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Study



Scenarios of the struggle over energy in the eastern Mediterranean: A Game Theory perspective

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Dimensions for Strategic Studies

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Introduction

At the dawn of this century, reports issued by the American Geological Survey indicated the existence of large quantities of gas in the Mediterranean. (1) Most of the oil and gas going towards Europe pass through this area. This means that an extra importance, related to the deposits of natural wealth, has been added to the original one which is related to the fact that the region of the Mediterranean is a key supply route.

Originally, the region includes conflicting countries, struggles and instability even within these countries. The Arab Spring revolutions added a new dimension to the region's conflicts and tensions, whether "Arab - Israeli" or "Iranian - Gulf". That extends further to some countries on the Mediterranean coast, in addition to the disputes between Turkey and Cyprus.

Thus, another reason and a new dimension related to energy has been added to the international intervention in the Middle East region in general and in the Mediterranean area in particular. It seemed that the resources discovered in the Mediterranean would not be a pure blessing for the countries but would rather be a curse before benefiting from them. Meanwhile, the importance of natural gas - whose availability in large quantities in the Mediterranean area is indicated by studies- has been growing as a clean and relatively cheap source of energy. The presence of large countries in size and consumption plays a key role in fuelling this conflict in defense of energy security. Turkey, with its 80 million people and Egypt, with its 100, for instance, are two large energy consuming countries. They light their homes and their fireplaces every day with expensive energy sources that come from international markets. Sometimes, this could be used as a pressure card against them that aims at influencing some policies.

(1) A 2004 report was issued on potential quantities in the western Mediterranean:

<https://pubs.er.usgs.gov/publication/b2204A>

Another report was issued by the same authority in 2010 on the assessment of potential quantities in the Eastern Mediterranean: <https://pubs.usgs.gov/fs/3014/2010/pdf/FS3014-10.pdf>



Israel, as a relatively new entity in the region, has viewed the new discoveries as an enhancement and an opportunity for cooperation and a source of its importance for the region and the world as well; especially, in light of the tensions and conflicts taking place in Syria, Lebanon, Libya and Tunisia, in addition to the uncertainty in the situation of Egypt, which witnessed a military coup in 2013.

As such, it seemed that the eastern Mediterranean region and its neighboring countries would not be the scene of events that could go normally. Rather, these events will intensify, reaching the stage of conflicts and possibly wars.



First:

THE MAP OF ENERGY RESOURCES AND SUPPLIES IN THE MEDITERRANEAN REGION

The map of resources in the Mediterranean significantly overlaps as a result of the lack of clear or approved marine maps by any of the bordering countries; nor do international institutions have such maps. It is noted that disputes exist not only in the eastern Mediterranean, but also in the depths off the Libyan coasts shared with Egypt.

Turkey's view of its sphere of influence, which includes its maritime borders, or what it calls the Blue Homeland/ "Mavi Vatan" and the borders of Turkish Cyprus differs from that of Greece and Cyprus. Moreover, the rounds of demarcating the maritime borders between Israel and Lebanon did not succeed in reaching an agreement, as there are different points of view and differences still exist. Parties sponsoring the solution have also their own points of view which don't seem to be liked by the negotiating parties. (2) In addition to that, talks about the demarcation of the borders between Lebanon, Syria and Palestine are not cleared yet. The same thing can be said about the demarcation of such borders between Syria and the rest of the parties such as Turkey, Cyprus and Israel.

Although it is expected that this may be the subject of undeclared discussions and through secret rounds, the results don't seem to be tangible yet. This would complicate the issues further, especially since the bilateral agreements made may not be approved by the rest of the parties; a case in point is the agreement concluded between Turkey and Libya, to which Greece, supported by some European countries, had great reservations about.

Despite such disputes, production from some reservoirs have actually begun on the Egyptian-Israeli as well as Greek coasts. Excavations by other countries, most notably Turkey, are actually taking place on the ground.

(2) Renewed questions come back after the start of negotiations to demarcate the maritime borders between Lebanon and Israel, Al Jazeera Net, 2021/5/4: <https://bit.ly/3qUsIEt>

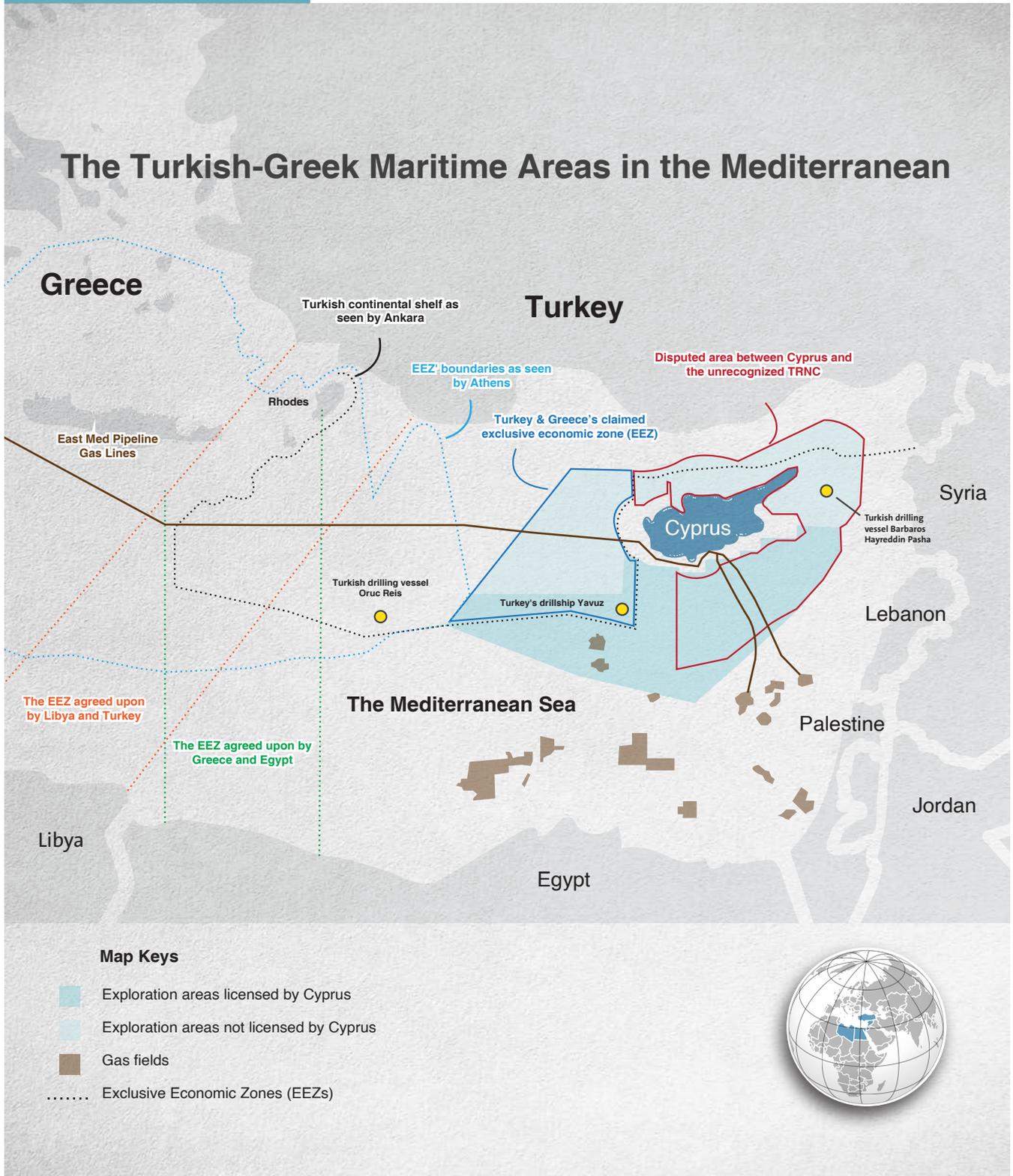


According to the US Geological Survey and the Oxford Energy Institute, it is believed that the resources in the eastern Mediterranean are mainly concentrated in the coasts of Israel, Egypt and Lebanon, as well as Greece and Cyprus, and to a much lesser extent in the Syrian coasts.

There is another issue related to energy supplies and not only about them or their habitat, but their supply. This issue is of no less importance than the resources themselves. Turkey for one is keen on preserving its position vis-a-vie international energy supplies. It is concerned about being side-lined in any alliance or agreement regarding energy supplies.



Figure No. 1:





Second: THE MAIN PARTIES TO THE CONFLICT AND THEIR INTERESTS

Regional active parties in the struggle over Mediterranean gas can be divided into three groups:

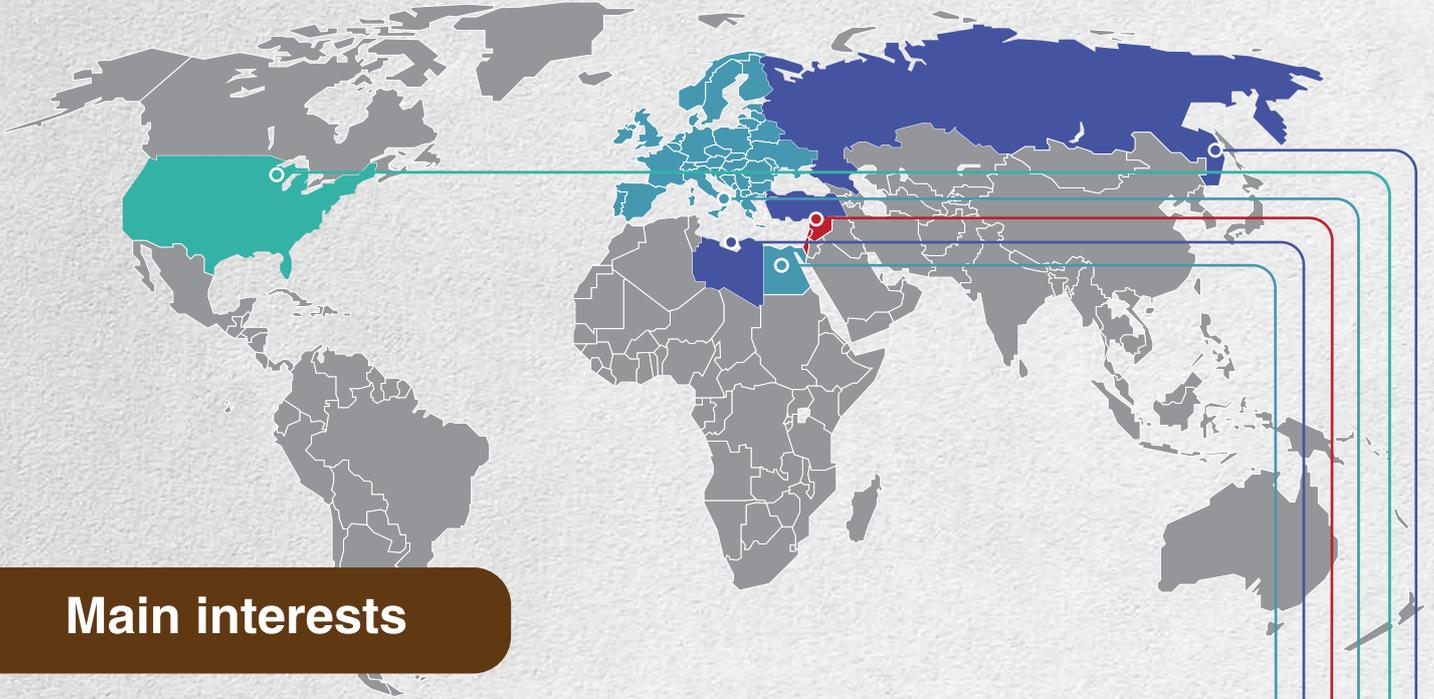
- 1.** The alliance that includes Cyprus, Greece, Egypt and Israel, as countries allied within the framework of the “Eastern Mediterranean Gas Forum” (EMGF). Each of Jordan and Italy joined this Forum, which strengthens the foundations of this alliance and makes it have political dimensions in addition to its economic ones.
- 2.** Turkey and its allies, as Turkey signed an agreement with the Libyan government. Also, Turkey is in a close and destiny alliance with the Turkish Republic of Northern Cyprus (TRNC).
- 3.** Syria, Lebanon and Palestine, which are countries preoccupied with addressing their internal crises. In relation to Syria, it is Russia who pleads for Syria’s share for special Russian economic interests, as well as for the presence of its bases on the Syrian coast.

The European Union, Russia and the United States are added as main actors to the existing alliances in this file, those, however, often interfere in favor of one of the above alliances. For instance, the European Union supports the interests of the first alliance. Russia supports its own interests based on its agreement with the government of the Syrian regime. The United States, in turn, seeks to manage the entire file on the basis of preventing Russia from expanding as well as supporting the interests of its allies in the first alliance.

This is how we can represent the main parties involved in the conflict, their interests, and the challenges facing the expansion of their influence, according to Table No. (1).

Table No. 1:

The active countries in the eastern Mediterranean, their main interests, and the challenges facing the expansion of their influence



Main interests

First Axis: EMGF



Israel

- Ensuring its transformation into an energy exporting country
- Establishing energy based partnerships with countries in the region to increase its presence



Egypt

Ensuring its transformation into an energy exporting country and getting investments in it



Cyprus

Taking the largest possible share of energy resources



Greece

Investing the largest possible share of energy resources

Second Axis: Turkey and its allies



Turkey

- To ensure that it takes a share of the energy in the Mediterranean
- To be a major energy corridor to Europe



Libya

To invest a part of its resources in the sea to be added to its land resources



TRNC

- Securing an energy share on the basis of two countries or entities on the island Supporting Turkey's right to explore for gas and oil

Third Axis: countries have internal crises



Lebanon Get out of its crisis by investing marine energy resources



Syria To invest part of the resources to make up for the severe financial shortfall



Palestine Collecting part of the resources of the Palestinian state controlled by Israel



EU

- A great need for the resources in the Mediterranean.
- Reducing dependence on Russia in the field of gas



USA

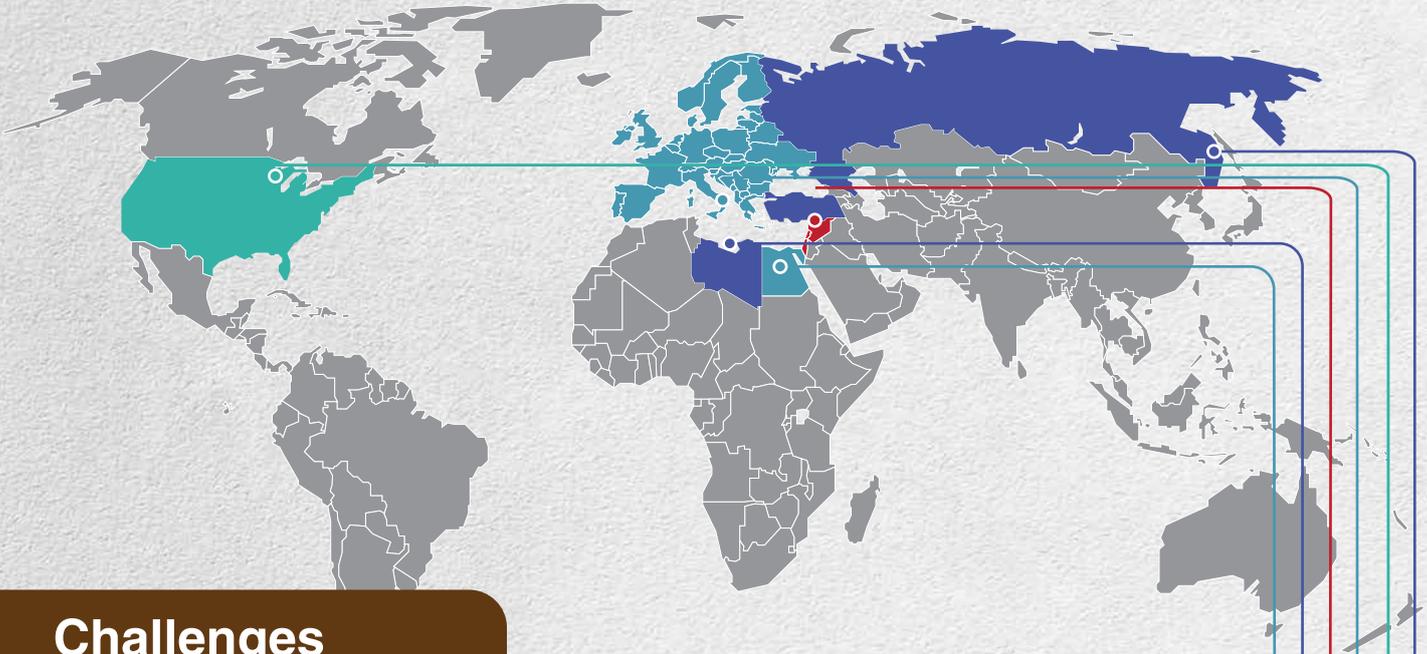
- To ensure its own energy security Sea lane control Weakening the rivals' benefits from the energy available in the region
- Manage the file Enable its companies to invest in the region



Russia

Investing Syria's energy reserves Controlling the supply of energy to ensure its share in European markets

The active countries in the eastern Mediterranean, their main interests, and the challenges facing the expansion of their influence



Challenges

First Axis: EMGF



Israel

Demarcation of the borders with Syria and Lebanon, and the Palestinian Authority obtaining its share, which will be at the expense of Israel's



Egypt

The growing Turkish role in the Mediterranean
- Israel's arrangements that went beyond the Egyptian borders to control gas
It preoccupation with the Nile River water file



Cyprus

Having weak military and political capabilities



Greece

Having weak military and political capabilities

Second Axis: Turkey and its allies



Turkey

Bilateral agreements made without Turkish consent



Libya

Internal conflicts and military and political tensions on its territory



TRNC

Having weak military and political capabilities

Third Axis: countries have internal crises



Lebanon

Financial crisis and internal conflicts make it weak in negotiation



Syria

Internal crisis that makes it difficult to invest

The possibility that Russia would control all the resources to recover what it spent to defend the regime



Palestine

- The internal Palestinian conflict
- Weak technical capabilities



EU

- The conflicts in the region Russia's expansion in the Mediterranean



USA

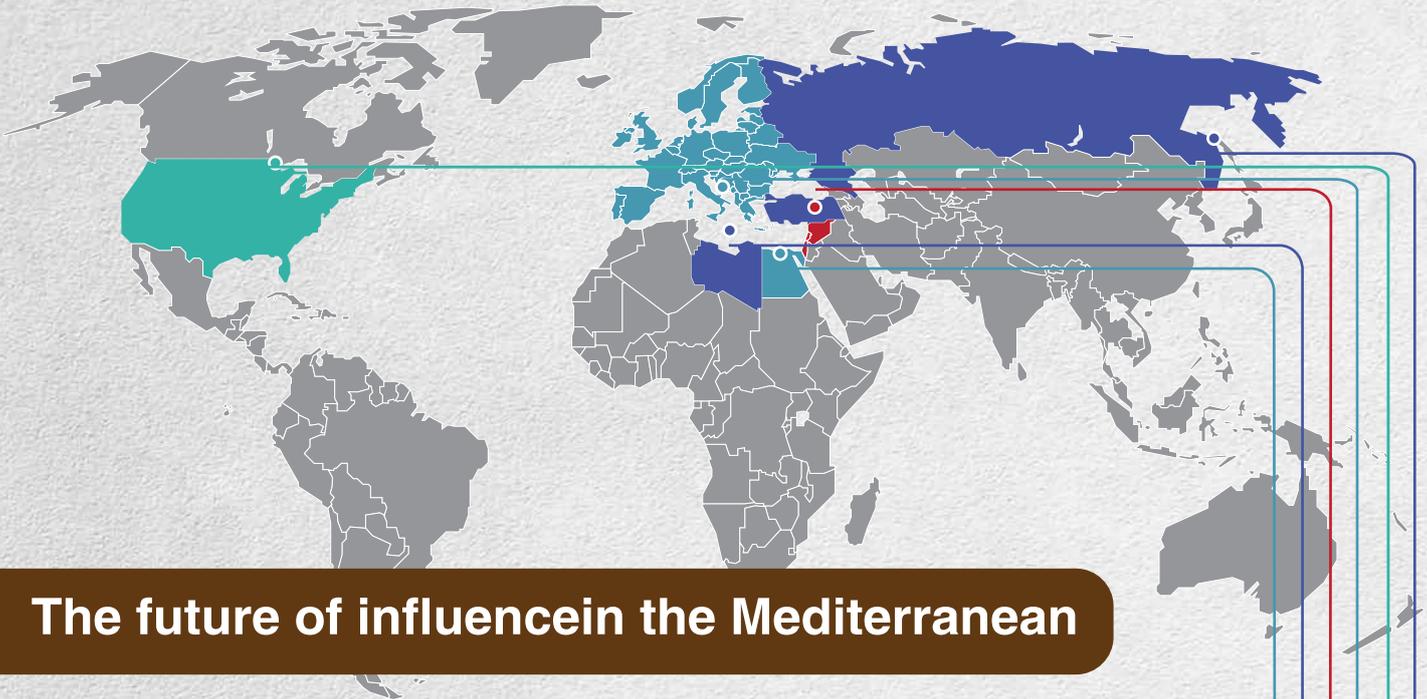
Chinese and Russian influence in the Middle East Its need for oil and gas is permanent, despite the high production internally



Russia

The Caesar Act and American Sanctions European and American proactive steps in investments

The active countries in the eastern Mediterranean, their main interests, and the challenges facing the expansion of their influence



The future of influence in the Mediterranean

First Axis: EMGF



Israel

- Ensuring its security through the intertwining of economic interests with other countries.
Greater official involvement in the future economic decision-making of the entire region



Egypt

Optimum investment in its fields
Having political leverage through energy
The possibility of an agreement with Turkey as it secures greater influence for it



Cyprus

Investing a large part of the energy resources in the sea



Greece

Investing a large part of the energy resources in the sea

Second Axis: Turkey and its allies



Turkey

To accept having a share of the energy resources of the Mediterranean
Controlling the energy corridor coming from the sea to pass through its areas of influence



Libya

Investing part of the energy resources



TRNC

To share resources with Greek Cyprus

Third Axis: countries have internal crises



Lebanon To have a portion of the energy resources



Syria To have a portion of the energy resources



Palestine To have a portion of the energy resources



EU

- Supporting the influence of Egypt, Israel and Cyprus in the Mediterranean
- To secure its investments in the discovered fields
- Enhancing supply resources and supporting their stability



USA

- Weakening the influence of world powers in the Mediterranean
- To strengthen the influence of allies in the region



Russia

- Long-term presence on the Syrian coast Sponsoring negotiations between Syria and some countries in its favour



Third: THE NEGOTIATION GAME AND THE ACTORS' CHOICES

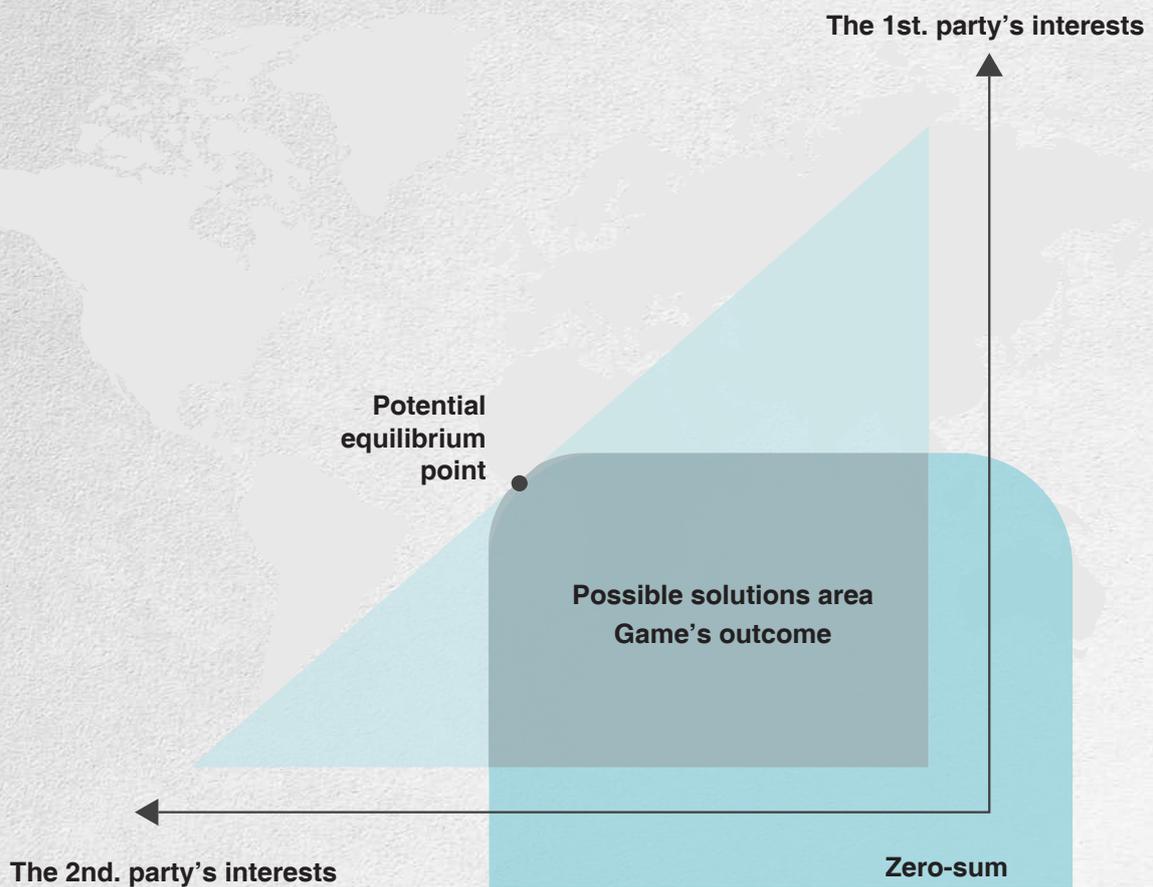
These countries do not prefer to take part in the game of competition in the Mediterranean region individually. They rather seek to consolidate their gains by building alliances and blocs that increase their ability to conduct negotiations with others. The coalitions those would be formed and the parties who will make gains from this conflict represent a major focus in looking over the current conflict and future influence.

We therefore note that the main power struggle over energy resources is currently concentrated between the first and second parties. A negotiation-based supposed game could maximize the gains of the two parties. Each party is certainly aware of this. (see Figure 2).



Figure No. 2:

Maximizing the parties' gains in case of acceptance of the terms of the game (entering into a negotiation process)





It is noted that without the game, represented by the triangle in (Figure 2, that determines the options of the two parties) the area of interests and the consequences thereof may be any point in the square we have in the same figure. The results may be zero or even negative for any of the parties or for each. At wars, it is possible for all parties to lose, but a possible rational negotiation will create an area similar to the triangle drawn above, making the negotiation space more specific to either tilt in favor of a party or achieve a possible balance at the supposed equilibrium point.

And here you can expect a negotiating process that will lead to an equilibrium of some kind on the basis of what is known as the "Nash equilibrium," in relation to the famous economist who won the Nobel Prize. This equilibrium is based on:

- In the event of non-negotiation, countries will turn to a possible escalation that may lead to war. This will make one or both parties have zero-sum gains or less than zero, as the war will disrupt many of the potential resources and current opportunities available to the national economy of each countries parties.
- The former possibility, on the one hand, is prompted by the desire of Cyprus and Greece to invest without holding an agreement with Turkey, and on the other hand, by Turkey's insistence on preventing excavations for others at a time it wants to continue excavating and exploring operations of the seas without reaching an agreement with the rest of the parties. Turkey escalated the situation in order to preserve its national security, and it gave the name of "Blue Homeland" / "Mavi Vatan" to the water area, which means that it is inseparable from Turkey and is no less important than the Turkish territory.
- The internal conditions of the two sides' countries make them quite far from being engaged in large-scale military actions or a possible war, as the war may have negative consequences for both parties. Therefore, the possibilities of war are very weak, although the scene sometimes does not suggest so.



- On the other hand, the countries of the two sides realize that the possible negotiation between the two parties will make the interests confined to the triangle drawn in the figure, that is, it is possible for Turkey to obtain some gains, such as energy-related corridors or a share of energy fields. Both might be achieved. Also, Greece, Cyprus, Egypt and Israel could have a good share of energy with some concessions in favor of Turkey to ensure that no war will break out and all energy resources will neither be disrupted nor even get a greater loss. This guarantees a state of balance.
- There is a possibility for this balance to be disturbed, which is present in the following question: What about Egypt, can it leave the current alliance in favor of a better agreement with Turkey that would guarantee the Egyptian interests? Holding an agreement with Turkey will make Egypt achieve greater gains than what it obtains within the framework of its current alliance. This is also applied to Greece, Cyprus and Israel.
This possibility is, however, weak, because Egypt realizes that its exit from the current alliance means it will lose potential customers in European countries, whose markets Egypt desperately needs to dispose of its production. Furthermore, Egypt's ties with Israel will pressure the former to stay on the same front.
- So, what about Russia's intervention to upset this balance? Russia will not be able to change the rules of the game, because its intervention to strengthen the role of one of the parties or upset the balance will prompt the United States to intervene, bringing the game back to zero to start playing again.



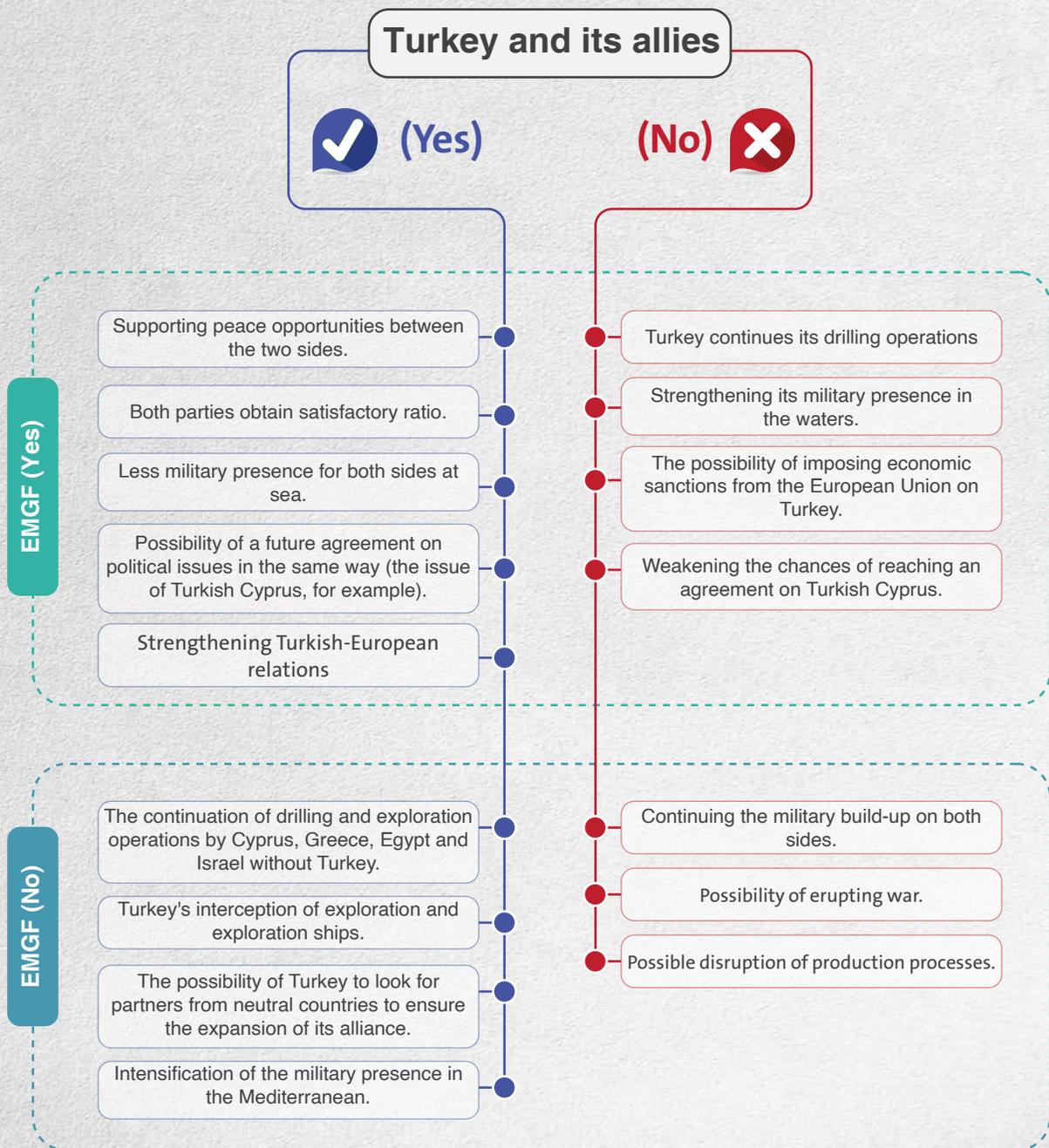
- What about the rest of the parties outside the two parties of negotiation? It is expected that Lebanon, Syria and Palestine will not be part of any major negotiation process at the present time, but perhaps within a bilateral framework in order to delineate the maritime borders between them or with their neighbouring countries. The neighboring countries have no interest to give them what they want as long as these neighbours can work unilaterally to explore for energy at their expense. At a later, more stable stage, these countries might turn into a bloc that negotiates with the rest of the parties over their share of energy, but without prejudice to the agreements of the current players.

A situation as such will make the players give in to the results of the negotiations, even if they were not cooperating with others, or had reached a real agreement with them. Keeping up with the game imposes coming up with a scenario consented to by all parties



Table No. 2:

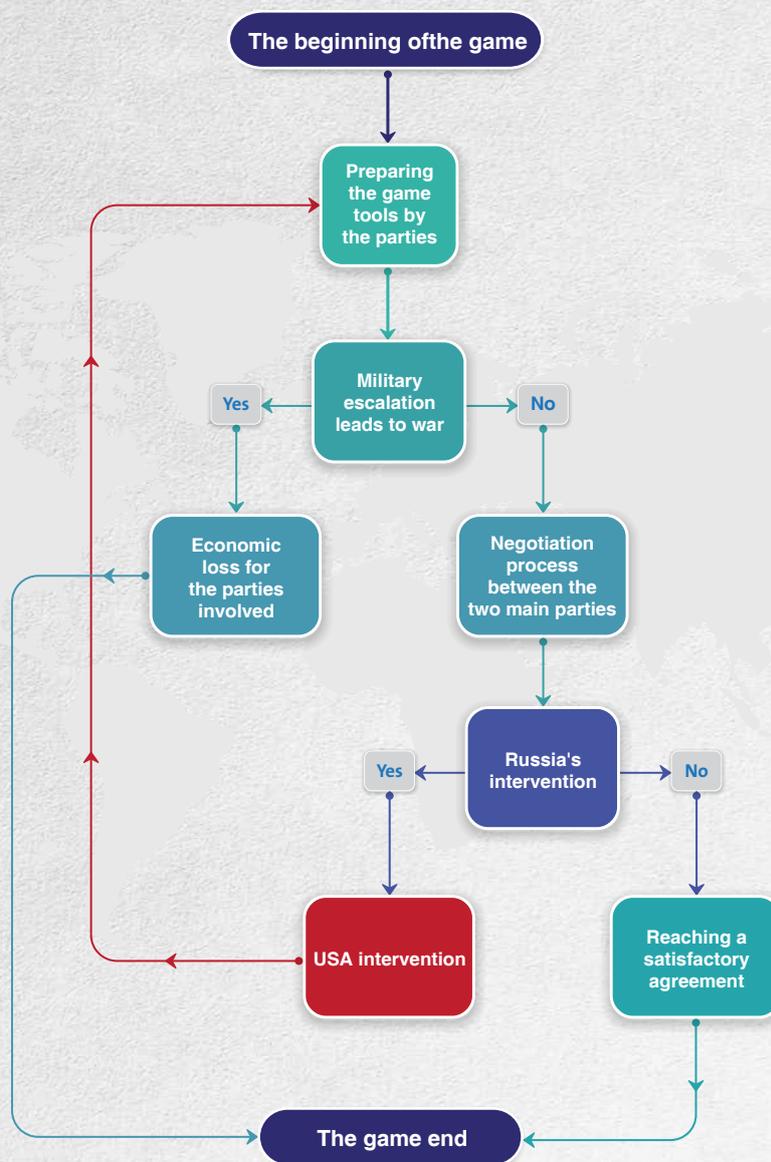
Game scenarios based on the probability of acceptance to be engaged in negotiations



Thus, we can illustrate the results of the game between the parties according to Figure (3).

Figure No. 3:

The course of the game between the parties and the expected outcomes





Fourth: THE SET OF SOLUTIONS ACCORDING TO RUBINSTEIN

On the basis of this type of negotiation, time is important, and there is one offer that can be made each time through which the other party is convinced that it has to take the offer for various reasons.

Israel, Egypt, Greece and Cyprus have taken proactive steps against all the other players. Egypt went into an alliance with Greece, Cyprus and Israel and established a union known as the Eastern Mediterranean Gas Forum, which was signed in addition to the four mentioned countries, by Jordan and Italy (3) without the involvement of neither Turkey nor any of the other countries located in the eastern Mediterranean.

Moreover, Egypt, along with Greece and Cyprus, issued the Cairo Declaration on October 2014 ,8, rejecting Turkey's moves in the Mediterranean.(4) Egypt has also strengthened its position through rapprochement with the European Union through military understandings with Italy as well as France. The latter is considered the most prominent opponent of the Turkish position.(5) Egypt has also actually signed agreements with European energy firms to explore for oil. On the other side, Turkey has not signed on the United Nations Convention on the Law of the Sea (UNCLOS), despite it already signed the same Convention but before the coming of the Justice and Development Party to power. The United Nations, however, published the maritime demarcation agreement between Egypt and Greece, and thus the agreement is considered an official and legal sheet as for Egypt and its partners (6).

(3) Establishing the first international gas organization in the Eastern Mediterranean, Middle East, December 2020 ,23 :<https://bit.ly/36m6f9R>

(4) The text of the Cairo Declaration issued by the tripartite summit, the seventh day, 2014/11/8 : <https://bit.ly/3AKrcJF>

(5) Egypt and France have advanced and continuous military relations, Al-Yaoum al-Sabea, 2020/12/7 : <https://bit.ly/3xsELeU>

(6) The United Nations publishes the Maritime Border Demarcation Agreement between Egypt and Greece, 2020/24/12 : <https://bit.ly/3qVPFH0>



Based on this, we will find that it is very likely that the third party, (Syria, Lebanon and Palestine) will accept any offer made to them. As the days go by, this party's countries realize that once the offer been made to them, it will represent a gain for them in light of the difficult circumstances that they are experiencing.

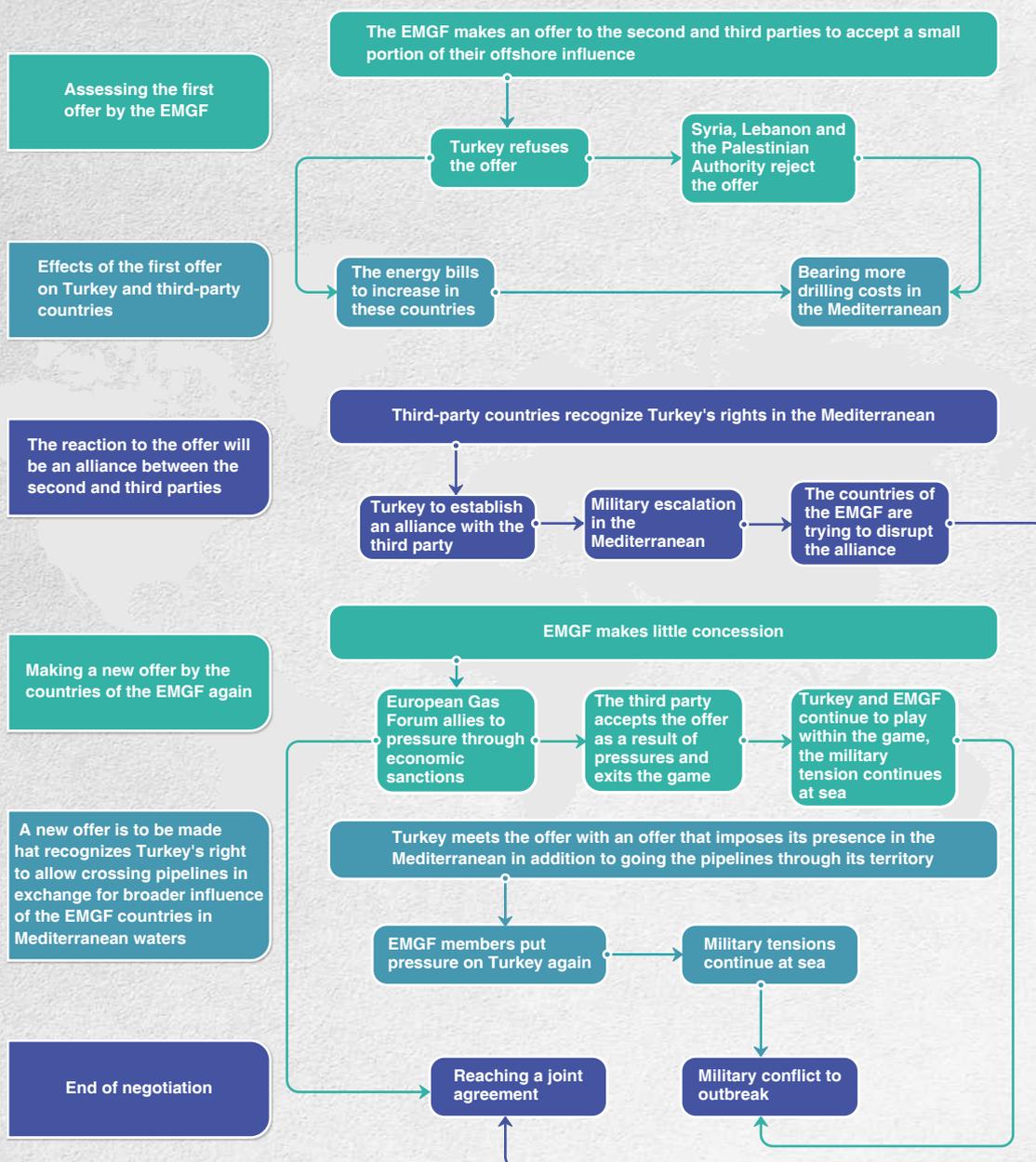
But what about Turkey, should it be waiting for the first party's offer based on internal circumstances or because of its inability to make offers on its part?

This situation requires a balance that Rubinstein believes will be achieved based on Turkey's realization that it will never obtain any significant gains in the Mediterranean; because the regional and international situation will not be in its favor in the negotiation process based on the awareness of the Eastern Mediterranean Gas Alliance's countries to this fact. The result of the balance in this case, therefore, may be not obtaining any gain in favor of Turkey. The result, instead, might be to accept a concession, whatever it is, even though it is a very small one, that may be granted to Turkey within the Mediterranean or even outside it.



Figure No. 4:

The proposed solutions according to the Rubinstein model of negotiation





Fifth: CONDORCET PARADOX AND POSSIBLE SOLUTIONS

Condorcet is a French revolutionist. He discovered some important observations about the voting system and its possibilities. According to his vision that he set, we can ask the following question: What if Turkey succeeds in attracting one of the members of the EMGF to be in its side with the help of bilateral negotiations, through which Turkey could accord this member greater rights than those that were granted by the rest of the parties?

The matter may apply greatly to Egypt, as it has problems with the rest of the parties in its alliance that Turkey can count on, as the latter can give Egypt gains greater than those given to it by Israel, Cyprus and Greece.

Under this paradox/negotiation, Turkey can give Egypt more influence in Libya, for example, whether on land or at sea. Turkey also can support Egypt in its conception of the shape of the maritime borders with Greece, Cyprus and Israel in exchange for Ankara obtaining a share of gas that, in turn, would guarantee abundance of energy resources and enhance its influence in the Mediterranean. Turkey can also provide Egypt with cooperation in the water file, which is currently an Egyptian priority.

Turkey has presented itself as a mediator between Ethiopia and Egypt on the basis that Ankara possesses technical expertise and good relations with Addis Ababa that help in solving the problem, so that it can achieve a kind of breakthrough in favor of Egypt. Despite the mediation opportunities have recently diminished, especially after the UN Security Council expressed support for the African Union-sponsored talks. The Security Council, however, does not count on the success of the African Union in the task, which requires an active role for other countries.



Well, it is likely that Turkey could be able to drag Egypt away from the alliance, despite its difficulty and potential risks to Egypt represented in losing potential European support, potential customers in addition to Egyptian-European partnerships in the field of energy. On the basis of this possibility, if it happened, Turkey and Egypt would have a broader influence in the Mediterranean at the expense of the rest of the parties.



Sixth: THE SHAPLEY VALUE AND POSSIBLE SOLUTIONS

The Shapley value determines a distinctive prediction of the outcome of the cooperative game. His idea is based on studying the value of the coalition in monetary terms, that is, the largest number of dollars that can be available to divide among the members of the coalition.

The Shapley value is used in costing games such as a highway project between a number of countries or cooperation in the construction of a marine canal and so on.

In practice, the Shapley value reflects the possibility of Turkey's involvement in the alliance, that was formed by the countries of the EMGF in exchange for obtaining a certain share of gas or supply lines in the eastern Mediterranean region but on the basis that Turkey to somehow shoulder a large cost. The concept of Shapley value is based on the premise that the rest of the countries do not want to shoulder huge costs in exchange for extending energy pipelines to the European Union or drilling in certain fields. Accordingly, Turkey could bear this cost or part of it, which reduces the burden on the rest of the countries in exchange for a participation in influence within the disputed areas and thus everyone ensures that they could have satisfactory portions.

It is a likely possibility of cooperation in the field of supply, since the Shapley value is often based on the basis that this type of accommodation amongst the negotiating parties is governed by the existence of high costs that must be shared between the parties. This could be applied to the costs of logistics for pipes to the European Union, where the interest of the rest of the countries will be to involve Turkey in the passage of the line through its territory in order to reduce costs related to construction, development, security costs and maintenance works at a later time.

Conclusion

The dispute between the countries stationed at the outskirts of the Mediterranean is mainly that the maritime borders are not legally demarcated, and a number of negotiating rounds have taken place between a group of countries that are trying to reach an understanding in order to maximize their gains in the issue of the resources in the Mediterranean. We find that the countries in the Eastern Mediterranean basin were divided into three parties: the EMGF, which is the alliance that includes Egypt, Israel, Greece and Cyprus, which sought to make inter-understandings, taking advantage of regional conditions and technical development. It actually started investing what was discovered, albeit at the expense of the rest of the parties. A party that is still working to consolidate its rights and exploration in its economic zone of influence, represented by Turkey and Turkish Cyprus in agreement with Libya is still working to establish his rights and to occupy his economic sphere of influence represented by Turkey and Turkish Cyprus in agreement with Libya, and a third party whose internal circumstances did not allow him to pay attention to these resources represented by Syria, Palestine and Lebanon, and each of these three parties supports international forces with interests with these parties. Thus, the main conflict in the eastern Mediterranean is between the two main pivots represented by the EMGF on the one hand, and Turkey and its allies on the other. In the context of studying the interests that each of the parties defends in light of the game of calculations and interests,

Conclusion

the options of the actors are improving and are considered better than either going into an armed conflict or approaching it. War, in fact, constitutes a zero-sum option for both parties or, at least, for one of them with disruption of production and causing great economic losses. As such, engaging in a negotiation process would be better for all parties.

The set of possible solutions is represented by the acceptance of the game by all parties. According to the initial conditions of the game, marginalized parties such as Syria, Lebanon and Palestine are expected to agree to the offers made to ensure their minimum interests. Accordingly, Turkey will accept the offers made to it to achieve a small area of influence in the Mediterranean. It is satisfied with the passage of gas pipelines produced from the sea through its territory, unless it manages to attract one of the parties of the first axis, such as Egypt, to its side, and gives it better conditions than those Egypt could achieve in its axis. It seems that Turkey is currently working on this matter, which enables it to form a new axis with greater influence than the rest of the parties in the eastern Mediterranean.

In the event that the purely economic interest of all parties is preferred, the pipeline of the Mediterranean-sourced gas is expected its supply cost to be paid by all parties, including Turkey, in order to achieve new points of convergence between the two main parties to the game, reduce the possibility of conflict and ensure the power-sharing.



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