

East Mediterranean Gas Discoveries: Offshore Security Challenges and "The Greek Case"

Elias Konofagos^a and Konstantinos Karageorgis^b

^a*Executive Vice-President FLOW Energy S.A. Deputy Director www.FlowEnergy.gr*

^b*Rear Admiral Hellenic Navy, Hellenic Navy Logistic Support Command, Paparrigopoulou 2, Athens, koskar1962@yahoo.gr*

Abstract. The Eastern Mediterranean is on its way to become an important gas province and without question it remains home to large hydrocarbon resources. Greece has the unique opportunity to be situated in an area that covers three times its geographical area and in the mean time represents, along with Cyprus, the main Eastern energy gate to European Union. It is an obligation, to ourselves and to the future generations, to find ways to peacefully explore these resources and create a robust development plan in order to built a more prosperous and promising future. This article argues that this goal can be achieved only if the exploitation of the natural resources will take place with cooperation among the countries bordering East Mediterranean sea inside a secure environment in which Hellenic Navy has an important role and can be a main stabilization factor.

Keywords: Hydrocarbon, East Mediterranean, security, Economic Exclusive Zone.

PACS: 01.78.+p, 88.05.jk, 91.50.-r

"The Athens State suddenly becomes strong in wealth and culture creating the wonder of the "classical civilization". The period between the years 480-431 BC was named as the Golden Century of the Greek civilization. Philosophy, science, culture, architecture and above all democracy are the attributes of the city of Parthenon. It might be sudden but it is not surprising. The fundamental economic source is the state income (royalties from the Lavrion mines licenses appr. 40 million \$ annually). The ancient legislation about the licensing procedure, the assignment, the royalties and the everyday operation, as they are described by the ancient authors, is not inferior compared even most advanced today legislation. The estimated Actual Value of the overall production during that period is about \$ 50 Billion." "There are ten lessors who are chosen by lot amongst the citizens. They negotiate and license the Mining areas ... and they assign the licenses, for three years and the production areas for ten years, to whomever the Parliament has decided by hand rising ..." [1]

INTRODUCTION

The Eastern Mediterranean is on its way to become an important gas province and without question it remains home to large hydrocarbon resources, even though the countries in the region, excluding Egypt, have been quite slow to find them. Greece has the unique opportunity to be situated in an area that covers three times its geographical area and in the mean time represents, along with Cyprus, the main Eastern energy gate to European Union. It is an obligation, to ourselves and to the future generations, to find ways to peacefully explore these resources, give our country the opportunity to overcome the current, temporary, economic crisis and create a robust development plan in order to built a more prosperous and promising future. This goal can be achieved only if the exploitation of the natural resources will take place inside a secure environment in which Hellenic Navy (H.N.) has an important role and can be a main stabilization factor.

NATURAL RESOURCES IN THE EASTERN MEDITERRANEAN

Events offshore Cyprus, Lebanon, Israel, Turkey & even Syria are, in fact, part of a broader dynamic in the Eastern Mediterranean Sea, an area which has, in the past decade, become an active region for offshore oil and gas exploration. In 2010, the US Geological Survey (USGS, 2010) estimated the Great Levant Basin natural gas perspectives, the basin of which the 5 Tcf Cyprus Aphrodite Gas Field is a part. Into the same geological basin & in January 2009, Noble Energy discovered the 10 Tcf "Tamar Gas Field" offshore Israel & later in October 2010, discovered another gas field in Israeli waters, the 20 Tcf "Leviathan Field." This latter field is located just 36 km from Cyprus's Aphrodite Field and is the largest discovery in the region. Initial exploration activity has already commenced off the coasts of Lebanon and Turkey, and - prior to the emergence of the recent conflict - it was expected Syria would follow suit.

Tamar Gas Field was developed in an extremely efficient manner by the operator Noble Energy & his partners Delek & Avner. This development was achieved in a record time of 3 years & half through sub sea unmanned production system. This system is expected to feed the whole Israeli natural gas needs for the next 50 years (see Fig. 1 & Fig. 2).

Furthermore the Eastern Mediterranean is well located for resources development, with its proximity to Europe and the Suez Canal (a route to export its natural gas to Asia). In addition, it provides a diversification option for European gas supply (as it allows bypassing the existing and potential pipeline routes from/via Russia and Turkey). At the same time, the region has substantial geopolitical tensions with a potential for territorial disputes. Importantly, Cyprus has signed delimitation agreements with Egypt, Israel, and Lebanon, but not with Turkey or Syria. Moreover, Lebanon and Israel have a disputed maritime border which could affect Cyprus should they wish to pursue tripartite collaboration.

THE GREEK CASE

The overall East Mediterranean situation, including an exploration newcomer Greece, has created potential new gas exporters facing numerous challenges.

According to International Law Greece claims an offshore Exclusive Economic Zone (EEZ) of about 496.000 km² [2]. For comparison Qatar state owns an exclusive economic zone of about 32.000 km².

In 2013 a first 220.000 km² non exclusive seismic campaign was executed by the Norwegian company PGS into the Western's Greek EEZ which included Ionian Sea & Libyan Sea areas.

PGS recorded more than 12.000 km of seismic lines, for identifying possible oil & gas fields, in sea water depths varying between 500 m to 3.500 m (see Fig.4).

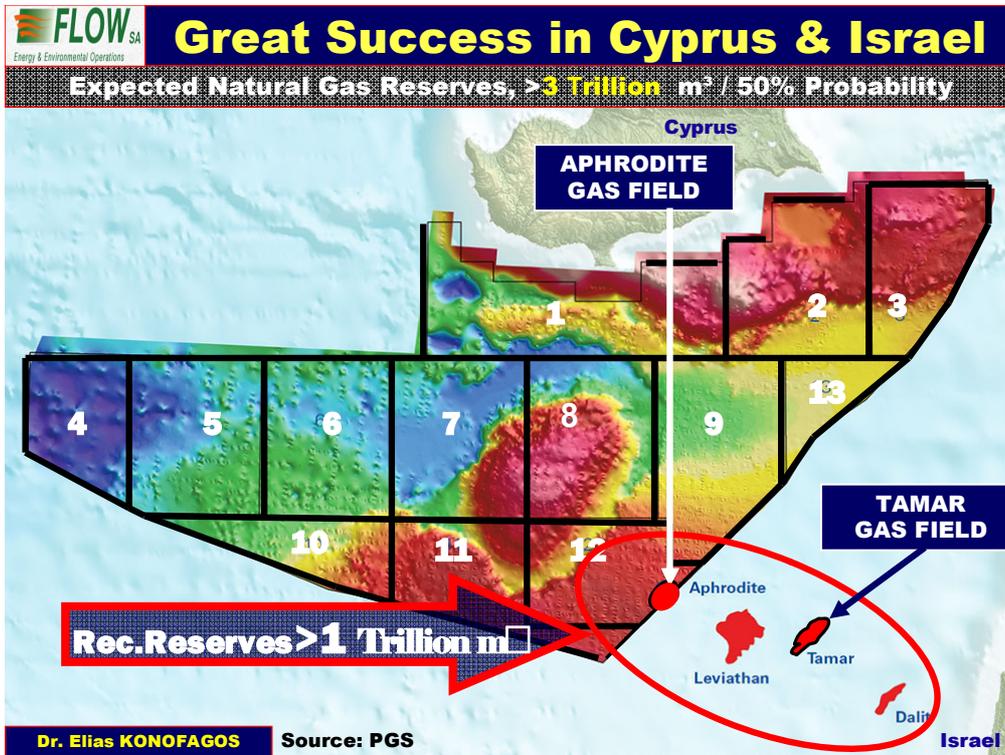


FIGURE 1. Aphrodite, Leviathan and Tamar gas fields.

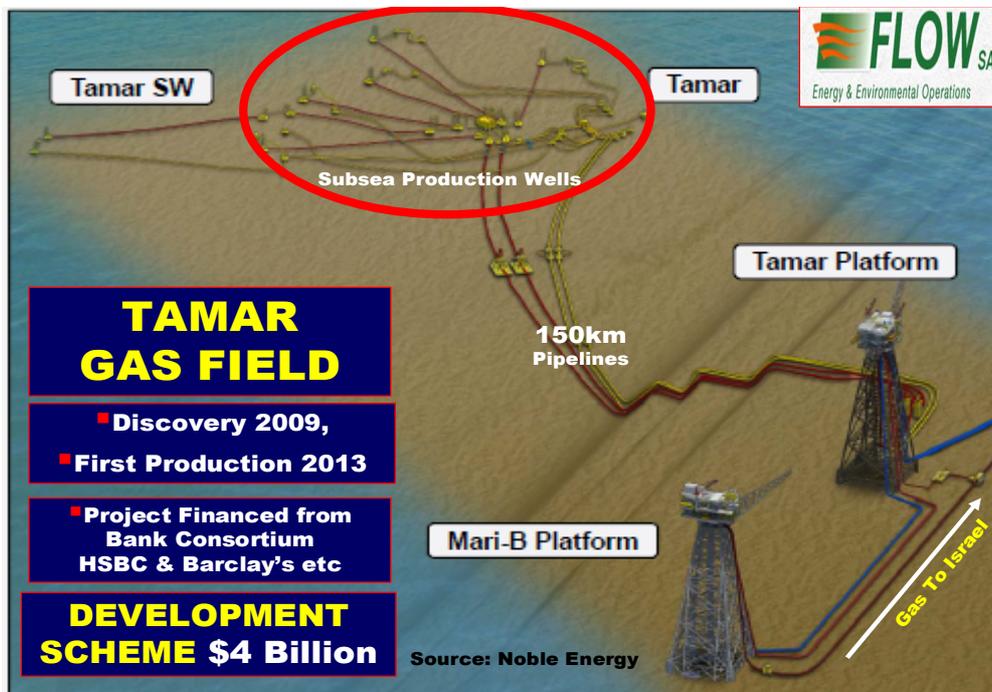


FIGURE 2. Tamar gas field development scheme.

After making a series of significant gas discoveries, both Israel and Cyprus are now trying to figure out how to utilize them. One straightforward policy is to meet domestic energy demand, displace oil in the domestic energy mix, generate more electricity from gas and hence reduce reliance on imported oil and coal. Moreover, within a decade or so, these countries will have the possibility of exporting surplus gas to markets where they can fetch better prices. By becoming exporters they will also be able to contribute to European gas supply security in terms of diversifying both routes and sources. However, the question of whether the discovered reserves can find their way to the domestic and international markets in a timely manner requires careful examination. First, meeting domestic demand and creating surplus for exports necessitates the development of the discovered fields, i.e., converting reserves into production capacity.

Companies will carry out costly exploration and field development endeavors only if they foresee the ability to commercialize their discoveries with a favorable rate of return. In this sense, much will depend on the gas price the governments will be asking for on the domestic market, the stability of the countries' regulatory, fiscal and gas policies, and the political atmosphere.

Unfortunately, the countries in the region haven't yet developed a comprehensive and successful energy policy that takes into account the above-mentioned challenges along with the region's geopolitical changes. In the absence of the export option within an effective policy scheme, not only will they be hard-pressed to attract companies for upstream business, but the development of the resources may be seriously delayed. This brings us to the future export potential of the countries in the region.

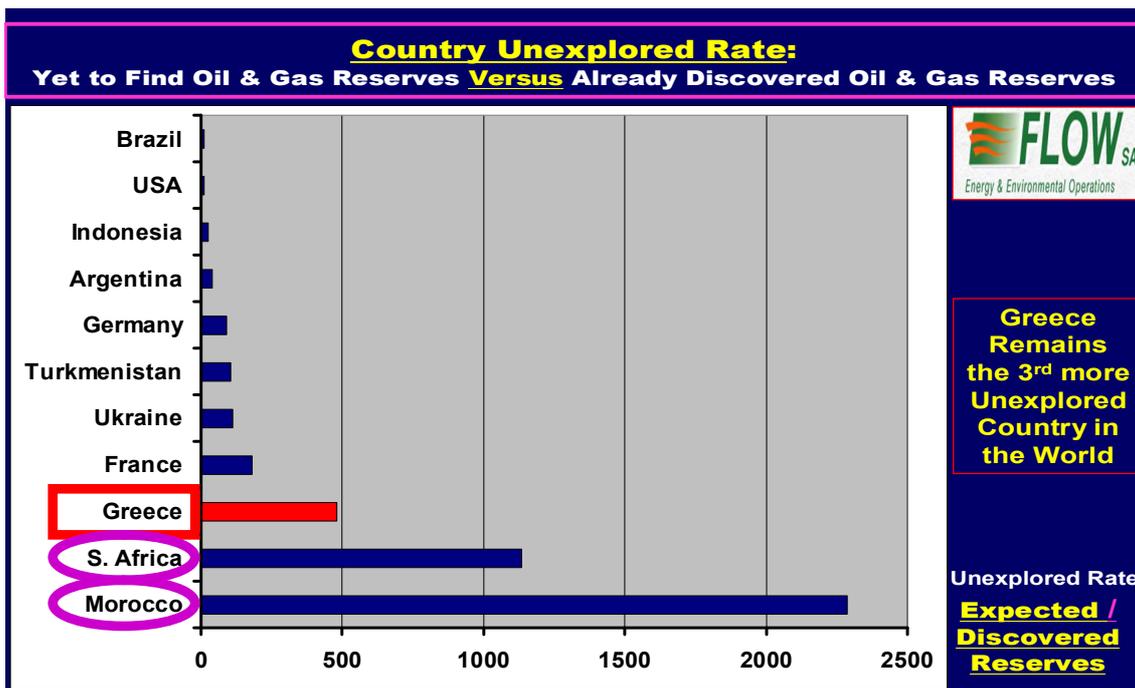


FIGURE 3. Oil and gas reserves unexplored rates by country.

The future of whole East Mediterranean Region depends on the expected evolution in the international market. According to BP (2013), the global proved reserves of natural gas (those that can be recovered with reasonable certainty in the future from known reservoirs under existing economic and operating conditions) are 6,600 Tcf, including Russia's reserves of 1,160 Tcf, Qatar's reserves of 880 Tcf, and Turkmenistan's reserves of 620 Tcf. In addition, there is a

substantial potential for shale gas with a recent estimate of 7,200 Tcf of technically recoverable resources (EIA, 2013). To put these numbers into context, global gas use in 2012 was 117 Tcf (BP, 2013). There are plenty of alternative gas suppliers to satisfy a projected increase in global natural gas demand. Due to its location and geopolitical considerations, Eastern Mediterranean gas has potential but most likely it will not be a major player in global gas markets like as this has happened for the Qatar case. According to recent FLOW Energy studies the most unexplored country in the East Mediterranean region remains Greece. Based on the ratio of already discovered reserves versus yet to find resources Greece remains the third more unexplored country in the world after Morocco and South Africa (see Fig.3).

Recent first seismic fast track interpretations followed by offshore geostatistics related to the Greek continental shelf indicated that biggest expected Oil & Gas possible reserves targets are mostly located in Deep and Ultradeep Greek Sea Waters. Cypriot and Israeli gas field discoveries were also located in ultra deep water depths exceeding 1.500 m and in drilling depths of about 5.500 m under the seabed. We must also notice that East Mediterranean drilling costs were found being between \$70 million to \$120 million per well.

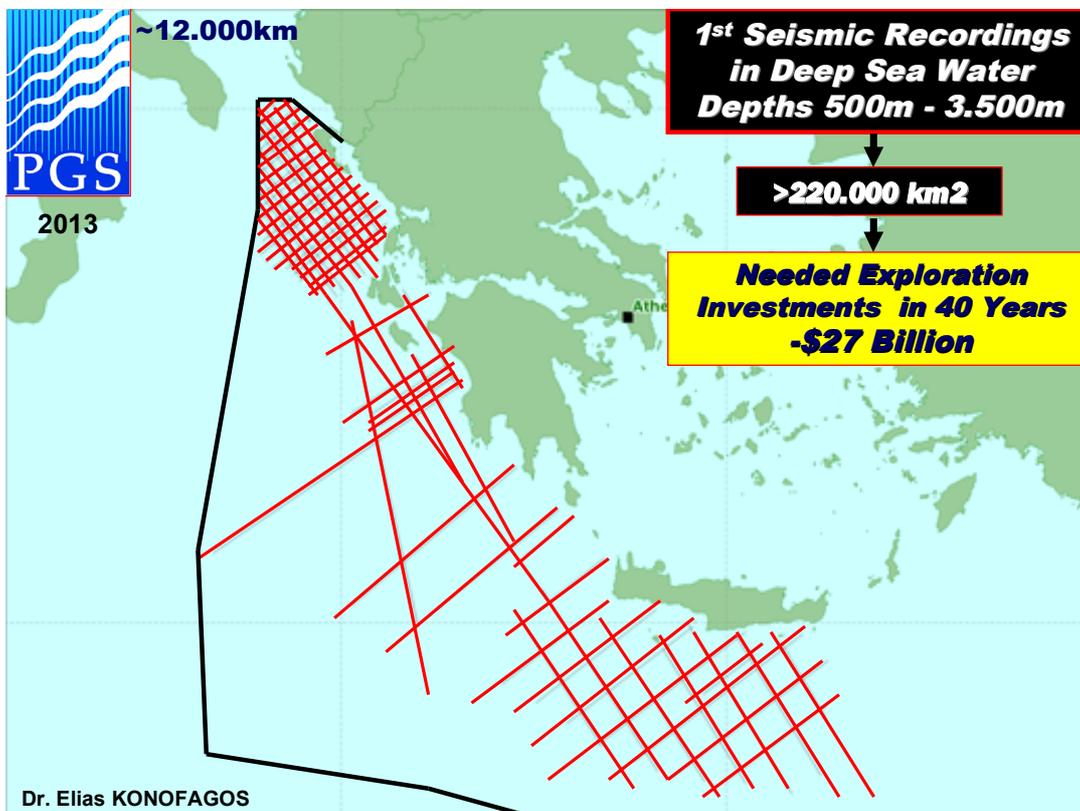


FIGURE 4. Seismic recordings in deep sea waters inside the Greek EEZ.

It is estimated that completion of exploration efforts into offshore sedimentary geological basins of the Ionian & South Crete areas - in totally unexplored frontier zones - will require investments that could reach with 60% probability a minimum amount of \$27 billion € into the next 40 years. On this basis & in order to start attracting exploration investments the Greek government has recently determined a group of 20 offshore blocks located into the Ionian and south Crete geological basins (see Fig.5).

The next step for attracting E&P investments into the Greek offshore areas is the announcement of an International Licensing Round, which has been realised in August 2014.

Through this Round companies are required to submit bids for each of the blocks based to the terms of the tender compatible to the Greek Law and the EU directives and international petroleum contract standards. Following offers evaluation, successful Bidders will be invited to negotiate exploration and production contracts. Usually negotiations can last from 6 months to 1 year period, for an exploration period of 8 years and production period of 25 to 35 years.



FIGURE 5. Offshore blocks determined by the Greek government.

According to the Greek petroleum law based on European Union directive, concessions can also be granted through bid procedures out of licensing rounds, in case that company/ies make an application for acquiring a specific exploration area not included in the map shown in Fig. 5. In case of discovery the Greek petroleum tax provides for a tax of 25% constant for 25 years. This can be considered as a very attractive case.

In the past (1995-1999) only two offshore seismic survey activities have been carried out in country, one in the Ionian Sea and one in Northern Greece. It should be emphasized that at that period there existed a dedicated state company (DEP-EKY subsidiary of the Public Petroleum Corporation of Greece) exclusively responsible for all upstream activities in Greece and abroad. Both the natural environment of the Survey Area, as well as, the ‘Greek bureaucratic procedures’ are indeed very challenging - and sometimes the latter are much more challenging than the former. For the specific activities, things are further complicated by the fact that currently Greece does not have a dedicated entity (like DEP-EKY) with experienced personnel on issues relating to hydrocarbon exploration.

So far, experience has shown that foreign investors need expert local advice and services to assist them in the efficient execution of their projects and in the ‘navigation’ through the confusing maze of the Greek bureaucracy thus avoiding major delays.

Concerning future oil and gas discoveries in Greece, in such a case if these discoveries are developed in a timely and successful way, the region’s resources may significantly change the

energy picture in the wider Mediterranean region. Of course developing these resources will require overcoming numerous major obstacles with geopolitical implications.

In our days Greece - Cyprus - Israel - Egypt and some other surrounding Middle East countries can be considered as a sustainable long term gas security axis in supplying European countries. Based on Forthcoming further Production Oil & Gas Infrastructure in Cyprus and Israel Greece must attract similar investors in order to create soonest his own infrastructure in this joint effort.

In current adverse conditions, Greece can reestablish its economic position by exploiting its Hydrocarbons potential, integrating the whole South East Mediterranean energy reserves, improving the long term energy security of E.U., and making the rest of the reserves of Cyprus, Israel, Lebanon, Egypt, Syria and Turkey more economic attractive in the long run.

By unified reserves and natural gas network, the region can consider all the natural gas and hydrocarbons export possibilities (pipeline or maritime LNG or CNG transport etc) in a competitive framework. Joint energy synergies in the whole East Mediterranean region will certainly contribute to a peaceful better future for the region.

MAKING THE EXPLOITATION SECURE AND PROFITABLE

“How important is maritime security? Ask the Greeks. They faced odds of about three to one at the Battle of Artemisium, the sea side of the battle of Thermopylae. They survived, due partly to good luck, and lived to fight another day at the Battle of Salamis, where they defeated the invading Persians for good. The Greek ability to secure their maritime domain may have saved western civilization as we know it today.”[3]

For centuries the Aegean Sea and the East Mediterranean were and today continue to represent areas of strategic importance to Greece due to the value of their position to the defense of the country and more recently, as described in the first part of the article, to its wealth on natural resources. In the second part of this essay we argue that Greece should strengthen its presence and patrol capacity in the area by using the Hellenic Navy’s capabilities in cooperation with a better equipped Greek Coast Guard.

Greece has been by tradition a seafaring nation and its interest in securing international maritime trade and energy routes is vital and constant. As the chief of the Hellenic Navy Vice Admiral E. Apostolakis H.N. argues, “for Greece there are two specific challenges that currently demand our attention: the security of the energy supply lanes and resources, and the interest in international corporation in the oil and natural gas deposits discovered in the eastern and southern parts of the Mediterranean. This, coupled to the decision on what route the Trans Adriatic pipeline will follow, may change the security parameters in the Ionian Sea and waters south of Crete, and call for a more intense presence of the Hellenic Navy.”[4]

Recent (last decade) discoveries of oil reserves in the Ionian Sea and south of Crete and in the East Med (of the coasts of Cyprus, Lebanon and Israel) have brought the area to the public’s attention. The strong regional interests stem from those discoveries it is likely to lead to geopolitical disputes over territory or natural resources. If these potential disputes will remain unattended, they could lead to tensions and even armed conflicts. It is obvious that Greece has a clear choice when it comes to defending its sovereignty over its Territorial Waters, Continental Shelf and Exclusive Economic Zone (EEZ), declare, explore and use it. As a consequence Greece has to develop a comprehensive strategy for the region that both promotes its sovereignty and enhances its capabilities in the area, while allowing the maintenance of good relations with its neighbors and the international community

TERRITORIAL WATERS – SOVEREIGNTY

Legal Framework

The United Nations (U.N.) Convention on the Law of the Sea (UNCLOS) is an international agreement which determines the rights and responsibilities of states regarding the use of the world's oceans, setting rules for the management of the seas, the environment, and the exploitation of the living and non-living natural resources. The convention is a comprehensive agreement “intended to establish a new regime for the seas and oceans which will contribute to the realization of a just and equitable international economic order through making provision for the peaceful use of ocean space, the equitable and efficient management and utilization of its resources, and the study, protection and preservation of the marine environment [5]”. It introduces terms such as internal waters, territorial waters, contiguous zone, exclusive economic zone, continental shelf, and international waters which practically are zones which extend from the coast to the open seas as well as set the nations' rights on these zones. With the exception of Turkey and Israel which have not ratified the convention yet the littoral states bordering the Aegean Sea and Eastern Mediterranean are under the provisions of the UNCLOS and are subsequently affected by these zones delimitations. The convention clearly outlines [6] that every state has the right to establish its territorial sea up to a limit not exceeding twelve nautical miles, measured from baselines [7]. In the territorial sea, the sovereignty of the coastal state is absolute, including the water column, the seabed, the subsoil [8], and all living and non-living resources. Vessels from foreign states have the right to sail through this zone only when the passage is innocent and it is not detrimental to the peace, good order or security of the coastal state [9]. Activities that cannot be considered innocent such as fishing, military exercises, espionage or bad willing actions are explicitly forbidden. Another offshore sea zone is the contiguous zone which is a zone the coastal state has the control in order to prevent violation of its customs, fiscal, immigration or to exercise sanitary laws and regulations. This zone cannot be extended twelve nautical miles beyond territorial sea in other words may not extend beyond twenty four nautical miles from the baselines from which the territorial sea is measured [10]. What is really interesting and introduced for the first time by 1982 UNCLOS Convention is the concept of the EEZ. Into this zone, the coastal state has sovereign rights to explore and exploit, to conserve and manage the natural resources, (either living or non-living), of the waters above to the seabed, the seabed itself and its subsoil. The coastal state has also sovereign rights for the economic exploitation and exploration of the zone, such as the production of energy from the water (waves), currents and winds, as well as the rights to establish artificial islands and installations, to establish and use of marine scientific research and rights for the protection and preservation of the marine environment. The EEZ must not extend beyond 200 nautical miles from the baselines from which the territorial sea is measured. Inside the EEZ, foreign states have the freedoms of navigation and over flight, subject to regulation of the coastal states; they also have rights to lay submarine cables and pipelines, as well as other internationally legal activities at sea [11].

Another important zone provided by UNCLOS convention is the Continental Shelf. This seabed zone is the natural prolongation of the landmass territory to the continental margin's outer edge, or 200 nautical miles from the coastal state's baseline, whichever is greater. The coastal states have the right to claim the outer continental shelf beyond 200 nautical miles but not beyond 350 nautical miles from the baselines as long, as the shelf formation is a natural prolongation of the state's continental shelf. Moreover it may never exceed 100 nautical miles beyond the 2.500 m isobaths [12].

Security Zones Provided around Offshore Oil & Gas Facilities

The original internationally agreed 500 m safety exclusion zone was established under article 60.5 of UNCLOS in 1982. The article stated that a state may establish reasonable safety zones, not in excess of 500 m, around their offshore facilities. Within the Australian, U.S., Israel and other countries environment, a similar 500 m security zone have since been established.

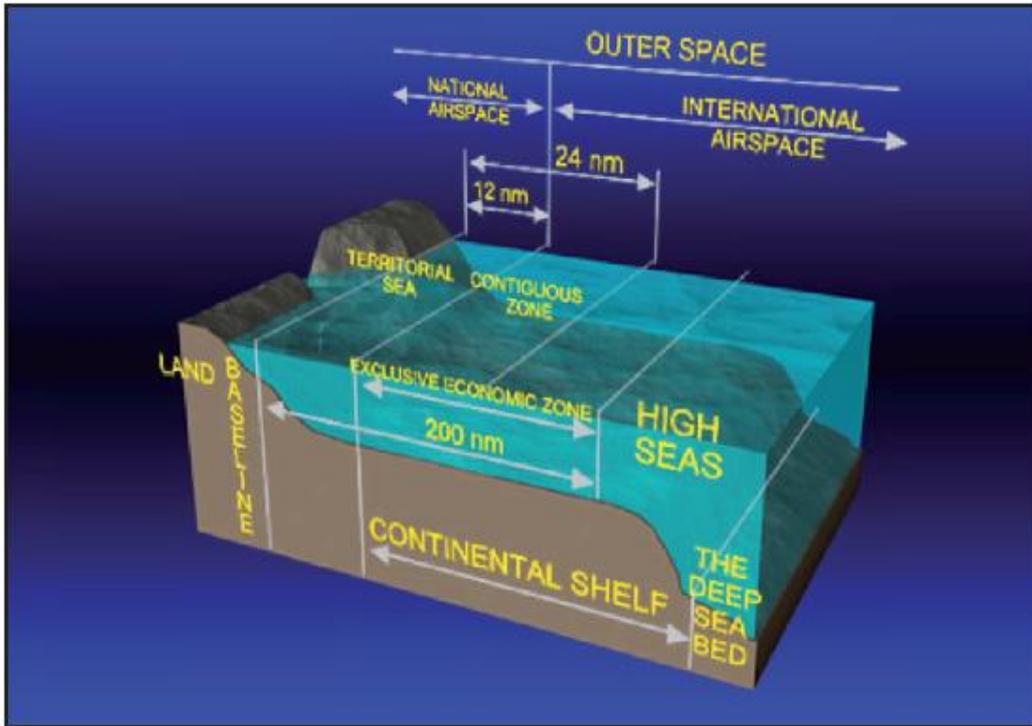


FIGURE 6. The UNCLOS maritime zones
(source: <http://www.2b1stconsulting.com/eez/>, retrieved 11 May 2014)

The current internationally agreed 500 m offshore security exclusion zone arrangement available to oil and gas facility operators is commonly agreed as too small and not offering adequate protection to operators.

Apart this Security Zone of 500 m the resolution of IMO (International Marine Organization) on “Safety Zones and Safety of Navigation around Offshore Installations & Structures” considers establishing further safety zones around offshore installations and structures as it has been suggested very recently by a special Australian inquiry committee [13]. The inquiry recommends that immediate consideration is given to extending and hardening current security exclusion zone boundaries and arrangements to increase the safety and security of offshore facilities from unlawful or unauthorized intrusion and threat. More specifically recommended to introduce a new three-tiered approach to security zoning for all offshore facilities within Australian waters, including:

1. a cautionary zone associated with traffic separation schemes, traffic lanes and recommended routes of 15 nautical miles from any offshore facility that requires vessel operators to make and maintain communication with facilities within its radius,
2. an area, to be avoided, of 5 nautical miles from any offshore facility that acts to prohibit entry into the zone by shipping unrelated to the offshore facilities and

3. an exclusion zone, within the area to be avoided, of between 1 and 2.5 nautical miles for all shipping that is not directly related with the facility operations and to which access by can only be gained through express approval to enter given by the operator (Fig.7 & Fig.8).

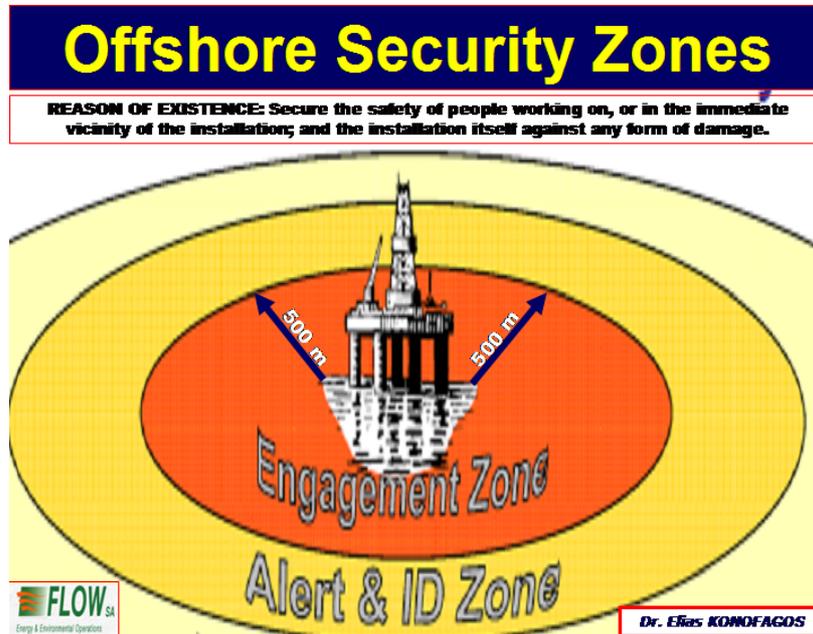


FIGURE 7. Engagement Security Zone according to UNCLOS convention.

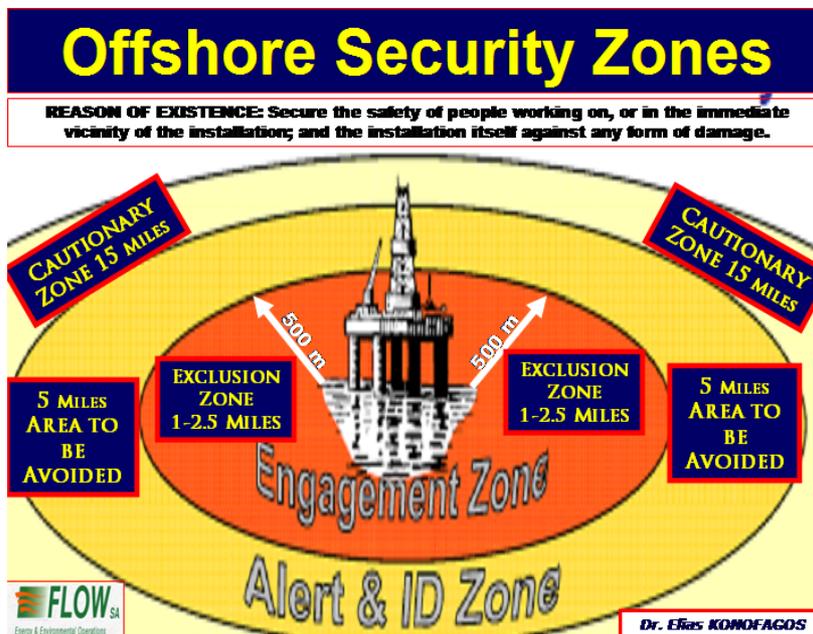


FIGURE 8. Engagement Security Zone, according to Australian enquiry committee.

THREATS

For Greece, national sovereignty is becoming tied to the territorial integrity and the protection of its territorial waters and EEZ. As it was mentioned earlier the extend of the EEZ of Greece is approximately 496.000 km², about 3 times the country's land surface (see fig. 9) [14].

Therefore, Greece's principal interests lie in protecting its legitimate claims in the area, its islands and the surrounding waters. Though security is certainly an issue for Athens, its guarantee lies on Greece's legal and substantiated territorial claims to the region and the potential resource benefits. Today's threats are coming from the instability which prevails in the Eastern Mediterranean (Syria, Lebanon, Egypt, Libya) and the threats and the general aggressive attitude of Turkey towards Greece and Cyprus [15].

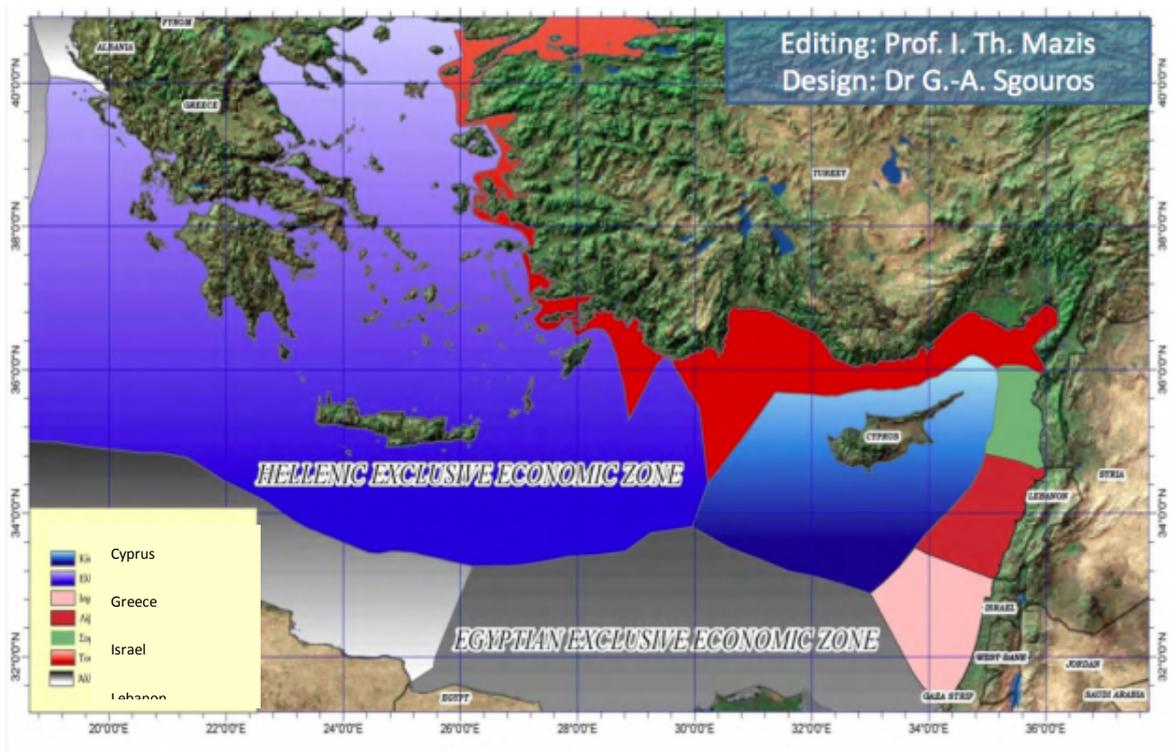


FIGURE 9. Exclusive Economic Zones, East Mediterranean

Maritime strategists have been traditionally concerned with the threat of interstate confrontation. Although a state to state confrontation seem to be a remote scenario in a globalization environment, military security concerns at sea have not disappeared today. The risk of confrontation at sea cannot be excluded and consequently, maintaining traditional sea power should remain a main objective for Greece. However, today's maritime challenges go beyond the narrow conception of defense of an interstate conflict scenario. They are more diverse, complex, unpredictable, and intertwined. In the post-Cold war security environment, the sources of threats as well as their targets have become more diverse.

Threats from non-state actors at sea, terrorists, pirates, or organized crime, as well as the growing flow of illegal immigrants, particularly from Africa and Asia to Europe, have raised the problem of effective maritime governance and border control. In particular, the control over the porous maritime borders has gained increasing prominence. Attention has to be given to:

- ◇ Ensure national sovereignty and secure the borders to the illegal immigration flow.

- ◇ Respond to the vulnerability to terrorist attacks of sea-based critical energy infrastructure and of maritime flows of energy resources.

- ◇ Deal with the survival of the oceanic environment which is increasingly endangered by marine pollution - either accidental or intentional - and by the depletion of marine resources caused by illegal fishing and overfishing.

In total, the new threats that have emerged next to older ones pose new challenges and require new responses. They represent challenges not only in terms of naval power and dominance, but also in terms of economic welfare, protection of the environment, and the integrity of our societies. It is these type “unconventional” threats at sea that the concept of maritime security - in parallel with the traditional naval defense - aims to encounter. The main objectives of Greece’s maritime security strategy are thus to prevent the use of maritime spaces for illegal activities and to secure the movement of people and the flow of vital resources on the East Mediterranean. As such, maritime security is not a new task to the Greek Navy. Securing vital sea lines of communication has always been one of its key objectives. Hellenic Navy has a long tradition in protecting the maritime environment and has the capacity to mobilize and project naval power in support of crisis prevention, response and management plans.

As it is the case in Eastern Mediterranean, technological innovations have allowed the exploration and drilling activities to move into increasingly remote and geographically hostile locations. As a result the need for continuous security increases. Security is vital since it provides oil and gas companies the freedom to find, develop and manage assets and to deliver supplies without interference. Being secure derives from having the correct strategy, through innovative technology into a robust implementation, supported by rigorous systems management. H.N. has the ability and all the necessary means to provide multiple and overlapping layers of protection and ensure security in a context that is often technically challenging. More specific H.N.:

- ◇ Is able to manage the security risks, develop a security strategy and define a security policy adapted to the particular local conditions. Through his operation centre can enable actors to analyze threats, generate early warnings, prepare intervention programs and manage crises and can articulate a complete activity recovery plan.

- ◇ Has the infrastructure to ensure cyber and communication systems security, by protecting digital information systems and data transmission from theft, loss, corruption and attack.

- ◇ Can provide and perform high quality and effective search and rescue operations.

- ◇ In cooperation with the Hellenic Coast Guard can counter illegal activities, and provide intrusion detection and perimeter protection of the energy sites by controlling the illegal immigrant flow and successfully confront all possible terrorists’ attacks. In addition, with its airborne, ground and maritime surveillance units is able to protect facilities from threats wherever they may come from.

- ◇ Can provide a complete, integrated surveillance and management system for mobile vessels by guaranteeing constant air, surface and subsurface presence on the field.

- ◇ Can assist the Hellenic Coast Guard in the port and coastal sea control operations and in monitoring, detecting and manage pollution incidents.

RESOURCES ALLOCATION

“The licenses of silver mines whenever they would like to start the production from a new mine they declare it to the authorized citizens ... so that the State will levy as royalty the one twenty fourth of the produced ore the annual state incomes from the royalties were one hundred talants, some of the citizens (appr. 30 proposed this income to be shared, but Themistocles opposed to this ... After he has taken these money he build one hundred triremes,

... , which were used to fight the barbarians in naval battle of to the Salamis”. (Aristoteles “Athenians State”) [16]

There is an analogy between the Golden Century of ancient Athens and the present period. Greece is now facing a major challenge. The width of Greece’s EEZ is quite large and the overall infrastructure costs in securing the forthcoming hydrocarbons exploration & production operations are expected to be very high. The resources generated from the exploitation of the natural energy sources hidden inside its EEZ should be distributed wisely in order to ensure their viability and society’s long and future prosperity. We argue that a strategy that places importance on the East Mediterranean should be exercised through the allocation of significant part of these resources to infrastructure building and procurement that will improve the country’s capabilities to ensure safe energy resources exploitation and safeguard the energy routes for itself and Europe and the development of the capabilities of the Greek naval forces and the Greek Coast Guard.

A Navy capable of operating across the deep waters of open seas (Blue Water Navy [17]) will further expand Greece’s influence at sea and will:

- ◇ Secure its territory
- ◇ Project power farther than its shores
- ◇ Deter and prevent potential aggressors
- ◇ Ensure safe energy resources exploitation
- ◇ Secure energy routes
- ◇ Respond to Turkey’s naval ambitions

A blue water navy and a properly staffed and with modern equipments national Coast Guard would provide muscle for all these strategic imperatives, enhance regional power projection capabilities, more effectively protect Greece’s expanding energy and trade routes, and enable stronger defense and trade ties with other nations.

There are some key goals that H.N. must accomplish in order to successfully complete its mission:

- ◇ Develop air surveillance (fixed wing aircrafts and UAV’s) and satellite capabilities.
- ◇ Develop logistics and replenishment at sea capabilities and further upgrade and reinforce its facilities at Crete, especially on the East part of the island.
- ◇ Build naval units.
- ◇ Cooperate closely with the Hellenic Coast Guard.
- ◇ Go out to the sea often and think like a blue-water navy.

It is important to note at this point that defense procurements and acquiring new capabilities, such as new long range vessels and aircrafts, are costly and time-consuming ventures. The need to start work on these projects within a proper time frame is especially urgent as it remains likely that the East Mediterranean will soon begin to be an increasingly important energy crossroad of international interest.

COOPERATION. THE BEST SOLUTION TO THE SECURITY PROBLEM

The current world is better interconnected today than during the Cold War years. In pursuing war today, powers are faced with higher economic costs and potential exclusion from the international community. A more modern approach towards sovereignty within today’s globalized world of international security is a multidimensional approach. The objectives of security and control and the ways to accomplish them have been addressed earlier. Legitimacy is another dimension that needs to be respected as well. We consider it as the concept that offers a state the right to make rules and to act peacefully in order to protect its national

interests and guarantee sovereignty in an environment whose operating principles are defined by the international law.

It is obvious that the ideal approach to the security issues addressed earlier is through collaboration among the countries bordering East Mediterranean sea. The use of international law as a resolving tool to bilateral and international disputes, a long tradition and main strategy of Greece foreign policy, gives her the legal and legitimate advantage over its neighbours. In fact it is the only way that in the long run can guarantee the security and stability in the region and offers Athens the necessary legitimacy to lead in a collaboration campaign. By enhancing its relations with all its neighbors Greece can ensure that the region is both secure and accessible to exploitation. In order to mitigate the costs of disrupting trade routes and achieve resource exploitation while ensuring the rule of law in the region, Greece should initiate bilateral maritime security cooperation with Turkey similar to the ones she has developed with Cyprus, Israel and recently Egypt.

An effective strategy that allows for greater cooperation among the all nations having economic and national interests in the area, including Turkey, may not be politically popular, yet it would be the most effective way of ensuring that all governments are capable of responding rapidly to emergencies throughout the region and at the end will be able to exploit to their advantage the natural resources hidden in the area. It would take the development of an entirely new security approach in the region, based on common understanding, common interests and the international law, which undoubtedly will ensure a peaceful cooperation among all neighboring nations to the common interest of all.

CONCLUSION

During the next 35 years the Greek state must attract huge foreign investments in order to explore, discover and exploit his offshore oil and gas fields mostly located in deep & ultra deep sea water depths and in international waters. According to international common practice, the above oil and gas offshore exploration and production investments demand a geopolitical stable environment and have to be secured from terrorism, sabotage, piracy and other possible attacks. The smallest part of the costs of the necessary protective infrastructure of the exploration and production operations is born from the oil companies (on the drilling or production facilities) and the biggest part of the costs are born from the state itself.

It important to realize that over the past 50 years Greece has held the view that its national interests are served strictly by the international law and its strategy was planned based on a predictable and stable Turkey. Now it seems that Athens may have to get used to the idea of dealing with an unpredictable, not very stable and possible aggressive Turkey with its leaders often on the edge, and needs to be prepared.

If Greece is serious about exploiting its natural resources must:

1. Create the necessary exploration and production strategy related to security of the forthcoming oil and gas offshore investments.
2. The above strategy must be in harmony with what is happening in our neighboring countries (Cyprus and Israel) and the region in general (Turkey, Syria, Egypt, Libya).
3. Take the initiative to develop a cooperation strategy with all its neighboring countries based on the respect of the international law.
4. Take into account that the oil and gas operation security costs in the international waters are usually very high, thus part of the forthcoming oil and gas fields' net income taken from the Greek state must be conveyed to the improvement of the Hellenic Navy and Hellenic Coast Guard security infrastructures.

REFERENCES

1. Dr E. Konofagos, Lavrion Silver Mines Ancient Technology, Essay, October 2008.
2. Th. Kariotis "The suspense for the EEZ continues" Epikera Magazine 31.01.2013.
3. T. Kelly Acting Assistant Secretary, Bureau of Political-Military Affairs. U.S. Naval War College Newport, Rhode Island March 25, 2014.
4. HIS Jane's Defense Weekly. 2 July 2014 Vol 51 - Issue 27
5. United Nations Convention on the Law of the Sea, ANNEX VI, p207
6. United Nations Convention on the Law of the Sea, Article 3
7. According to UNCLOS the normal baseline for measuring the breadth of the territorial sea is the low-water line along the coast as marked on large-scale charts officially recognized by the coastal State.
8. United Nations Convention on the Law of the Sea, Article 2
9. Ibid, Article 19
10. Ibid, Article 33
11. Ibid, Article 57
12. A virtual line which connects all points having the same depth below a water surface.
13. Australian Government, Offshore Oil and Gas Resources Sector Security Inquiry. This recommendation has already been considered by many countries, including Israel.
14. Table taken from Dr Th. Mazis' lecture to the H.N. Naval War College on March 17, 2014.
15. - Turkish provocative moves within Cyprus' Exclusive Economic Zone (EEZ) were discussed in telephone conversations, on Monday, between Greek Deputy Prime Minister and Minister of Foreign Affairs Evangelos Venizelos and Cyprus President Nicos Anastasiades as well as Cypriot Foreign Minister Ioannis Kasoulides, a Greek Foreign Ministry press release says. Cyprus News Agency – NICOSIA, 6/10/2014 17:12
16. - Greek Cypriot officials said Ankara had issued a maritime advisory that a Turkish seismic vessel would be carrying out work in the same area as ENI's platform from Oct. 20. Turkey does not recognize the jurisdiction of the Nicosia government in the exploration area. "We consider this development particularly serious" Cypriot foreign minister Ioannis Kasoulides told a news conference in Nicosia. The area where ENI is carrying out the drill falls within Cyprus's exclusive economic zone, an area internationally recognized, except by Turkey, as being Cypriot waters, he said. Kathimerini, 6/10/2014.
17. Dr E. Konofagos, Lavrion Silver Mines Ancient Technology, Essay, October 2008.
18. "British Maritime Doctrine, BR 1806, Third Edition". 2004. "The operating areas of maritime forces range from the deep waters of the open oceans (known colloquially as blue water)."