed for comments, but has not been discussed in the Knesset since.[4] To add insult to injury, the investigation of the event revealed that on February 11 (six days before the tar arrived on the shores), international agencies had already spotted the massive oil spillage merely 50 km from the coast of Ashdod.[5] It was discovered by a European Union Space Agency satellite. Although not a member of the European Union, Israel could have purchased the

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1 Shani Ashkenazi, "From the North to Rishon Lezion: Big Amounts of Tar Spill to Israel's Shores", *Globes*, February 17, 2021 (Hebrew).

2 Shani Ashkenazi, "Black Ecological Disaster: Tar Spill to Israel's Shores, Cleaning Operation Began", *Globes*, February 18, 2021 (Hebrew).

3 Carmel Libman, "Tar Pollution in Israel's Shores: Several Hospitalized, Ecological Emergency", *N12*, February 20, 2021 (Hebrew).

4 Ilana Curiel, "Knesset's Report: Israel is Not Prepared to Sea Pollution", *Ynet*, February 28, 2022 (Hebrew).

5 Yuval Bagano, Moshe Cohen, "The Ecological Disaster at the Shores: After the Damage, Now the Many Failures Are Revealed", *Ma'ariv*, February 21, 2021 (Hebrew).

satellite services or even develop its own capabilities.[6] A channel 13 News investigative report revealed that out of the ten suspected tankers, the one with the highest probability of being responsible to the event was involved in a similiar incident in 2008 in an oil spill off the coast of Denmark.[7] This example demonstrates that such events could be better managed with the proper information and resources.

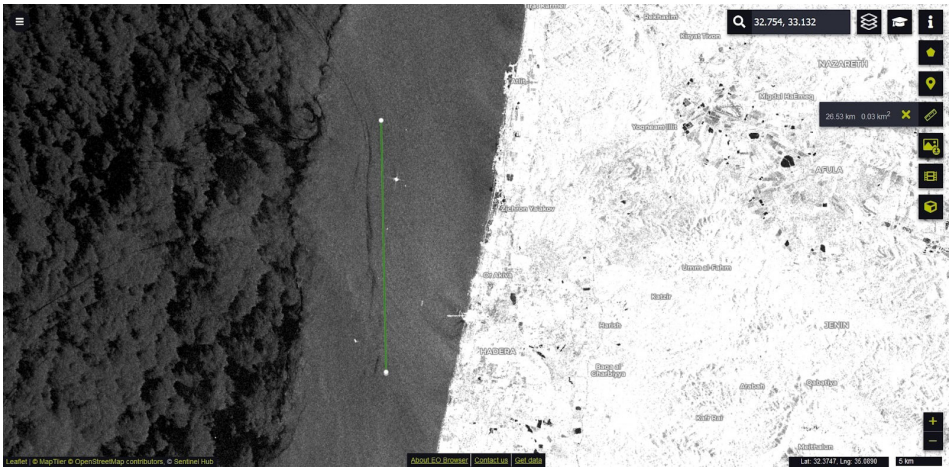

Figure 1: Satellite photo of the 26.4 km long tar spillway, approximately 10 km from Hadera.[8]

The pursuit after maritime security is confronted by high complexity of threats at sea due to wide variety of possible scenarios which require extensive information gathering capabilities and effective response procedures that can coordinate between large number of stakeholders. This article discusses whole-of-government frameworks for maritime security; an approach designed to oversee threats and challenges, optimize responses to events, and coordinate them between relevant organizations. In practice the approach is realized in its core a specialized governmental unit that operates independently or under one of the government's ministries. First, I'll provide the theoretical background for a whole-of-government framework for maritime security. Second, I'll present examples from around the world, specifically it will present the frameworks of the United Kingdom, Singapore, Australia, and New Zealand. Lastly, I'll examine the importance of a framework

6 Anat Roe, "The Tar Disaster in the Shores: Israel Could Have Prevented Some of the Damage", *Calcalist*, February 21,2021 (Hebrew).

7 Yoav Zehavi, Chen Beyar, "One of the suspected ships in the pollution was involved in a major oil leak 13 years ago", *Kan*, February 22, 2022 (Hebrew).

8 Illustration source: Sue Surkes, "Satellite images of oil slicks off coast show recent spill far from a one-off", *The Times of Israel*, February 28, 2021.

in a case study of Israel, and determine which of the principles and lessons from the other case studies decision makers should consider when designing such frameworks.

Whole-of-Government Frameworks for Maritime Security – Theoretical Background

There is no single definition for maritime security. It can be interpreted as the absence of threats in the maritime domain, including terrorism, disasters, accidents, illegal trade, and environmental damage. It can also be defined as an aspiration for the stable order of the sea, or as the sum of actions such as protecting ships, ports and the marine environment.[9] One thing is clear though, achieving it and dealing with threats require the participation and cooperation of many organizations (government, private and international), broad knowledge of multiple issues, and the ability to respond quickly to complex events. In this complicated reality where many players have to participate in order to bring about a desired result, a body that can manage or at least coordinate such joint efforts is required.[10] The process of confronting maritime security threats should include four stages: identifying events and threats in real time; monitoring, assessing and knowledge sharing regarding the situation as it develops; deploying quick response forces and resources; and lastly, assessing the damage and forming a restoration plan.[11] Each of the stages requires collection and verification of information, coordination between several entities, an understanding of the legal and political circumstances, ability to plan and execute initial response, and drawing conclusions and implementing them in relevant organizations. A whole-of-government framework for maritime security is designed to achieve all of these.

The complex nature of maritime security threats raises some unique issues. Even though a head of state or a parliamentary committee can direct and coordinate responses in a way that serves the interests of the state, it cannot be expected of them to get immediately involved in each case and security issue, such as handling detainee and detained cargo cases, collecting evidence, contemplating the right to board a ship at sea, or designing press releases. This problem stems from the increasing speed of that the transformation of information that could change policy. The amount of information and the need to

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9 Christian Bueger, "What Is Maritime Security?" *Maritime Policy*, 53, no. 1 (2015): 161–164.

10 Duane M. Smith and Thomas C. Fitzhugh, *International Perspectives on Maritime Security* (Washington D.C: Department of Transportation, 1996), 1–4; Brett Doyle, "Lessons on Collaboration from recent conflicts: The Whole of Nation and Whole of Government Approaches in Acting", *Inter-Agency Journal*, no. 1, (2019), 105–122.

11 Ido Ben-Moshe and Ehud Gonen, "Sea pollution: How to prevent the next disaster", *The Geostrategic Series* (Haifa: Chaikin Chair for Geostrategy, University of Haifa, 2022), 61–67 (Hebrew).

disperse it quickly, along with the intricacy of the events in the maritime domain means that first responders are sometimes unable to share real time information from the field up in the hierarchal chains fast enough with the responsible decision-making authorities. Hence, an organization which can fill this gap is required. The increasing need for broad knowledge and different respond expertise regarding situations such as fuel leakages or other materials, piracy, damage to energy infrastructure, or illegal trading, fishing, and immigration, has worsened the problem, and without existing protocols to coordinate the responding efforts, misinformation and inefficiency may result in repeating past mistakes.[12] As written:

> "No single agency owns maritime security or can manage their specific maritime threats without the support of other agencies and stakeholders such as the community and industry. Our ability to understand, engage with partners, and prevent and respond to maritime threats is built upon the foundation of a cohesive multi-agency approach that draws together and utilises the full range of national capabilities."[13]

This Whole-of-Government Approach (WGA), also known as "Comprehensive Multi-Agency Approach" is intended to combine joint efforts of government organizations in order to fully utilize resources in a coordinated response to events. At the center of the approach there is the understanding that without cooperation and coordination every organization will only focus on its own interests and goals. The integration of information and capabilities will allow more response options, efficiency, and less dependence on certain entities (like the Navy).[14] This approach aims to improve effectiveness by integrating knowledge, resources, and capabilities of various organizations. Moreover, WGA leads to a systematic understanding of the complexity of threats, and therefore assigns experts from different fields to respond to them. The shared use of resources and information is intended to reduce costs and increase efficiency.[15] A Whole-of-Government Framework (WOGF) integrates entities within the government and responds to several challenges, among them, achieving maritime operational capabilities, increasing responding organizations' resources, holding discussions, coordinating efforts and decision making

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12 Brian Wilson, "The complex nature of today's maritime issues: why whole-of-government frameworks matter", In Joachim Krause and Sebastian Bruns (eds.), *Routledge Handbook of Naval Strategy and Security* (New York: Routledge, 2016), 153–156.

13 Ministry of Transport, "Maritime Security Strategy", New Zealand Ministry of Transport, December 2020.

14 Terry A. Fellows Jr & Jason L. Percy, *A whole of government approach for national security*, 4 (MBA professional report, Naval Postgraduate School, Calhoun, 2009), 17–19.

15 Andrea Baumann, *Whole of Government: Integration and Demarcation* (Center for Security Studies, ETH Zurich, 2013), 1–4.

between ministries in the government and outside it, and establishing procedures for collecting and verifying information. An existing crisis management procedure allows security organizations, both governmental and non-governmental, to prepare responds to events, compensate for early event uncertainties, document the lessons learned, and implement them in organizational procedures afterwards.[16]

The success of the multi-agency approach relies on effective maritime security system enablers.

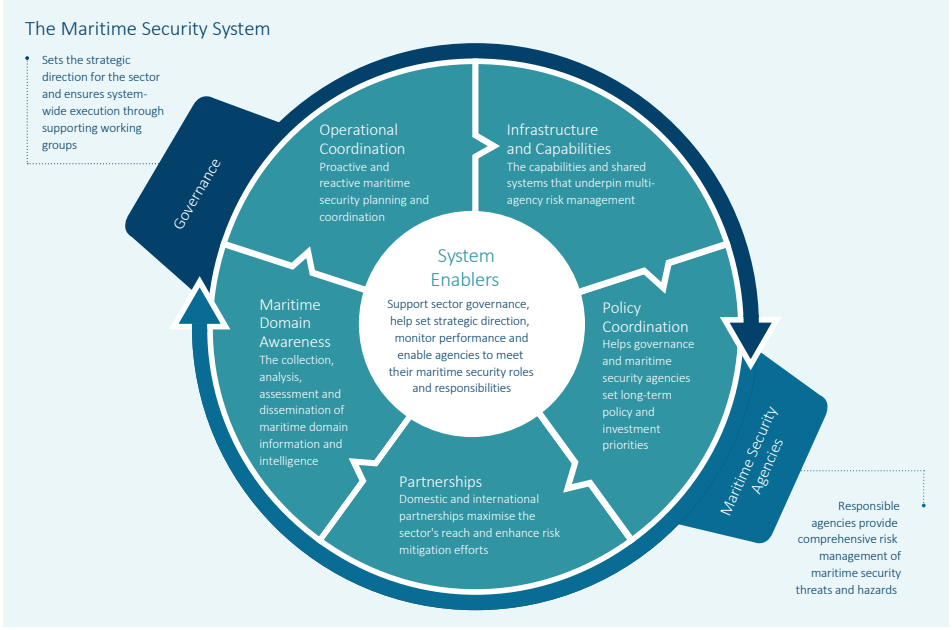

Figure 2: Maritime Security WGA in New Zealand.
(Source: Maritime Security Strategy 2020)

Whole-of-Government Frameworks for Maritime Security Around the World

Dealing with complex threats to maritime security is fairly new and it has been developed in recent years, along with the information age and its increased flow of data. Since the beginning of the 21st century, governments around the world started establishing WOGF for maritime security, and as it turns out, the two main reasons for their existence in these countries are the size of their maritime domain and its national importance. Notably, the framework's role in each country is different and determined by the threats, constraints, and unique characteristics of each domain. I will start by introducing Singapore as an

16 Wilson, "The complex nature of today's maritime issues", 2016.

example of a small state, functioning as an island nation (its main gateway to the world is by sea or air, especially for importing and exporting of trade), much like Israel, and with similar economic capabilities. I'll focus on the center's ability to gather information in the complex space of the Singapore Strait. Following, I will discuss the case of the United Kingdom as a country, whose maritime domain has immense importance for centuries, but its Maritime Security Coordination Centre was established only in 2020. I will examine the organizational position of the framework as a jointly budgeted and staffed governmental entity. And finally, I will present a comparison of New Zealand and Australia and examine authorization issues of the framework as a coordinator, on the one hand, and an operational maritime security organization, on the other.

Singapore

At the heart of Singapore's National Maritime Security System stands the Singapore Maritime Crisis Centre (SMCC). Established in 2011, it coordinates its activities through the Crisis Management Group which is led by the Commander of the Navy. The Centre operates under the authority of the secretary generals of the ministry of defense and the ministry of interior under the Homefront Crisis Executive Group. The SMCC optimizes interoperability between various organizations by assessing and reporting on potential threats, planning crises responses, managing and supervising operations in real time, developing capabilities, and conducting training. The center stands on three pillars: The first is a body of representatives from various maritime organizations, including the Singapore Navy, the Maritime and Port Authority of Singapore, the Immigration and Checkpoints Authority, the Police Coast Guard, and Customs. The center went fully operational in 2013 and since then coordinated with intelligence agencies, think tanks, and shipping companies.[17] The second pillar is the National Maritime Sense-making Group (NMSG), which uses artificial intelligence and multi-sourced data analysis to create security profile of every vessel passing through Singaporean maritime domain, and identifies potential threats, anomalies, and suspicious behavior. The system is linked regularly to databases of intelligence services, shipping companies, and organizations in the shipping sector. The group shares these assessments with the relevant authorities who in turn verify the information and inspect the vessel.[18] The third pillar is the National Maritime Operations Group (NMOG), which conducts training, writes protocols, and analyzes lessons learned to improve performance and coordination during a crisis or a threat. At such a time or during simulations, the center will coordinate the methods of

17 Ministry of Defense, "Fact Sheet: Singapore Maritime Crisis Centre (SMCC) and Launch of SMCC Next-Generation Maritime Sense-making System", *MINDEF Singapore*, November 12, 2021.

18 Ibid; Nicholas Lim & Chong De Xian, "Maritime Sense-Making and The Role of Big Data Analytics for Enhancing Maritime Security", *PONTER Journal* (September 2020).

response and prevention between the Maritime Security Task Force of the Singapore Navy and the relevant organizations.[19]

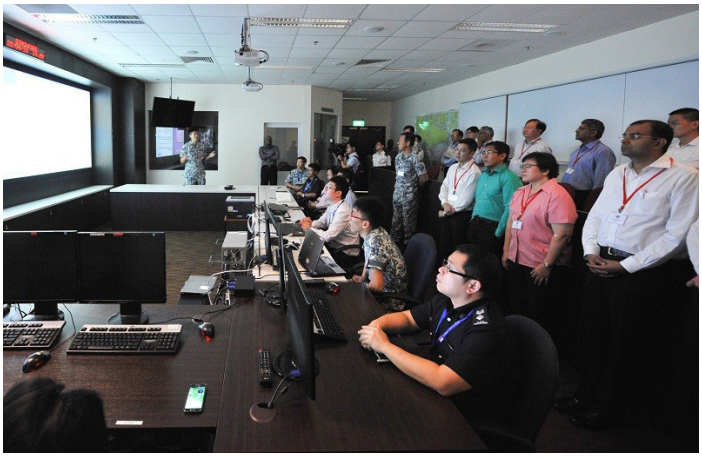

Figure 3: Singapore's foreign affairs and defense committee visits the Singapore Maritime Crisis Center (SMCC). (Source: *MINDEF Singapore* 2014)[20]

Among the notable threats that the center identified and intercepted was the 2014 identification of a crew member who was listed on two ships destined to enter Singapore the same day. With threats of an attack by a faction of ISIS in Sri Lanka in the background the NMSG shared the information and thus prevented his entry.[21] In 2015, the AI system identified a potential ISIS supporter on board a tanker destined to the port of Singapore, who as a result was forbidden to leave the ship. In 2016, the Centre identified a suspicious ship, the Police Coast Guard detained the ship and found smuggled goods aboard it. One of the crew members was arrested following the incident.[22] The main aspect to be learned from the Singapore case study is the ability to collect quality information through framework procedures. The Singapore Strait is the busiest sea passage in the world and the port of Singapore is the second busiest. An average of 1,000 vessels sails the 1,067 square kilometers of Singapore's Exclusive Economic Zone at any given time, and a vessel enters or leaves every two to three minutes. The ability to get a clear picture of what is

19 Ministry of Defense, "Fact Sheet: Safeguarding Singapore's Maritime Security", *MINDEF Singapore*, June 30, 2017.

20 News Releases, "Government Parliamentary Committees Visit Singapore Maritime Crisis Centre", *MINDEF Singapore*, April 22, 2014.

21 Joseph Franco & Romain Quivooij, "Terrorist Threats from the Maritime Domain: Singapore's Response", *RSIS*, No. 197, October 10, 2014.

22 Ministry of Defense, "Fact Sheet", 2017.

happening in the maritime domain and to react to threats on time is a central pillar of the whole-of-government approach for maritime security.[23]

The United Kingdom

The importance of maritime security, whether it is for international trade, economic growth, or global law and order, is nothing new to the United Kingdom. The National Strategy for Maritime Security (NSMS) from 2014 recognizes that maritime security deals with diverse issues and not only naval superiority, and outlines for the first time in British history the importance of a whole-of-government approach. The Joint Maritime Security Centre (JMSC) was established in 2020 as part of the effort to coordinate between the National Maritime Information Centre (NMIC) and the Joint Maritime Operations Coordination Centre (JMOCC). The JMSC is the interorganizational executive body that implements the whole-of-government framework for maritime security in the UK, and is responsible for maintaining maritime knowledge, responding to security threats, and conserving the marine environment.[24]

The Centre's main tasks are to raise level of preparedness for maritime threats and to coordinate government responses. It is led by a team of representatives from the Royal Navy, the Ministry of Defence, the Border Force, the Marine Management Organization (MMO), with the Centre's board of directors above them. The JMSC coordinates other government authorities as well, including the Ministry of Transportation, the Foreign, Commonwealth and Development Office, the Ministry of the Interior, British Customs, the British Coast Guard, the National Crime Agency, the Counter Terrorism Police, and Maritime Scotland. The JMSC provides a number of services to the British government and other organizations, such as collecting and analyzing security information and constructing a coherent picture of the occurrences in the maritime domain; planning and coordinating responses between organizations, their assets, and their capabilities. Similar to the Singaporean model of whole-of-government framework, the British Centre consists of three components; the executive team that was mentioned before; the National Maritime Information Centre (NMIC), established in 2017, provides data analysis, intelligence and crisis management to maximize the capabilities of operational responders; and the Joint Maritime Operations Coordination Centre (JMOCC) that monitors the United Kingdom's maritime domain around the clock using advanced technologies and a team of

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23 Nicholas Lim and Chong De Xian, "Maritime Sense-Making and The Role of Big Data Analytics for Enhancing Maritime Security", *Pointer, Journal of the SAF*: 1–10 (September 2020).

24 Scott Edwards, "The United Kingdom's Conceptualization of Maritime Security", *Asia Maritime Transparency Agency*, March 4, 2022; Cristian Bueger, Timothy Edmunds & Scott Edwards, "Innovation and New Strategic Choices", *The RUSI Journal*, 166, no. 4 (2021): 66–75.

government representatives that identify threats and incidents at sea, and coordinate naval and aerial responses.[25]

In addition to information gathering and a variety of resources and capabilities, the British Centre is unique for its independence from any ministry or other government authority. The Centre is jointly staffed and budgeted by organizations sharing its maritime space objectives, including the Royal Navy, the MMO and the Ministry of Defence. This allows each of the organizations to work in equal conditions resulting in improved cooperation and coordination in those situations that are coordinated or managed by JMSC.[26] For example, the Royal Navy annually purchases satellite-based intelligence services from Airbus for the JMSC, providing the Centre with a broad maritime domain awareness of the British waters, therefore allowing quick responses to possible threats.[27] Although independence from any particular ministry seems like an organizational mess, interestingly enough, having been established relatively late, the British Centre chose to set the framework in that order, after considering lessons from previously established centers.

Figure 4: The Thai Ambassador to the UK visits the JMSC.
(Source: Royal Thai Embassy, London 2021)[28]

25 HM's Government, "Joint Maritime Security Centre" (Accessed August 6, 2022).

26 Scott Edwards, "Safe Seas Visits UK's Joint Maritime Security Centre", *Safe Seas*, October 12, 2021.

27 Press release, "Airbus to provide satellite-based maritime surveillance services for the UK Royal Navy", *Airbus*, June 28, 2021.

28 "Thai Ambassador visited the Joint Maritime Security Centre and National Maritime Information Centre in Portsmouth", *Royal Thai Embassy, London*, September 8, 2021.

New Zealand and Australia in Comparison

A review of the government of New Zealand from early 2001 that examined the necessary resources required for military and civilian organizations to operate in the maritime domain found that ten different government authorities were patrolling the seas independently, each one with its own interest at hand – a fact that prevented the effectiveness of information gathering in a national perspective. That same review recommended the establishment of a maritime coordination center that will manage and coordinate the country's resources and responsibilities in the maritime domain and will identify constitutional gaps that prevent effective gathering of information or patrolling the seas. The subsequential established center currently consists of a mixed team of armed forces staff and government officials, and acts as an independent body with its headquarters in a military base. The National Maritime Co-ordination Centre (NMCC) was established in 2002 and is currently budgeted by the Ministry of Customs.[29] In addition to efficient management of patrolling vessels, the NMCC collects data for systems such as automatic identification, long-range identification and tracking, vessel monitoring, customs data and geographic data from civil and government providers, combined with the data collected by the military.[30] The center uses a Maritime Anomaly Indication and Alerting tool to analyze information collected from thousands of vessels simultaneously and warn of suspicious behavior.[31] The center then passes the information to the Navy, the operating authority at sea.

Many changes in naval security occurred in Australia post 9/11, the most important of which is the establishment of the Border Protection Command in 2005. It was renamed the Maritime Border Command (MBC) in 2015, when it was subjugated to the Australian Border Force (ABF), then the newly law enforcement administration of the Australian Department of Home Affairs.[32] As it represents the whole-of-government framework for maritime security in Australia, the MBC is designed to identify, deter, and respond to

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29 Office of the Auditor-General, "Effectiveness of arrangements for Co-ordinating civilian maritime patrols", *Controller and Auditor-General*, April 12, 2010.

30 Chris Rahman, "Maritime Domain Awareness in Australia and New Zealand", in Natalie Klein, Joanna Mossop & Donald R. Rothwell (eds.), *Maritime Security: International Law and Policy Perspectives from Australia and New Zealand* (New York: Routledge, 2009), 202–223.

31 The Defense Technology Agency – DTA, "Maritime Domain Awareness" (Accessed September 12, 2022).

32 Donald Rothwell and Cameron Moore, "Australia's Traditional Maritime Security Concerns and Post 9/11 Perspectives", in Natalie Klein, Joanna Mossop & Donald R. Rothwell (eds.); *Maritime Security: International Law and Policy Perspectives from Australia and New Zealand* (New York: Routledge 2009), 37-53.

non-military threats, and prevent illegal activity in the maritime domain by using civilian vessels and aircrafts.[33] The center engages with illegal trade or immigration, exploitation of natural resources, marine pollution, terrorism, piracy, and fuel leakages. Other than cooperating with the Australian Navy and coordinating teams and vessels of the ABF as the operations command and crisis manager, the center also collects maritime information using the Australian Maritime Identification System.[34]

The main difference between the frameworks of Australia and New Zealand (as well as the other examples given in this article) is the ability to operate independently. In the case of Australia, the center is directly assigned with vessels, aircrafts, and response teams from the Australian Army and Navy on a regular basis, while in New Zealand, the Centre depends on other organizations (The Navy mainly) to act upon gathered information. Hence, the Australian Centre is capable of conducting command and coordination activities while the Centre in New Zealand is capable of conducting only coordination ones.[35]

Figure 5: Vessel assigned to MBC (Source: shipshub.com)

Whole-of-Government Framework for Maritime Security in Israel

The 2021 Mediterranean oil spill highlighted the lack of a unified government effort to collect information and respond to maritime domain incidents, but the issue is misunderstood by the decision-makers and is still not prioritized. Despite the economic and security importance of the maritime domain to Israel, there is no national organization

33 Australian Border Force, "Maritime Border Command" (Accessed September 12, 2022).

34 Department of Immigration and Border Protection, "Maritime Border Command" (Accessed September 12, 2022).

35 Michael Blades, "Focusing New Zealand's approach to maritime domain security" (Unpublished thesis, Massey University, New Zealand, 2014).

that coordinates and responds to maritime incidents. The Israel Navy is equipped to protect the country's national security against armed threats but is unauthorized to manage non-national security scenarios, whether they be disasters, accidents, pollution, or illegal smuggling, trading, or fishing. While the issue of securing energy facilities from external threats did receive attention, the rest of the wide array of threats to the maritime domain and marine environment got pushed aside. Currently, the question of authority remains unclear and the responsibility for maritime security is divided between nine government agencies, a reality that creates many potential gaps for a unified action. The inability to determine who should respond to an incident, who should receive the necessary information to assess an appropriate response, or who should coordinate between organizations, is preventing an understanding of the bigger picture in the Israeli maritime domain, and consequently leads to ineffective utilization of government assets.[36]

Assuming that a whole-of-government framework for maritime security is considered by decision-makers to be of vital importance to the State of Israel, and as part of a larger effort to shape a national maritime strategy,[37] there are two lessons to be taught from the case studies presented in this article. The first is the importance of a comprehensive multi-sourced information system. Sources can be, for example, databases, research and academic institutes, open sources like internet databases, and also collaborations with government authorities and international organizations, and service providers like photography and satellite image analysis (as seen in the case of the United Kingdom). Additionally, there is a need for a platform to analyze, manage, and verify data, using Artificial Intelligence engines in order to produce an overall picture of the maritime domain. This issue was discussed in the *Maritime Strategic Evaluation for Israel 2021/22*, where it was shown that existing monitoring technologies are required to maximize the safety of the citizens and the maritime domain.[38] Furthermore, an apparatus that will coordinate between responding organization during an event, and plan ahead courses of action for possible scenarios is essential. According with the framework's goals and other limitations, some of the organizations that are expected to participate in these efforts are: the Israel Navy, the Israeli Police, the Ministry of Defense, the Ministry of Environmental Protection, the Nature and Parks Authority, the Ministry of Energy,

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36 Sue Surkes, "Experts: Israel has 'no strategy' for managing 'lifeline' Mediterranean Sea", *The Time of Israel*, November 25, 2021; Shaul Chorev, "Israel must increase its maritime awareness in light of recent oil spill", *The Jerusalem Post*, March 1, 2021.

37 Further reading: Oded Gour Lavie, *A Model and Methodology for a Grand Maritime Strategy*, Maritime Policy and Strategy Research Center, University of Haifa, June 2018.

38 Semion Polinov and Shaul Chorev, "A Model for an Israeli Academic Marine Monitoring System", in Shaul Chorev and Ziv Rubinovitz (eds.), *Maritime Strategic Evaluation for Israel 2021/22* (Haifa: Maritime Policy and Strategy Research Center, University of Haifa, 2022), 333–345.

the Ministry of Transportation, the Ministry of Justice, Israel Port Authority, shipping companies, the Society for the Protection of Nature, coastal municipal authorities.

The second lesson discusses authority. The case studies in this article describe two types of frameworks, one that is capable of assigning resources, equipment, and personnel, and is able to respond to maritime threats and incidents independently (Australia), and another that only manages the accumulation of information and the coordination of resources. The first type grants authority to the framework and an ability to proactively contribute to maritime security, while the second offers streamlining and coordination between organizations but doesn't change the existing hierarchy. This issue also relates to the framework's budgetary and hierarchical independence. The decision-makers must decide if the framework is budgeted by a specific government ministry and managed by it or operates independently and jointly budgeted by the participating organizations. The first option associates the center's activities with a specific government ministry, but would bring stability to its efforts, while the second divide the costs of the framework between the contributing organizations and create equal working conditions, the same way the British center operates.

Where might be the place of a framework in the government system and how would it look like? First, a maritime security coordination center is the core of whole-of-government framework for maritime security. This center should be oriented by the cabinet and the maritime strategy simultaneously, and its actions to be overseen and evaluated by one of the Knesset's committees. The framework (and its coordination center) requires a managing team consisted of a director, representatives from the organizations essential to the center's activities (i.e., the Navy), and the groups that conduct the rest of the center's activities. The case studies teach us that one of the groups will need to assign a team to collect maritime data. The data will be forwarded to an analysis team that will update the maritime domain status, using data management systems. In addition, because the amount of accessible information is growing regularly, a third team will be charged with developing tools for verifying and analyzing that information. The second group will coordinate and manage operations and responses which include representatives from all relevant organizations. The group, alongside the management team, will prepare respond options, coordinate events and exercises, and evaluate them afterwards. The center's staff will also be involved administratively, operationally, or any other way.

In conclusion, the article introduced a whole-of-government approach for maritime security and presented countries that implemented such frameworks as part of their maritime strategy. The importance of a framework to Israel was also examined. Even though the maritime domain is more significant to those countries that currently have a WOGFs in comparison to Israel, it is still important to note that a WOGF is designed

to optimize the country's maritime security efforts, regardless of the nature of the threats. The information age presides new challenges; dealing with an enormous amount of information and a need to analyze it quickly; dealing with complicated challenges that require the intervention of many organizations; and the increased dependence on the maritime domain. As a result, new ways to face those threats are necessary. The whole-of-government framework is designed to respond to these threats and changes, and therefore the demand for such a framework and its implementation is increasing worldwide, including in Canada, the United States, India, Japan, the Philippines, Sweden, the Republic of Cabo Verde, the United Kingdom, Australia, Singapore, and New Zealand.[39]

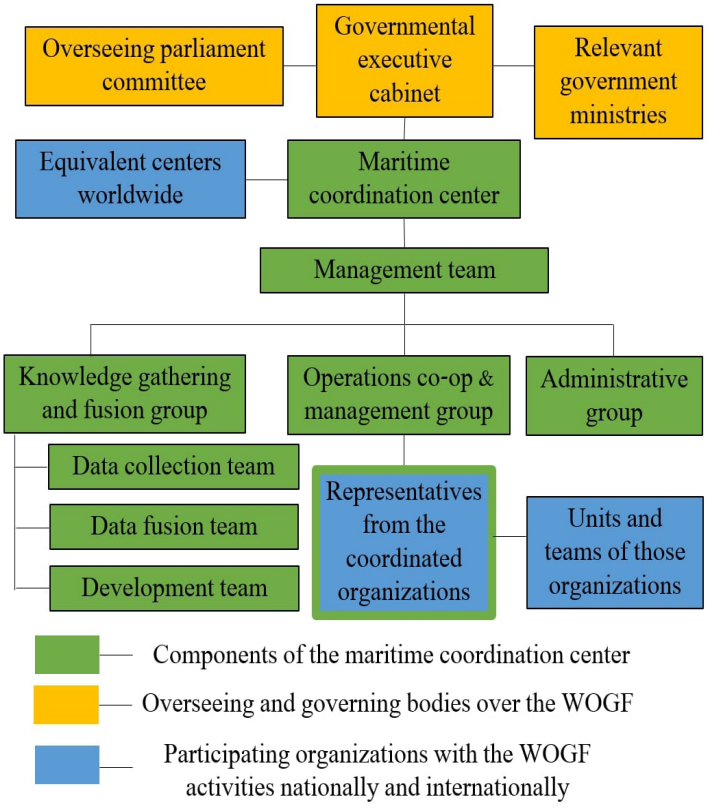

Figure 6: A proposal for an organizational structure of a whole-of-government framework for maritime security.

39 Wilson, "The complex nature of today's maritime issues", 2016.