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Guest-Editor

Ass.Prof. Dr. Georgios-Alexandros Sgouros, University of Athens

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Turkey's political influence in Libya and the weaponization of the Muslim Brotherhood

Abstract: Turkey's cooperation with the organization of Muslim Brothers has its own strong foundations, representing at the same time the frontline of the Turkish geostrategy towards the leadership of the Ummah and the Muslim World. This is a decade-long proven reality, while it is not visible which part is leading and which is following the other's strategic behavior. In any case and except for any "metaphysical ideas" of the current Turkish elite, a certain strategic image is produced for Erdoğan and it is related with the profound Islamist-oriented strategy, aiming to Turkey's upgrade into a regional hegemon absolutely antagonist at a world-wide level. On this line of thought, the current study aims to describe Turkey's engagement in Libya under the cloak of Ankara's relation with the Muslim Brotherhood between 2020 and 2021. Comparatively to Turkey's ambiguous strategy in the case of Gaza escalation of May 2021, general conclusions are reached with regard to the consequences of Neottoman policies in Maghreb and the Greater Middle East for regional stability and peace.

Keywords: Muslim Brothers, Turkey, Neottomanism, Maghreb, Turkish-Libyan Memorandum, Egypt Energy Security, Geopolitics

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Brief timeline

1. **2 January 2020:** The Turkish Parliament ratifies the decision for a military intervention in Libya. The ratification expires in one year.
2. **5 January 2020:** Turkish operational projection of power in Libya starts.
3. **19 January 2020:** A 55-point road map is agreed in the Berlin Peace Conference for peace establishment.
4. **22 April 2020:** The spokesperson of the Libyan National Army (LNA) Ahmed al-Mismari announces the arrest of “the most dangerous Egyptian terrorist in Libya” named Mohammad Mohammad al-Sayyid, also known as Mohamed al-Sanbakhti or Abu Khaled Munir.
5. **20 June 2020:** The Egyptian Parliament empowers the Government and the Armed Forces of Egypt to assist General Khalifa Haftar into Libyan soil.
6. **30 June 2020:** According to French intelligence, the Government of Tripoli under Fayeze Sarraj plans to establish a “National Guard” with the support of Muslim Brotherhood.
7. **9 August 2020:** After a demand of Turkish Minister of Foreign Affairs Mevlüt Çavuşoğlu, dozens of Muslim Brotherhood’s media start a campaign against the Greek-Egyptian agreement for a delineation of Exclusive Economic Zone. Their main argument is that the agreement infringes Libya’s sovereign rights in sea, as these rose after the agreement between Turkey and the Government of Tripoli.
8. **10 September 2020:** MED–7 Summit takes place and Ajaccio Declaration is signed. After the discussions among the leaders of the seven Mediterranean states, a press conference follows and the French President Emmanuel Macron states: “Turkey has signed unacceptable agreements with the Government of National Accord in Libya, infringing Greece’s legal rights [...] We have to recognize that Turkey is not a partner in this region anymore [...] We have to abstain from an escalation, but Turkey should clarify its intentions in some sectors. As Europeans, we have to be stable and strong against Erdoğan”.
9. **9 December 2020:** Turkey publishes its “discontent” against the Libyan part of the Muslim Brotherhood, due to the latter’s support to the UN proposal for the spokesperson of Libyan Parliament Aguila Saleh’s appointment as the Chairman of the new Presidential Council, as well as the appointment of Fathi Bashagha as the Head of Government.
10. **21 December 2020:** The Egyptian-based World Center Al-Azhar Fatwa bans the admission in the Muslim Brotherhood noting that Allah and the Sharia Law “do not permit any divisions and confrontations”.
11. **11 January 2021:** Emrullah İşler, brother of Recep Tayyip Erdoğan, is accused that promotes family business interests via covered military operations in Libya, in line with Erdoğan’s relevant directives.
12. **10 March 2021:** The fragmented Libyan Parliament ratifies the formation of a transitional Government of National Unity.
13. **11 March 2021:** The transitional Prime Minister of Libya Abdulhamid Dabaiba declares his support to the EEZ agreement between Turkey and the Government of Tripoli.
14. **16 March 2021:** Formal appointment of the transitional Government of National Unity. The hard-liners of the Muslim Brotherhood do not participate. The

transitional Government has to lead Libya to National Elections in the 24th of December 2021.

15. **18 March 2021:** Turkey's efforts for a rapprochement with Egypt. Ankara asks for de-escalation of Muslim Brotherhood's critique against President Sisi.
16. **22 March 2021:** The US Secretary Antony J. Blinken welcomes the formation of a transitional Government of National Unity in Libya after a phone call with the transitional Prime Minister Abdulhamid Dabaiba.
17. **23 March 2021:** The transitional President of Libya Mohamed Al Menfi visits Paris. The French President Emmanuel Macron asks for the Turkish and Russian militants' abandonment from the Libyan soil "the sooner the better".
18. **26 March 2021:** Recep Tayyip Erdoğan invites Mohammad Younes Menfi to visit Turkey via a relevant announcement.
19. **29 March 2021:** Re-operation of the French Embassy in Libya's capital, Tripoli.
20. **16 April 2021:** UN Security Council resolution for an immediate withdrawal from Libya of all the foreign and merchant militias.
21. **20 April 2021:** The Libya Quartet (UN, EU, Arab League and African Union) notes substantial progress towards a political solution.
22. **4 May 2021:** Libya's Minister of Foreign Affairs Najla Mangouch refers to the need for all foreign militias to abandon Libyan soil in the occasion of a joint press conference with Turkey's Minister of Foreign Affairs Mevlüt Çavuşoğlu. Her statement is linked directly to Turkish-related militias operating in Libya.
23. **5 May 2021:** The Libyan Prime Minister Abdul Hamid Dbeibah gives an interview asking for an immediate withdrawal of all foreign militias from Libyan soil.
24. **12 May 2021:** Turkish President Recep Tayyip Erdoğan, Minister of Defence Hulusi Akar and Minister of Foreign Affairs Mevlüt Çavuşoğlu accuse Israel for its right to self-defence and support openly Hamas.

1. Introduction

Turkey's projection of power in Maghreb and beyond is fully identified with the theoretical and political legacy of Ahmet Davutoğlu, whose thought still leads Turkish geostrategic behaviour. The Davutoglian description and analysis in "Stratejik Derinlik: Türkiye'nin Uluslararası Konumu"³ has followed another book of Turkish former Prime Minister and Minister of Foreign Affairs entitled "Alternative paradigms: The impact of Islamic and Western weltanschauungs on political theory".⁴ In that book, it is clarified that "behind such analyses [i.e. those referring to the political notions and structures of the two contradictory paradigms] there is a starting point for Dar al-Islam to be equalized with the modern international system".⁵

On the basis of Davutoğlu's axiom, a whole policy recommendation is structured, explaining Turkish modern geostrategic choice of Muslim Brotherhood instrumentalization and cultural elements of national power mobilization. Consequently, Turkey's geostrategic visions and prioritizations give special emphasis on the Muslim Brotherhood, developed to such a level that – in close cooperation with Ankara – determines policy fermentations instead of just being a means of Turkish

3 Davutoğlu, A. (2010) *Stratejik Derinlik: Türkiye'nin Uluslararası Konumu*. İstanbul, Küre Yayınları.

4 Davutoğlu, A. (1993) *Alternative paradigms: The impact of Islamic and Western weltanschauungs on political theory*. Lanham: University Press of America.

5 Davutoğlu, A. (1993) op. cit..

power projection. Such a multifactorial analysis is not a surprise, since the epistemological bases of the Davutoğlu doctrine are found in Mackinder and Mahan and subsequently in the fields of:

- Geography, since – according to Davutoğlu and consequently to Turkish political elite – Turkey is located at the geographical epicentre of Afro-Eurasia and on this basis, it may implement its strategy for the 21st century.
- History, since ottoman tradition – according to the Neo-Ottomans – could represent a “battering ram” and a comparative advantage for Turkey’s entrance in multiple geographical zones of the complex of the Greater Middle East, in addition to Caspian and Central Asia.
- Culture, since on the basis of the ottoman legacy, Turkey is seen as a cultural centre with strong relevant linkages in the fields of language and religion with the new-born states of the greater region and beyond.
- Energy, as this offers the capabilities for a geopolitical rise and an increase of Turkish influence to the aim of a central positioning on the East-West energy corridor. In addition, it would contribute to Turkey’s strategic independence via the acquirement of significant elements of power.
- Geopolitics, generally speaking, as Turkey is located at the crossroads of three geographical zones.

Starting from the afore-mentioned Neo-ottoman narrative of international relations, it is worth to be mentioned that this has strong historical roots. It has been said quite recently and this is affirmed in Turkish foreign policy diachrony that “Özal, since 1991, believed in and contributed to the movement of Neo-ottomanists, also known as ‘İkinci Cumhuriyetçiler’ (‘Second Democrats’). Describing this tendency of modern Turkish ideological-political reality, the term ‘neo-ottomanism’ was introduced by Cengiz Çandar, a known Turkish writer and academic. This was analysed as a spiritual movement, supporting Turkey’s strategic aim to implement an active and independent foreign policy in the region, according to the Ottoman historical legacy. The Neo-ottomans envision Turkey as the leader of Muslim and Turkic world”.⁷ In accordance, Davutoğlu believes that “in order Turkey to become an Islamic regional power, it ought to be very careful and adjust its foreign policy to the ‘strategic parameters’ posed by the Great Powers”.⁸

For this reason, in Ankara’s Libyan policies the organization of the Muslim Brotherhood is prioritized and in this way, Turkey (a) improves its diplomatic positioning vis-à-vis the Great Powers manipulating Islamic fundamentalism in the light of a leading position in the Muslim world and increased influence in the relevant geopolitical boundaries; (b) minimizes the strategic costs of Turkish policies in the sense of legal consequences and the human or material losses; (c) strategically legitimizes Turkish interventionism broadening Ankara’s footstep on Libyan’s territory; (d) in retrospect, strategically delegitimizes any existent or potential counter-alliances in Maghreb system and beyond.

6 Mazis, I. Th. (2008) The geopolitics of the Greater Middle East and Turkey [in Greek]. Athens: Livanis. Pp. 94-95.

7 Mazis, I. Th. (2013) Geopolitics: Academic Dissertations, XLVI. Theoretical Perception of Geopolitics in Davutoğlu’s Work: A Critical Presentation. P. 253. [Published first in: *Civitas Gentium* 3:1 (2013), pp. 9-50], see: http://scholar.uoa.gr/sites/default/files/yianmazis/files/xlvi._theoretical_perception_of_geopolitics_in_davutoglus_work_a_critical_presentation.pdf

8 Mazis, I. Th. (2008) op. cit., p. 66.

Under these terms, Turkish-Russian strategic alignment is also explained. Ahmet Davutoğlu has described that even if the interests of Ankara and Moscow are competitive, especially in Central Asia and the Caucasus, “Turkey is obliged to cooperate strategically with Russia”,⁹ because the range of the gap of power between these two powers does not allow Turkey to project power and claim anything at the expense of Russian interests. Hence, Russian-Turkish antagonisms in Libya do not represent a coincidence, in spite of their overall temporary geostrategic alignment.

In the current paper, Turkish intervening policies in Libya are described and analysed during the last crucial months; i.e. from 2020 to 2021. A special emphasis is given to the role of the Muslim Brothers as a fundamentalist Islamist platform and a weapon of Turkey’s projection of power, supplementing the power gamble in North Africa and the Eastern Mediterranean as a destabilizing factor. For this reason, in conclusion, the consequences of Turkey’s behavior are summarized as well as its subsistent efforts to increase its political influence in Libya via the Muslim Brotherhood, the geostrategic pressure towards the secular regime of Egypt and the existence of a counter-weight for the secular regimes of the African continent and the Middle East. Interesting conclusions can be reached, also, about Greece, the European Union and the western world, in general, especially if Libyan national policy is kept in mind regarding energy issues and the delineation of sea zones in Central and Eastern Mediterranean. Last but not least, it is deduced that on the basis of the davutoglian doctrine and consequently, Recep Tayyip Erdoğan’s policy implementation, Turkey’s core geostrategic enemy is Israel.

2. Turkey’s involvement in Gaza

This remark was proved again in the case of Ankara’s stance during the spring 2021 escalation in Gaza. Israel’s demonization and extreme Anti-Semitism represent a cornerstone for Turkey’s strategy vis-à-vis the Muslim World, towards a mobilization of Muslim populations’ sentiment. For this reason, Turkey’s involvement in Gaza spring 2021 escalation is directly linked to the absolute support to Hamas, the propagandistic manipulation of war episodes and the overall inclusion of the Israeli-Palestinian conflict among the main aspects of Turkey’s strategic behavior. In short, considering the latter, Ankara is inclined to view its approach to Palestinians as a prerequisite for its hegemonic status in the Muslim World.

Therefore, strategic cost is profound for Turkey and this entraps it into specific strategic choices in favour of Hamas. For this reason, it is deduced that Ankara is ready to put into doubt its diplomatic assets, in order to converge with Hamas, as well as with the Muslim Brotherhood. In parallel, revisionist Turkey considers that the weaponization of Hamas offers diplomatic assets in its competitions towards status quo powers of the region. Turkey’s tactic is extended to “legitimacy” for accomplishing strategic aims vis-à-vis the Muslim World, including both Sunnis and Shiites via the Muslim Brotherhood and the Palestinian Issue. Regarding this, Al Dawa owns a distinctive role, coordinated with Turkey’s NATO membership, while Davutoğlu has referred broadly in his books to the complementarity – and not disjunctive substance – of Turkey’s relations with the East and the West, as well as with the Sunni and Shiite blocks.¹⁰

⁹ Mazis, I. Th. (2008) op. cit., p. 67.

¹⁰ Mazis, I. Th. (2008) op. cit., p. 67.

The spring 2021 conflict started when, in 13 April, Islamists moved against Israeli citizens in the day of Israel's independence, and it came to an end with the 20 May cease fire.¹¹ In 10 May, Recep Tayyip Erdoğan has a call with Hamas leader Ismail Haniyeh and the President of Palestinian National Authority Mahmoud Abbas expressing his support to Palestinians and noting the need for protection of the "honour of Jerusalem".¹² In the aftermath, Turkey advised (!) the United Nations to "halt Israeli assaults",¹³ while the public in Turkey was pushed to express its Anti-Semitic sentiments during pro-Islamist demonstrations in Constantinople with slogans such as "Turkish soldiers in Gaza" and "Down Israel, down the US".¹⁴ Indications of Turkish policies in favour of extremism were, also, seen when in September 2020 Turkish citizenship was offered to 12 high officials of Hamas, a process condemned by the European Parliament¹⁵ and following Turkish policies of the last decade, which have been identified with extreme Anti-Semitism and the support of extreme Islamists or even terrorist organizations.

Turkey's support to Hamas has multiple dimensions, extended from the Anti-Semitic rhetoric of Turkish elite up to the demand for Turkish troops deployment in Gaza for Hamas support. Before the beginning of the terrorist attacks against Israel in spring 2021, already since 2018, the Turkish President addressed Israeli Prime Minister Benjamin Netanyahu noting that "Hamas is not a terrorist organization [but] a resistance movement".¹⁶ Of course, Recep Tayyip Erdoğan neglected to remind that this kind of "resistance" refers to Israeli civilian targets, while infant Palestinians are used as "shields" in military targets towards a fake "sensitization" of international community.

¹¹ The Jerusalem Post (2021) "Israel announces ceasefire after 11 days of fierce battle with Hamas in Gaza". Accessed at: <https://www.jpost.com/middle-east/no-rocket-sirens-since-1-am-as-israel-hamas-ceasefire-said-to-be-close-668607> [20/5/2021].

¹² Anadolu Agency (2021) "Turkey's Erdogan speaks over phone with Palestinian president, Hamas chief". Accessed at: <https://www.aa.com.tr/en/middle-east/turkey-s-erdogan-speaks-over-phone-with-palestinian-president-hamas-chief/2235820> [20/5/2021].

¹³ Reuters (2021) "Turkey's Erdogan says U.N. must act to halt Gaza conflict". Accessed at: <https://www.reuters.com/world/middle-east/turkeys-erdogan-says-un-must-act-halt-gaza-conflict-2021-05-14/> [20/5/2021].

¹⁴ Al Arabiya News (2021) "Thousands protest in Turkey against Israel over surge in violence". Accessed at: <https://english.alarabiya.net/News/middle-east/2021/05/11/Thousands-protest-in-Turkey-against-Israel-over-surge-in-violence> [20/5/2021].

¹⁵ European Parliament (2020) "Turkish citizenship granted to members of the Hamas terrorist organisation". Accessed at: https://www.europarl.europa.eu/doceo/document/E-9-2020-004733_EN.html [20/5/2021].

¹⁶ The Globalist (2021) "The Erdogan/Hamas axis?" Accessed at: <https://www.theglobalist.com/turkey-recep-tayyip-erdogan-akp-hamas-terrorism-united-states-nato/> [21/5/2021].



Meeting between Turkey's President Recep Tayyip Erdoğan and senior political leader of Hamas Ismail Haniyeh, 8 September 2020¹⁷

During the spring 2021 escalation, about 2,500 rockets were launched by Hamas against civilian population in Israel, activating the Israeli anti-rocket shield "Iron Dome", while several attacks of Islamist Arab-speaking elements took place against Jewish community.¹⁸ The consequent Israeli response to Hamas attacks was manipulated by Turkey and extreme Islamist rhetoric was expressed by its President Erdoğan. The Turkish Islamist President and contributor of the Muslim Brotherhood and the terrorist organization of Hamas addressed Russia's President Vladimir Putin stating that "Israel must be taught a 'lesson'", asking at the same time from the UN Security Council to "rapidly intervene to protect Palestinians".¹⁹ On the same line of thought, he asked for UN peace troops deployment for the "protection of the Palestinians",²⁰ a roadmap that Turkey and Russia, according to Erdoğan, should converge and "should convey determined and clear messages to Israel on halting its attacks", since "if there was an opportunity to especially bring in Turkish forces into the region, Erdoğan would definitely go for it".²¹

¹⁷ Financial Times (2020) "Erdoğan and Hamas: 'He's presenting himself as leader of Muslim world'". Accessed at: <https://www.ft.com/content/7447e141-3d3f-4d98-953d-179e15909a7e> [19/5/2021].

¹⁸ Forbes (2021) "Under the Iron Dome: The problem with Israel's rocket shield". Accessed at: <https://www.forbes.com/sites/davidhambling/2021/05/12/under-the-iron-dome-the-problem-with-israels-rocket-shield/?sh=59eb6c8459b8> [21/5/2021].

¹⁹ Aljazeera (2021) "Israel must be taught a 'lesson', Erdoğan tells Putin". Accessed at: <https://www.aljazeera.com/news/2021/5/12/israel-must-be-taught-a-lesson-erdogan-tells-putin> [14/5/2021].

²⁰ Reuters (2021) "Erdoğan, Putin discuss Israel clashes in call -Turkish presidency". Accessed at: <https://www.reuters.com/world/erdogan-putin-discuss-israel-clashes-call-turkish-presidency-2021-05-12/> [14/5/2021].

²¹ Gehrke, J. (2021) "Turkey: Erdoğan wants to deploy anti-Israel 'international protection force' to Gaza". *Washington Examiner*. Accessed at: <https://www.washingtonexaminer.com/policy/defense-national-security/erdogan-wants-to-deploy-anti-israel-protection-force-gaza> [14/5/2021].



Hamis leader Ismail Haniyeh and Turkey's President Recep Tayyip Erdoğan at the Turkish Parliament, 3 January 2012²²

Turkey's Minister of Defense Hulusi Akar stated about Israel's response to Hamas attacks that "these attacks are crimes against humanity. These mean damaging peace and are a shame that will go down in history".²³ Finally, the Minister of Foreign Affairs Mevlüt Çavuşoğlu referred to the issue in the broader framework of Islamist convergence noting indicatively that "we always condemn (attacks) like this, but the Ummah is expecting us to take a step. Such attacks have to stop now. Of course, we need to protect the rights of Palestinians within the framework of international law. We should never veer from the two-state vision."²⁴ The afore-mentioned remarks by Turkish officials indicate that the Greater Middle East is considered a "geographical complex", since Turkish strategic behavior is undividedly aggressive and revisionist and includes any war theatre, especially when this is related to a possible attrition of a major competitor, as this has been defined by Ankara, namely Israel.

²² Al-Monitor (2020) "Intel: Washington condemns Erdogan's meeting with Hamas leadership". Accessed at: <https://www.al-monitor.com/originals/2020/08/turkey-hamas-erdogan-meeting-haniyeh-arouri-condemn.html> [19/5/2021].

²³ Anadolu Agency (2021) "Turkey determined to ensure peace in Syria: Defence minister". Accessed at: <https://www.aa.com.tr/en/middle-east/turkey-determined-to-ensure-peace-in-syria-defense-minister/2239538> [14/5/2021].

²⁴ Anadolu Agency (2021) "Turkey, Saudi Arabia set to have further dialogue: Turkish foreign minister". Accessed at: <https://www.aa.com.tr/en/middle-east/turkey-saudi-arabia-set-to-have-further-dialogue-turkish-foreign-minister/2237811> [14/5/2021].



Recep Tayyip Erdoğan's propaganda against Israel at the General Assembly of the United Nations, 24 September 2019²⁵

Equally worrying for regional stability and security is Turkey's recent decision for an UAVs base establishment in Lefkonikos of occupied Cyprus, while Turkish President's statement after the relevant announcement is indicative: *"Now there are two airports in Cyprus as an airport; one is Ercan, which all my citizens know in Turkey, and the other, which was there before of course, but we are changing it now, with a new name, and mostly as the area where our UAV's are located. I wonder why we're moving them so much, why? We need to be strong against any attack that may occur in the area. And to be strong, you must be present in the air, on land, in the sea with everything you have. So, are we present? Yes, we are"*.²⁶

The Turkish base in Lefkonikos is about to host Bayraktar-TB2 type UAVs, similar to those used against the Kurds in Northern Iraq and Halifa Haftar's troops in Libya. Hence, Turkey will be able to cover operationally all its claims against the EEZs of Cyprus and Israel. It is about a very important problem, equally to that of Russian anti-aircraft missile system S-400 purchase, since – among others – Bayraktar TB2 UAVs do not have their previous 100-mile range anymore, but they could operate continuously for 27 hours and for this reason, to become a clear threat for the whole Middle Eastern and North African region.²⁷ Besides, the zone between the 35th and the 36th parallels, including Cyprus (Episkopi, Akrotiri, Larnaca and Lefkonikos)

²⁵ Nordic Monitor (2021) "Erdoğan unlikely to benefit from 'Israeli aggression' this time". Accessed at: <https://nordicmonitor.com/2021/05/erdogan-unlikely-to-benefit-from-israeli-aggression-this-time/> [19/5/2021].

²⁶ Çetiner, Y. (2021) "Turkey Constructing a New Drone Base in Northern Cyprus". *Overt Defense*. Accessed at: <https://www.overtdefense.com/2021/06/01/turkey-constructing-a-new-drone-base-in-northern-cyprus/> [29/6/2021].

²⁷ Rubin, M. (2021) "Turkey's new drone base is a problem". *American Enterprise Institute*. Accessed at: <https://www.aei.org/op-eds/turkeys-new-drone-base-is-a-problem/> [29/6/2021].

and Crete (Souda) in the East as well as Malta and Gibraltar in the West, embodies regions of major geostrategic significance for the Anglo-Saxon naval powers, too. From these regions, these powers could check South Mediterranean in total and destabilized Maghreb. This geostrategic axis represents the most efficient exit of the Persian Gulf and the Caspian Region and their oil reserves towards the Atlantic via Gibraltar.

Taking all these into consideration, Turkish policies towards Gaza represent just one part of Ankara's whole geostrategic endeavour, prioritizing re-distribution of power, with primacy considering the seabed resources, as an intermediate aim. A possible Turkish success in this energy gamble could subvert rapidly energy security of consuming states in the West, but it could also undermine the autonomy of the producing states in the East. For this reason, East Med pipeline implementation should be defined as a core priority for the regional actors supporting status quo and international law in the Eastern Mediterranean; i.e. Israel, Greece, Cyprus and Egypt.²⁸

3. Turkey's involvement in Libya

The aftermath of the so-called "Arab Spring" was identified with the increase of "geostrategic windows of opportunity", as perceived by Ankara, for a Neo-ottoman expansion. Libya is not an exception and as we have noted in the recent past: "President Erdoğan fights in many fronts and dreams for a political arrangement and more or less succeeds. The more fronts he fights in, the more chances he has to gain something. He is determined to remain in these fronts and to have casualties. Contrary to Western democracies, President Erdoğan does not have any kind of limits referring to casualties and thus, he has sent about 300 [according to December 2019 records] Islamist mercenaries. For him, their lives do not matter. Hence, he shows his determination towards the West, that Turkey could stay in Libya whatever they do".²⁹

Recep Tayyip Erdoğan's aim is to limit Turkey's costs and maximize its gains on the Libyan war theatre, while the mobilization of the Muslim Brotherhood contributes to the delimitation of the negative strategic image of Turkey, as this is coordinated with Ottoman legacy. Similarly, Turkish engagement in Libya was confronted as an indication of colonial practices by Halifa Haftar,³⁰ since "Turkey is related directly, referring to strategic narrative, with the hegemonic presence of Ottomans and the following colonial powers, a fact mobilizing masses against it. In the case of Libya, Neo-ottomanism legitimates and de-legitimates simultaneously Turkey's strategy and for this reason, Ankara has used hybrid strategic engagement with high symbolisms and a relevant dynamic, but also with the basic means of mercenaries, Islamic solidarity and common religious references".³¹ Turkey has implemented similar practices of extremism cultivation and population groups' radicalization, to balance internal security dilemmas, with Kurds to be the upmost. It

²⁸ Βλ.: Mazis, I. Th. and Sgouros, G. A. (2020) Geopolitical analysis in the energy complex of the Eastern Mediterranean [in Greek]. Athens: Leimon.

²⁹ Mazis, I. Th. (2019) "Geostrategic gamble – Libya – Eastern Mediterranean – Greek-Turkish Relations". Interview at ERT. Accessed at: <https://www.youtube.com/watch?v=mGgX6k21IPU> [17/6/2020].

³⁰ Naar, I. (2020) "Haftar accuses Erdogan of attempting to revive Ottoman legacy in Libya, region". Al Arabiya. Accessed at: <https://english.alarabiya.net/en/News/north-africa/2020/01/04/Haftar-accuses-Erdogan-of-attempting-to-revive-Ottoman-legacy-in-Libya-region> [29/3/2021].

³¹ Mazis, I. Th. and Troulis, M. I. (2020) Turkish strategy in Libya: Cultural and social causal factors – Cartography of the Libyan crisis [in Greek]. Athens: Leimon. P. 112.

is indicative that Ankara used even Islamist fundamentalists in order to face – armed or not – Kurdish women and undermine Kurdish population’s morale through murders and rapes.³²

Certainly, in order to gain diplomatic assets and strategic legitimization, Turkey is self-presented as an anti-colonial power and cultivates a relevant strategy on this line of thought. Hence, after a resolution of the Turkish Parliament for Turkish forces deployment in Libya in January 2020,³³ “Turkey sent 2,000 troops into Libya in three phases (24 December 2019 300 troops, 29 December 2019 350 troops and 5 January 2020 1,350 troops), just a few days before the Berlin Peace Conference, in which certain decisions were made for disarmament as well as military and paramilitary non-engagement”.³⁴ The established military division was named after Omar al-Mukhtar, the Libyan considered a “symbol” of anti-colonial struggle against middle-war Italy.³⁵

As it is proved by the brief timeline in the beginning of the current paper, January 2021 was extremely important regarding Libyan Civil War and the competition among the major intervening powers. In specific, it was a month that – with Turkey’s presence and Greece’s absence – Berlin Peace Conference took place and a 55-point roadmap was published in favour of peace, but at the same time it was a month that Turkey increased its military presence in Libya against any agreements with regard to military equipment transfer, neglecting the relevant press release of France, Egypt, Cyprus, Greece and the United Arab Emirates, according to which Turkey was asked “to fully respect the U.N. arms embargo, and to stop the influx of foreign fighters from Syria to Libya”.³⁶ A similar stance was kept by Saudi Arabia, having worried about the broadened role of Muslim Brothers in the geopolitical system of Maghreb.

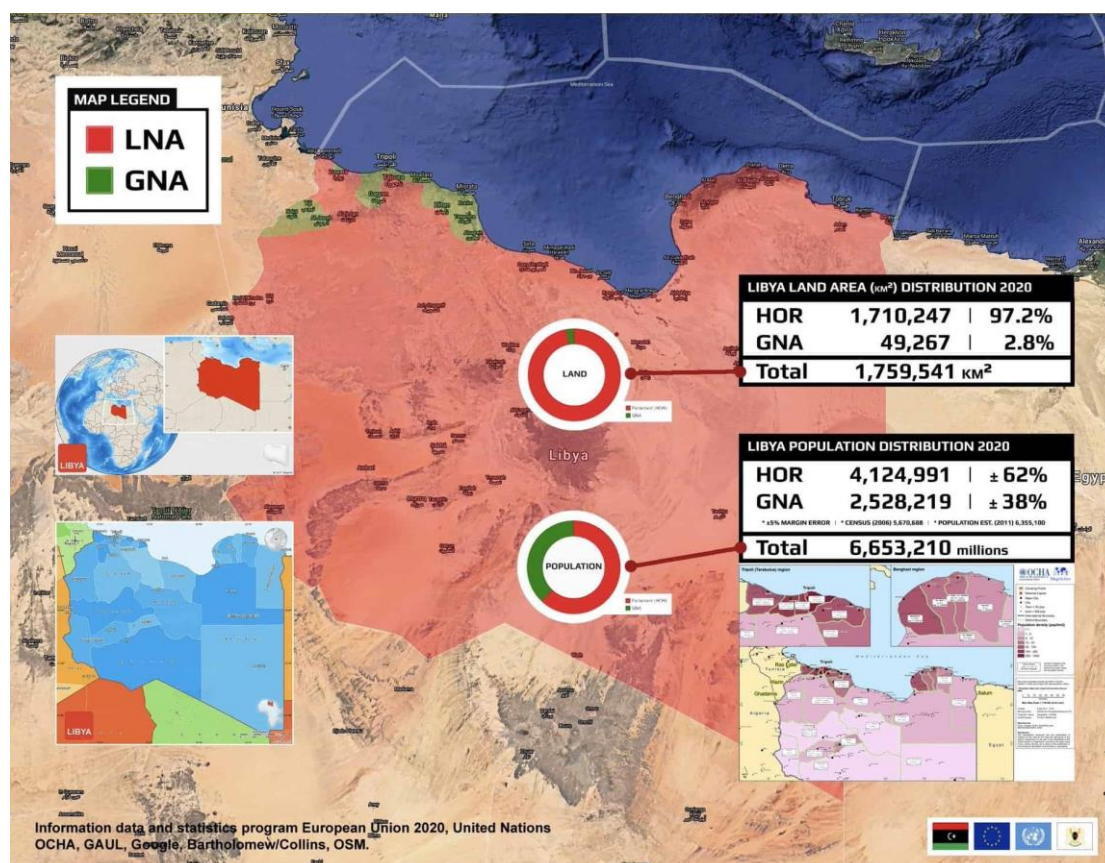
³² Frantzman, S. J. (2021) “Turkey is radicalizing extremists to attack Kurdish women”. *The Jerusalem Post*. Accessed at: <https://www.jpost.com/middle-east/turkey-is-radicalizing-extremists-to-attack-kurdish-women-671544> [30/6/2021].

³³ Beaumont, P. (2020) “Turkish MPs pass bill to send troops to support Libyan government”. *The Guardian*. Accessed at: <https://www.theguardian.com/world/2020/jan/02/turkish-parliament-to-vote-on-sending-troops-to-libya> [29/3/2021].

³⁴ Mazis, I. Th. and Troulis, M. I. (2020) op. cit., p. 114.

³⁵ McKernan, B. and Akoush, H. (2020) “2,000 Syria fighters deployed to Libya to support government”. *The Guardian*. Accessed at: <https://www.theguardian.com/world/2020/jan/15/exclusive-2000-syrian-troops-deployed-to-libya-to-support-regime> [29/3/2021].

³⁶ Sahinkaya, E. (2020) “Why is Turkey involved in the Libyan conflict?” *VOA news*. Accessed at: <https://www.voanews.com/extremism-watch/why-turkey-involved-libyan-conflict> [29/3/2021].



Balance of power in Libya, in 2020, with reference to the two combating fronts; i.e. LNA and the GNA³⁷

Especially the role of France could be decisive for Turkey's dispossession from Libya. It is characteristic that, during the recent NATO Summit, it was affirmed that all the mercenary troops should abandon Libyan soil, while President Macron announced that in July 2021, military operations against mercenary troops – clearly linked to Turkey – could start. However, it is certain that Egypt, the US and Israel's alignment is necessary to this aim. Besides, as President of France declared to President of the US Joe Biden, during that Summit: “a withdrawal doesn't totally depend on the two of us”.³⁸

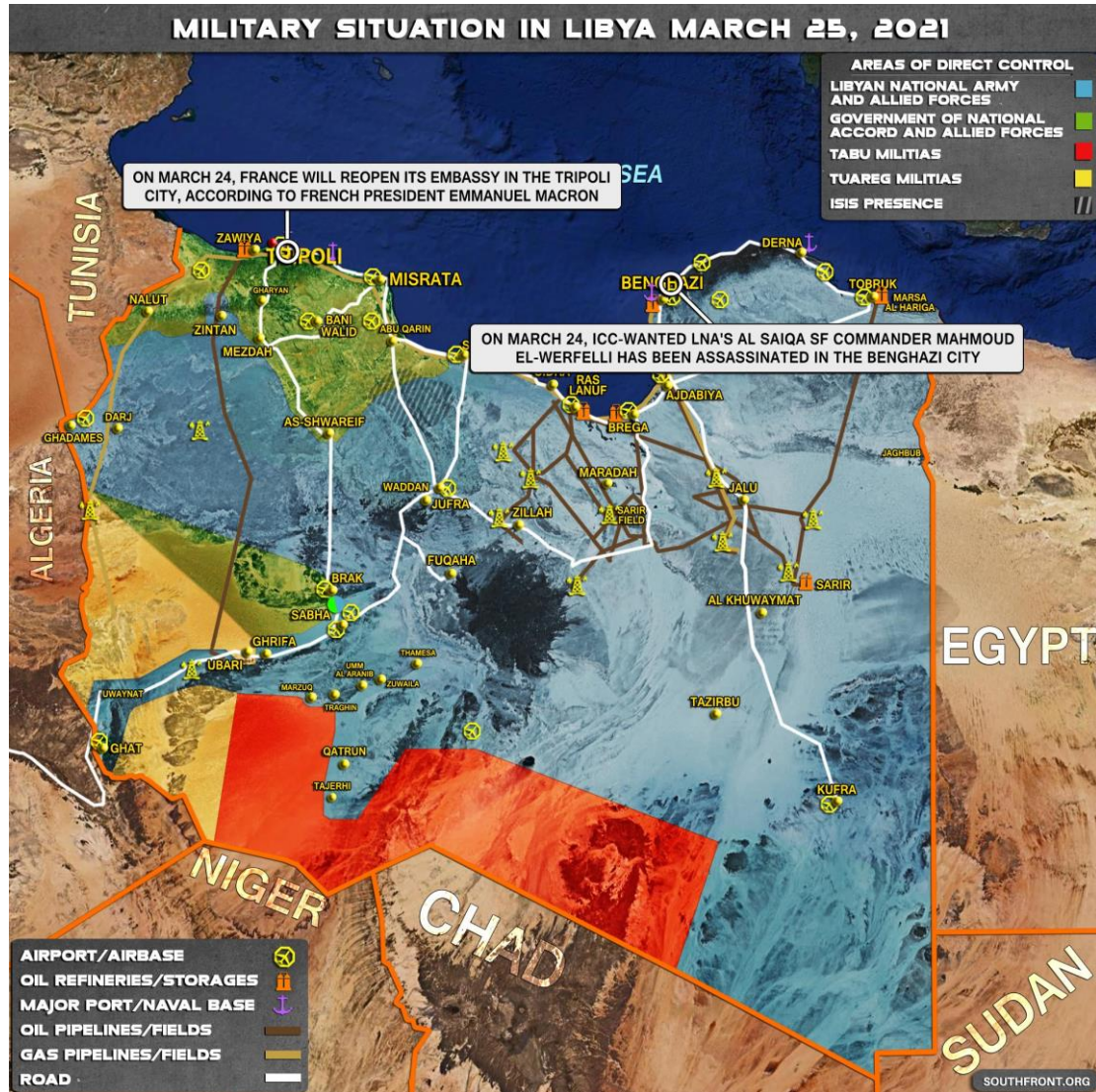
With regard to Saudi Arabia, its anxiety is increased due to Turkey's partnership with Iran on a series of crucial issues, as it is also clarified by Muslim Brotherhood's substance itself, which coordinates Sunnis and Shiites to a certain aim. Due to the range of Turkey's interventionism in the region, this is often defined as “a bigger menace than Iran” even by the Head of Mossad Yossi Cohen.³⁹ This geostrategic behaviour cultivates the prerequisites for anti-hegemonic coalitions from the part of status quo powers and drives the system towards destabilization. In

37 Antonopoulos, P. (2020) “NATO head announces support for Libya's Muslim Brotherhood who aim to steal Greece's maritime space”. Greek City Times. Accessed at: <https://greekcitytimes.com/2020/05/15/nato-head-announces-support-for-libyas-muslim-brotherhood-who-aim-to-steal-greeces-maritime-space/> [29/3/2021].

38 Politico (2021) “Macron pitches Biden on plan to get foreign fighters out of Libya”. Accessed at: <https://www.politico.eu/article/emmanuel-macron-joe-biden-withdrawal-fighters-libya/> [29/6/2021].

39 Boyes, R. (2020) “Mossad thinks Turkey is a bigger menace than Iran”. *The Times*. Accessed at: <https://www.thetimes.co.uk/article/loose-cannon-turkey-is-rattling-its-neighbours-72032kp0z> [30/6/2021].

parallel, Iran is given a “strategic shelter” by Turkey taking the opportunity for a broader role in the Greater Middle East. For instance, in the case of Libya, the beginning of the so-called “Arab Spring” was seen by Iran – as it was clarified by the state-controlled Institute of Contemporary Studies of Tehran in the Persian Gulf and North Africa – as a window of opportunity for “re-affirming Tehran’s relation with the Muslim Brotherhood” and “increasing Iranian influence in the African continent”.⁴⁰



The operational situation in Libya on the 25th of March 2021⁴¹

For a country beset by a civil war, the most effective way of intervention and political influence increase is identified undoubtedly with weaponry of high technological value and with any kind of contribution in the battlefields. Turkey’s first strategic choice is related with military aid towards the aim of predominance in the Libyan political scene and refers to military and paramilitary groups, coordinating and

⁴⁰ Rodríguez, A. (2020) “What is Iran's position in the conflict of Libya?” *Atalayar*. Accessed at: <https://atalayar.com/en/content/what-irans-position-conflict-libya> [29/6/2021].

⁴¹ South Front (2021) “Military situation in Libya on March 25, 2021”. Accessed at: <https://southfront.org/military-situation-in-libya-on-march-25-2021-map-update/> [31/3/2021].

being active and either implementing covert operations, such as SADAT A.S. International Defense Consulting, or acting as mafia organizations such as Ottoman Germania, or mobilized in favour of new members entry for the governing Justice and Development Party (Adalet ve Kalkınma Partisi – AKP).⁴²

The second strategy is linked to programs of military training for units of any origin, implemented by SADAT A.S. International Defense Consulting. The Chief of SADAT A.S. Adnan Tanrıverdi has noted characteristically that: “Turkey has close social, economic and political relations with more than 35 Saharan and Sub-Saharan countries in Africa. [Turkey] carries out [military] activities with some of those countries in accordance with military training cooperation agreements [...] Almost all the young African states need special training programs for high-level officers in their internal [police] and external [military] security forces. Turkey provides its capabilities to most of those countries free of charge in the context of military aid packages”.⁴³

Turkey’s third strategy refers to modern military equipment, with international media reporting indicatively that “Turkey provides the weapons, Qatar the funds”,⁴⁴ while excessive examples concern Turkish UAVs of Bayraktar TB2 type, constructed by Baykar, family business of Recep Tayyip Erdoğan.⁴⁵ Military diplomacy is very important for every peer regional hegemon, since it reflects the two pillars of power; on the one hand, defence industry being absolutely profitable business for the hosting country and on the other, it is a comparatively advantageous field for the producing country to assert political influence, due to the great importance of military equipment programs. As it was summarized in the book “Turkish strategy in Libya: Cultural and social causal factors – Cartography of the Libyan crisis”:

“Turkey’s involvement in the Libyan Civil War via para-military groups, which are inclined to be defined as Islamist organization due to their relevant rhetoric, represents undoubtedly an integral part of Turkey’s overall strategy, identified with its predominance in North Africa and the Eastern Mediterranean. A core aim is the minimization of costs in human casualties as well as in economic terms, in order to expand its influence in the Greater Maghreb region and to escalate Egypt’s security dilemma, under the relevant rhetoric cover. If Turkey succeeds in its strategic aims, it will have cultivated all the necessary preconditions for Sisi’s Egyptian government undermining and this will affect directly Muslim Brotherhood’s total footprint in the Greater Middle East. Turkey has intervened in Libyan affairs using paramilitary organizations and merchant troops, whose alignment is gained with great amounts of money and the mobilization of populations’ religious sentiment, since other actors – such as Germany – could not intervene operationally due to historical and practical reasons. Ankara’s proxy war has been funded

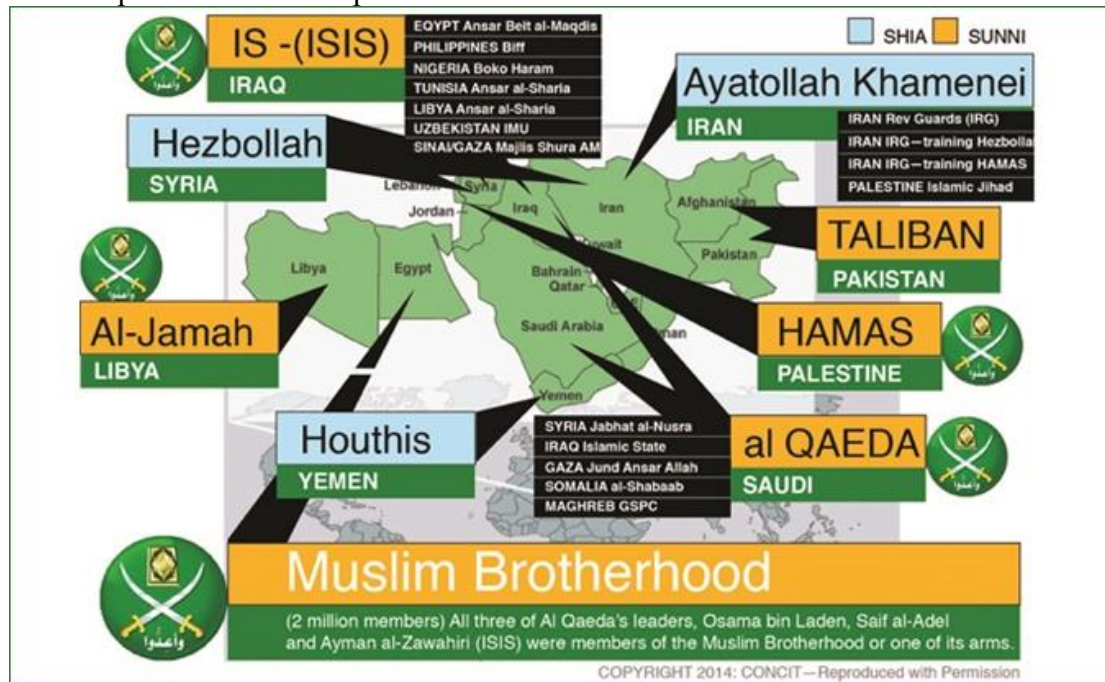
42 Cubukcu, S. (2018) “The rise of paramilitary groups in Turkey”. *Small Wars Journal*. Accessed at: <https://smallwarsjournal.com/jrnl/art/rise-paramilitary-groups-turkey> [29/3/2021].

43 Nordic Monitor (2020) “Turkey’s paramilitary contractor SADAT eyes training African troops via defense deals”. Accessed at: <https://www.nordicmonitor.com/2020/05/turkeys-paramilitary-contractor-sadat-aims-at-training-african-troops-with-the-help-of-defense-cooperation-agreements/> [4/4/2021].

44 The Arab Weekly (2020) “*In Libya, Turkish mercenaries continue to flow from Syria*”. Accessed at: <https://the arabweekly.com/libya-turkish-mercenaries-continue-flow-syria> [4/4/2021].

45 Tastekin, F. (2019) “Turkish drones in Libya are a strategic and family affair”. *Al-Monitor*. Accessed at: <https://www.al-monitor.com/pulse/originals/2019/09/turkey-gulf-libya-is-becoming-a-scene-of-proxy-war.html> [4/4/2021].

basically by Qatar, a fact indicative of the broader geostrategic gamble referring to the presence of the Muslim Brotherhood in the region,⁴⁶ while this broader and higher stake is, also, seen via Israel's strategic partnership with the United Arab Emirates. Turkish mobilization of Islamist networks and paramilitary organizations represents a choice of cost minimization and anti-hegemonic coalitions deterrence or, at least, their suspension until a specific balance of power to be formed in the field".⁴⁷



Muslim Brotherhood's activities in the geographical complex of the Greater Middle East⁴⁸

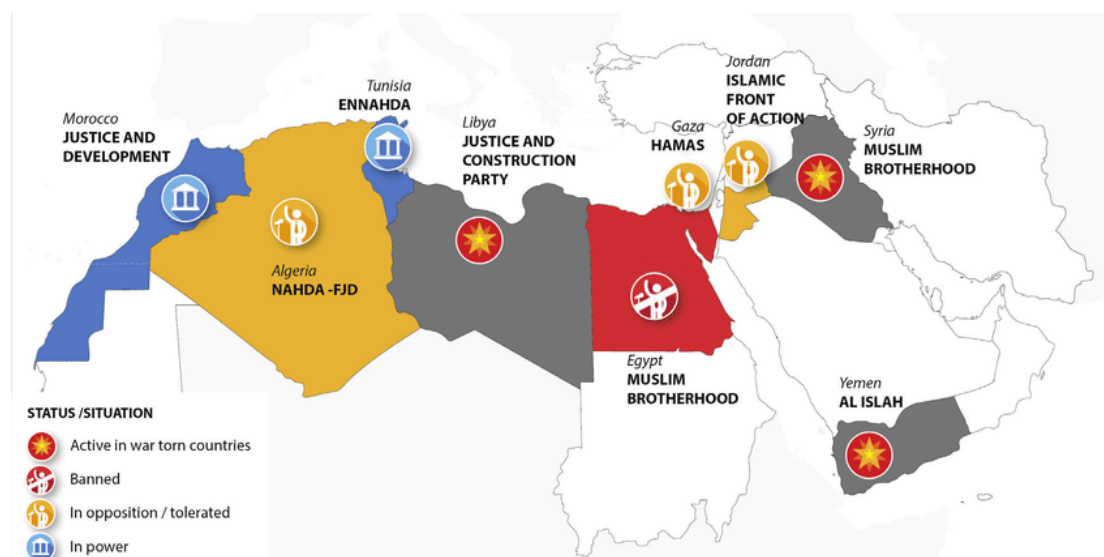
4. Turkey's relations with the Muslim Brotherhood

Turkey's linkages to the Muslim Brothers still remain strong, having allowed Ankara to project influence in geographical zones that until recently this had been unthinkable. In parallel, the Muslim Brotherhood offers a cloak of faith and reason for Muslim populations of the Greater Middle East towards specific political and strategic directions. In Egypt, there is undoubtedly a clear dynamic and its access to governance is profoundly cut due to the presence of General Sisi. In Morocco and Tunisia, the Muslim Brothers participate in political system, while in Algeria and Jordan it is recognized in political opposite. In Iraq and Yemen it is engaged in conflicts for the next day. Libya represents an example, belonging to the last group of cases, since the Muslim Brotherhood has a clear say towards the elections of the 24th of December 2021, while its so-called "moderate" part participates in the Transitional Government.

46 The Guardian (2020) "Idlib to Tripoli: Turkey moves to dominate eastern Mediterranean". Accessed at: <https://www.theguardian.com/world/2020/may/26/from-idlib-to-tripoli-turkeys-grab-for-influence-in-libya> [4/4/2021].

47 Mazis, I. Th. and Troulis, M. I. (2020) op. cit., p. 120.

48 Organiser (2018) "The Venomous Brotherhood". Accessed at: <https://www.organiser.org/Encyc/2018/9/10/Muslim-Brotherhood.html> [28/3/2021].



The Muslim Brotherhood network in the Greater Middle East in 2017/18

The coordinated strategy of Turkey and the Muslim Brotherhood reached its peak during the so-called “Arab Spring”. A central axis of this strategy was the increase of Turkish soft power in the Greater Middle East via the upgrade of the “Republic of Turkey” to a “model” of Muslim country, which has high living standards and it participates in the international system equally to the Great Powers. For this reason, the used strategic means refer mainly to the media sector, as the strategic image of Turkey was prioritized to be promoted within the societies of the complex of the Greater Middle East. According to Edip Asaf Bekaroğlu:

“During the ‘Arab Spring’, these older ties between the MB and JDP have been intensified. Turkish media too focused on the MB during the demonstrations. In the earlier stages of uprisings in Egypt, Star and Zaman emphasize how MB hesitated to declare explicit support of the protests until the fourth day (“the Friday of Anger”) because of not provoking the regime, and yet how MB’s participation grow the size of demonstrations”.⁵⁰

Bekaroğlu notes that the AKP has been attractive to Islamists of Egyptian origin due to its 20-year-long electoral success and its efficiency to rule Turkish bureaucracy.⁵¹ Furthermore, the contact of Muslim Brotherhood with “secular” and more “westernized” Turkey has provoked a change in its rhetoric and consequently, its mere coordination with modern socio-economic narratives, without missing the ipso facto political dimension of Islam, since “Islam is more than a religion – it is an ideology that must be represented in power”.⁵² Conversely, the Islam-oriented strategic behavior has become attractive to Turkish elite, offering the means to project

49 Meddeb, H. et al. (2017) “Religion and politics: Religious diversity, political fragmentation and geopolitical tensions in the MENA region”. *Middle East and North Africa Regional Architecture*, 7, pp. 1-38.

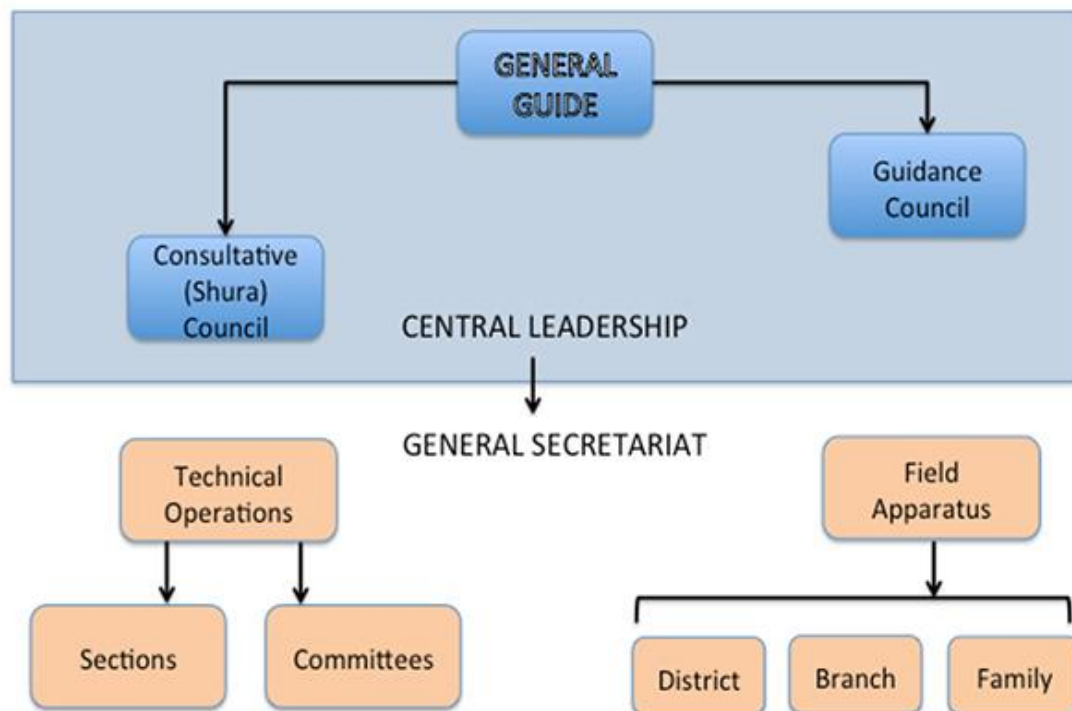
50 Bekaroğlu, E. A. (2016) “Justice and Development Party and Muslim Brotherhood in the ‘Arab Spring’”: A failed post-Islamist interaction to transform the Middle East”. *International Journal of Social Studies*, 2 (1), p. 5.

51 Bekaroğlu, E. A. (2016) op. cit., p. 10.

52 Ayyash, A. (2020) “The turkish future of Egypt’s Muslim Brotherhood”. Accessed at: <https://tcf.org/content/report/turkish-future-egypts-muslim-brotherhood/?agreed=1&agreed=1> [8/5/2021].

power in Maghreb, where the powerful secular state mechanisms – having existed until quite recently – did not allow any interventions of such kind during the last decades.

The Muslim Brotherhood in Egypt: General Organisational Structure



The organizational structure of Muslim Brotherhood in Egypt⁵³

Currently, Egypt has a stable secular bureaucracy, standing against Turkish strategic initiatives. At the same time, the dynamic of Muslim Brotherhood in Egypt is manipulated by Ankara. An indication of this Turkish strategy was the arrest of Irshad Hoz in Egypt, an agent of Turkish MIT accused that he organized the transfer of weaponry and militias for Egypt's Muslim Brotherhood,⁵⁴ while many groups of the organization (15,000 to 30,000 Egyptians participating) are hosted by Ankara and act coveredly under Turkey.⁵⁵ This reality east of Libya as well as Brotherhood's broadened role in Tunisia (i.e. west of Libya), represents the crux of the matter when referring to Turkey's economic and strategic interests in Maghreb.

On the one side of the coin, this is about Turkey's soft power but, on the other side, Muslim Brotherhood has been defined a terrorist organization by pivotal states of the Arab World such the United Arab Emirates, although the members of the Egyptian sector consider Recep Tayyip Erdoğan their "political mentor" and a "close

53 Egypt Evidence (2015) "The history of the Muslim Brotherhood". Accessed at: <https://www.egyptevidence.com/the-history-of-the-muslim-brotherhood/> [8/5/2021].

54 Al Arabiya News (2013) "Turkey's relationship with the Muslim Brotherhood". Accessed at: <https://english.alarabiya.net/perspective/alarabiya-studies/2013/10/14/Turkey-s-relationship-with-the-Muslim-Brotherhood> [8/5/2021].

55 Farooq, U. (2017) "Turkey nurtures Egypt's 'terrorist' Muslim Brothers". *Daily Beast*. Accessed at: <https://www.thedailybeast.com/turkey-nurtures-egypts-terrorist-muslim-brothers> [8/5/2021].

ally”.⁵⁶ For them, the so-called “Turkish model” is still favoured and it could be cultivated within Muslim societies. It is worth to be mentioned that, in macro-historical terms, decolonization has taken place quite recently and thus, they are considered to search for a leading power, such as Turkey, to support their Islam-oriented demand.

Military crackdown on Muslim Brotherhood garners sympathy



Correlation of power and spheres of influence in the Greater Middle East in 2019⁵⁷

Under these terms, any Turkish effort to approach Saudi Arabia, the United Arab Emirates and Egypt is proved vain, due to deep structural antagonisms. An indicative example refers to the 10 conditions of Egypt to Turkey for a possible re-establishment of bilateral relations. These Sisi's conditions to Neo-Ottoman Turkey are the following:

- 1) No maritime demarcation between the two sides without rules of the international law. It is necessary that Turkey undertakes to adhere to maritime international law. Ankara has so far refused to sign or recognise this law.
- 2) There would be no political communication until Cairo is sure about the compliance of the Turkish side to general observance. The communication would remain solely at the security level since political communication does not occur with states that sponsor terrorism, according to Egypt.
- 3) There would be no Egyptian-Turkish agreement in the East Mediterranean except after a Turkish comprehensive agreement with the European allies, and specifically with the Greek and Cypriot sides.
- 4) Turkey's departure from Libya politically, militarily and security wise; abandoning the Libyan file completely and pledging to withdraw the mercenaries it brought to the Libyan territories.

⁵⁶ McElroy, D. (2020) “Turkey provides base for ‘20,000 Egyptian Muslim Brotherhood’ supporters”. *The National News*. Accessed at: <https://www.thenationalnews.com/world/turkey-provides-base-for-20-000-egyptian-muslim-brotherhood-supporters-1.1065871> [8/5/2021].

⁵⁷ Vision of Sid (2019) “Unfolding Muslim Brotherhood”. Accessed at: <https://visionofsid.com/2019/04/01/unfolding-muslim-brotherhood/> [28/3/2021].

- 5) Putting forward a timetable for the withdrawal of Turkish troops from northern Syria and signing a binding agreement with the Iraqi government pledging never to intervene in Iraqi territories.
- 6) The negotiations would have to include the Saudi and UAE sides and Turkey would have to apologise for the offences perpetrated in recent years by Turkey against the Gulf States. Furthermore, Cairo would not conclude any understandings with Turkey unless Ankara pledges not to ever intervene in the affairs of the Arab states and to observe the contours of Arab national security.
- 7) Stopping all Muslim Brotherhood media outlets that attack Egypt in particular and the Gulf States in general. Turkey would also be banned from embracing any political activity by the Muslim Brotherhood on its territories.
- 8) Freeing the hand of Interpol to deal with all those who are wanted and happen to be present on Turkish soil and not objecting to European authorities, specifically, dealing with them (Cairo does not request their extradition and does not intend to). It is to be noted that Ankara has offered to hand them over to Egypt in batches so as to appease the Egyptian side.
- 9) The Egyptian security authorities would monitor the behaviour of the Turkish regime and check the extent of its compliance with these conditions in the coming period. And before engaging in any other communication, a report will be submitted by the Foreign Ministry to the Egyptian political leadership about this.
- 10) Turkey would not be invited to join the East Mediterranean Forum before Egypt, Greece and Cyprus have agreed to maritime demarcation in the Mediterranean and to the aforementioned conditions.⁵⁸

Thus, it is clarified – either by content or by wording – that the aforementioned conditions were posed to be rejected. As it has been already mentioned in the current study, actors such as Greece and Cyprus represent core targets of Neo-Ottoman revisionism and they could not be equally included in Turkey’s strategic planning, while Turkey’s close relation with the Muslim Brotherhood is undoubtedly a major problem for Turkish-Egyptian possible dialogue and exceptionally costly for Ankara, in case of a retreat on this. Besides, Muslim Brotherhood is proved an ipso fact strategic weapon referring both to soft power (influence on media, propaganda etc.) and to hard power, since Ankara’s linkages to the organization have offered the framework for militias recruitment and their deployment in Syria, Iraq, Libya and beyond. Hence, the broader dynamic of this relation directed or endeavoured to direct the correlations inside neighbouring and destabilized Libya. Turkey’s support to the Libyan sector of the Brotherhood has been profound, at a time that the Transitional Government in Tripoli demands the withdrawal of foreign merchant militias from Libyan soil and Turkey hardly coordinates with the decisions and petitions of the

⁵⁸ Middle East Monitor (2021) “Egypt editor reveals 10 conditions that Turkey must meet”. Accessed at: <https://www.middleeastmonitor.com/20210314-egypt-editor-reveals-10-conditions-that-turkey-must-meet/> [30/6/2021].

Great powers and the Quartet for Libya (i.e. United Nations, European Union, Arab League and African Union) as well as Libya itself of course.⁵⁹

5. Conclusion

The substance of Turkish-Egyptian antagonism with reference to Libya – and the Muslim Brotherhood as a factor of contention – indicates that it is geostrategically indigenous. On the one side of the coin, the so-called “Turkish model” defines Islamic fundamentalism at the epicentre, but also with important burdens derived from Ankara’s historical relation with the Greater Middle East. On the other side of the coin, in Egypt there is a substantial dynamic of the Muslim Brotherhood, but also the geopolitically competitive regime of Sisi. In practical terms, in the case of Turkish-Egyptian competition in Maghreb, a conflict of interests can be observed,⁶⁰ which has clear geostrategic implications and historical references. Nevertheless, the basic aspect is identified with balance of power and actors’ endeavours to re-distribute this power in their favour, with faith and religion to only represent ideological tools for strategic legitimacy and not causal factors themselves. Maximization of Turkish power has urged Ankara to express a narrative for covering its expansionist claims within the region and look for a leading role in the geographical zone of the Greater Middle East.

Generally, Turkey’s intervening policies in Libya via the Muslim Brotherhood has proved that there is full convergence of interests and priorities in the reading of security challenges and opportunities in the Greater Middle East, especially in Maghreb. As it has been clarified, “the Muslim Brothers, being Erdoğan’s weapon, proceed into a transcendence endeavoring to link the two big tendencies of Islam; i.e. Sunnis and Shiites. Their aim is to create a strong pillar under surveillance located in Qatar”.⁶¹ As a consequence, the organization of Muslim Brotherhood is defined as Turkey’s strategic weapon, identified with its indigenous geostrategic aims, which are clearly broader and extend beyond Libyan borders. Turkey’s increase of influence in Maghreb offers a pressure tool towards both Egypt and Greece, in terms of disputing the second’s legal rights with regard to sea zones at Crete’s south. In parallel, it contributes to Ankara’s strategic image towards its effort to acquire a leading position in the Muslim world.

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The new UAVs airbase in Cyprus and how Israel is affected

Abstract:

Turkey, trying to balance the effects of the arms embargo without halting the expansion of its expansionist ambitions, has embarked on a frantic pace of production of unmanned aircraft (UAVs) and surface vessels (USVs) operating from all its military and civilian air bases.

Its latest move is the announcement of the creation of a base of unmanned aircraft in the occupied area of Republic of Cyprus, the operation of which affects all neighboring countries.

In this analysis we will look at, how much Israel is affected by the upgrade of airbase of Lefkoniko for unmanned aircraft in Cyprus.

Keywords: Turkish Unmanned Aerial Vehicles, UAVs, TB-2 Bayraktar, Akinci, ANKA, Aksungur, Turkish Occupation in Cyprus, Turkish Air Base in occupied area, Ulaq, Lefkoniko, Tymvou, Famagusta.

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1. Analysis

The issue of upgrade the Lefkonikos airbase for use for Unmanned Aerial Vehicles (UAVs) in Cyprus has resurfaced with the statements of the Turkish president.

What exactly is the strategic and tactical footprint of this move?

To study the above question, let's see which airports (AP) are in the occupied areas at this moment:

1. The illegal AP "Ercan" in the village of Tympou, from where the illegal flights of the Turkish and the so-called "Pegasus" airlines are served and is one of the illegal gateways to the occupied territories. Let us say here that this AP was built by the British during World War II, for their then military needs. After the war, it was used as the headquarters of the 31st Special Forces Squadron.



After the invasion, the occupying forces expanded the corridors and improved the facilities. It even took the name of Major Fehmi Ercan, who was the Aviation Liaison of the Commander of the 50th Infantry Regiment, Colonel Ibrahim Karaoglanoglou, who, along with others, were killed by friendly anti-tank fire on the 20th of July 1974 at Kyrenia.



Ercan's grave in Kyrenia cemetery (source: 24h.com.cy)

2. The small corridor (1.3km) in the occupied village of Krini, where the headquarters of the Army Air Force Command of the occupying forces are located, where Cougar and Blackhawk helicopters are stationed.
3. The AD of Lefkonikos, which as of December 2019, is used as a base of the Turkish Navys UAVs. In fact, at that time, there were reactions from the Municipality of the occupied village, which were confronted by the occupying authorities with excuses such as that the MEAs that will land there will **NOT** be armed.



TB2 in AP of Lefkonikos. Observe the cultivated soil and the mountain range of Pentadaktylos in the background (source: hellasjournal.com)

Prior to the first landing of UAV in this AP, the pseudo-administration of the occupiers had sent a request to Turkey and had approved in the pseudo-parliament the use of AD by them.

Until now, however, there was no permanent establishment in Lefkonikos, but individual or pairs of UAVs were relocated from Dalaman AB. Therefore, Erdogan's announcement may signal the permanent installation of a larger number of UAVs, and this justifies the additional work that will take place in the Lefkonikos AP as the present installations are substandard and cannot serve large numbers. According to our information, the AP of Lefkonikos will be named after Inspector Ercan (while that of Tymbou will be renamed AP Fazil Küçük).



Propaganda photo of AP Lefkonikos by Turkish UAV. We re-emphasize the cultivated soil (source: alphanews.live).

Another thing that was said by the Turkish president was that there is no need to relocate AF fighters to Cyprus as the AB of Konya and Antalya are very close to the island.

However, this is not the main reason for not relocating AF to the occupied territories. It is that of the three APs, the only one that can serve fighters is that of the Tymbou. F16 relocation in Cyprus would be a major tactical mistake, as this AP is only 7 km away from the confrontation line.

In other words, it is within range of even the mortars of N.G!!!

This problem for Turkey and the occupying forces also applies to the other two APs, as Lefkoniko is 27 km away while Krini is 10 km from confrontation line. In addition, for anyone familiar with the occupied territory, it is easy to understand that a curved orbit fire from the N.G against the three APs will be particularly targeted, as the ground is flat. (about Cyprus read the analysis: "Fighting in Cyprus. Myths and Realities " <https://www.amynageostratigiki.eu/l/polemontas-stin-kypro-mythoi-kai-pragmatikotites/>)

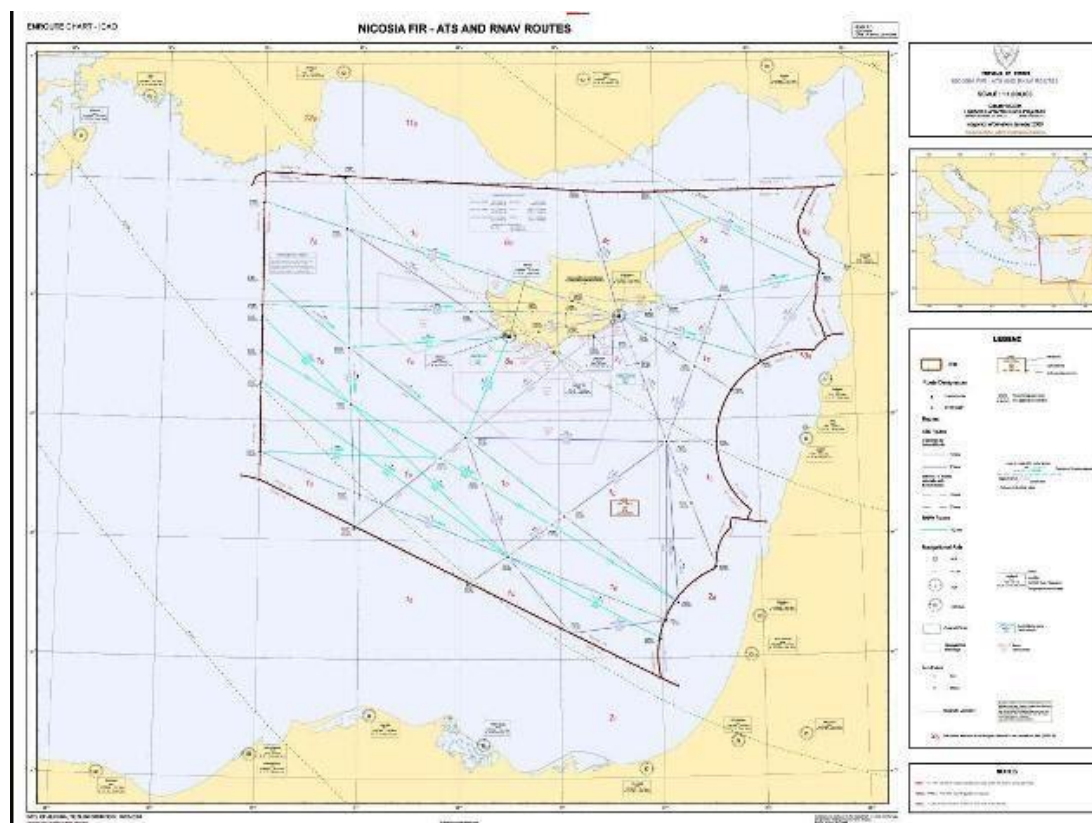


Map showing the three illegal APs of the occupied area. On the left, on the southern fringes of the Koztakaya hill the small AP of Krini. In the center the AP of Tympou and on the right that of Lefkonikos (source: google maps with our editing)

We must emphasize that the "airspace" of the occupied area belongs to the Nicosia FIR. The borders of the Nicosia FIR were set in 1959, during the period when Cyprus was under English occupation. After independence, the borders did not change, not even with the accession of the Republic of Cyprus to ICAO on December 18, 1961, during the work of the 14th meeting of the Organization in Rome. The Nicosia FIR has an area of 175,000 square kilometers, 19 times the area of the National Airspace of Cyprus.

The disproportionate size of the Nicosia FIR, in relation to the territory of the Republic of Cyprus, is due to the fact that the British had managed, due to their influence within the ICAO structures, to determine the current boundaries of the Nicosia FIR in order to control, but also the economic exploitation of flights in the wider hub of the Eastern Mediterranean.

All flights to and from the three AD of the occupied areas are a violation of the Nicosia FIR. We believe that the illegal MEA flights in the Nicosia FIR are already recorded and the list is submitted where it should be. We should also say that the Turkish political AFs that fly within the Nicosia FIR, normally pay the fees to the Republic of Cyprus, which is an indirect recognition of this and its FIR.



Map showing the Nicosia FIR. Notice the very good work done by the British (source: Rep. of Cyprus). Keep this map in mind as "Map 1"

The same applies to the "airspace" of the English bases. It is an airspace of KD and part of the Nicosia FIR, something that would change if the Annan plan was voted on.

2. How Israel is affected ?

For the NG on a regular level nothing changes. The AP continue to be within range and in fact in our opinion, the UAVs that may act against it, it is preferable for the NG, to take off from Lefkonikos. Because very simply the Observers of National Guard Air Force Command with binoculars will mark the UAVs at the take-off. We are not exaggerating. One must have seen the occupied territory for oneself to understand the situation.

For the Rep. of Cyprus, however, it is a first-class opportunity to respond to the escalation and to request the relocation of swarms of Hellenic Airport jet fighters to Pafos Air Base. From this point on, Turkey has no other level of escalation. We explained why.

Strategically and tactically, those affected are **mainly Israel** and **secondarily Egypt**.

Keep this map in your memory as "Map 3"

If we place Maps 1, 2 and 3 on top of each other, we realize that there is a large area of the Israeli EEZ (the one bordering Cyprus mainly), in which the water belongs to the Israeli EEZ, but the air to the FIR Nicosia !!!

Therefore, the most probable way for Turkey to act is to:

- Harassment of Israeli hydrocarbon mining platforms located in the above area. The difficulty in this is that the Israeli Air Force will not be able to intercept the Turkish UAVs without the approval of the Republic of Cyprus. We estimate that these actions will take place using TB-2 and ANKA. There will inevitably be an anchoring of Israeli naval forces near the platforms with anti-aircraft missions.
- Surveillance, Electronic Interception and Electronic Warfare Operations using ANKA - I, on the mining platforms but also in the ports of Tel Aviv and Haifa, as they will fly to the eastern border of FIR Nicosia
- Operations targeting critical Israeli targets north of the Gaza Strip using TB-2 and ANKA and transferring firing elements to Hamas and Hezbollah rocket launchers.
- Hamas and Hezbollah observation and warning operations on IDF movements using TB-2 and ANKA – I
- Impact operations (if required) using TB-2, ANKA - B carrying airborne bombs (such as those shown in the previous images), alone or in combination with rocket attacks by Hamas and Hezbollah to saturate A / A grid of Israel.
- With the operational integration of Akinci, Aksungur, but already with the use of ANKA - S and TB-2 S, they can also use the Batman air base and others of course of eastern Turkey and through Syrian and Lebanese airspace to attack from multiple directions. Of course, there is a limitation here that the strengths of the Turkish satellite system have limits and can withstand a certain number of MEAs guided through it.

4. Ways of dealing with:

We believe that the most correct way to deal with it is prevention. The Turks should not dare to use Lefkonikos or Tymvou en masse (at this stage only one UAVs from Lefkonikos is operating, which is relocating there from Dalaman Air Base).

- Exerting political pressure on the Ukrainian government **not to transfer know-how to the powerful engines for Akinci and Aksungur.**
- Exerting political pressure on the US, Canadian and British governments to further increase the arms embargo.
- This could possibly be achieved, with the conclusion of an Israel-Cyprus-Greece agreement which would provide for the relocation of Israeli and Greek aircraft to Paphos Air Base.
- In addition, the installation of Iron Domes and / or David's Sling systems on the territory of the Rep. of Cyprus would help with the mantle that these are Cypriot systems, which installation would be accompanied by an announcement that Israeli aircraft will now defend Cypriot airspace and Nicosia FIR.



In addition to the Lefkonikos air base, the Turks aim to establish a naval base in Trikomo, north of Famagusta, from where unmanned vessels Ulaq will be able to operate.

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Table of acronyms:

<u>Acronyms</u>	<u>Mean</u>
UAV	Unmanned Aerial Vehicle
AP	Airport
AB	Airbase
AF	Aircraft
NG	National Guard
EEZ	Exclusive Economic Zone
IDF	Israeli Defense Forces

Blue Hydrogen – A strong potential bridge between Europe, Middle East & North Africa Countries under the Green Deal strategy

Abstract:

This paper is a preliminary assessment of blue hydrogen's role as a key driver for the geopolitical stability at the Eastern Mediterranean Basin's geographical complex. The basic understanding is that an expansion of European climate policy towards the eastern Mediterranean basin is feasible. The energy transition period towards a carbon free technology is not only economically driven; it can lead to geopolitical regional stability for the benefit of the European Union and the bordering eastern Mediterranean countries; a successful transnational cooperation between the EU and Israel, Libya, Lebanon and Egypt can lead to a long-term expansion of the same cooperation model with the Middle East major natural gas suppliers. We present the main European Green Deal targets and how these targets may be projected to the Eastern Mediterranean expanded region via its policy convergence mechanisms. Under this umbrella, we present basic development scenarios of possible blue hydrogen production from natural gas suppliers in the eastern Mediterranean and their European prospective.

Key Words: Energy Geopolitics, Blue Hydrogen, EU Climate Policy, MENA region

JEL: F18, F51, O13, O44, O53, Q34, Q48

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1. European Green Deal

Energy as a good, adds massive value to modern life: from having light at night, running machinery or connecting with people across the world, by being important factor for poverty alleviation, economic growth and improved living standards (E Panos, 2016). Over the last years, the European Union has made significant progress in promoting energy efficiency action, renewable energy deployment and greenhouse gas (GHG) emissions reductions, resulting in a very ambitious strategic plan, the “European Green Deal (EGD)” comprised by a set of 50 actions across all sectors to prepare the EU economy for climate neutrality by 2050.

For Europe’s sustainable future, the EGD targets, even if considered ambitious, present a real opportunity to boost investments in clean energy transitions. EU funding instruments are available across the entire innovation value chain, with programs for energy research, development and demonstration (RD&D), such as Horizon Europe, the Innovation Fund, the Modernization Fund, InvestEU and others (IEA, 2020).

Furthermore, EU rules and legislation, both in EU and regional level, for state aid and sustainable finance will play a key role not only for Europe’s internal market, but also for the markets of neighboring countries and especially the EMEA region. The new EU taxonomy for sustainable finance is going to guide public and private finance flows in energy transition and strategic energy investments in order to strengthen its energy security and cooperation. Thus, European Commission will need to take into account all possible opportunities for EU industrial leadership and large-scale investment opportunities in technology and innovation, including Blue & Green Hydrogen, offshore wind and related renewable energy infrastructure in the region.

As the energy transition is taking place at a very fast pace domestically, the EU should not take its energy security for granted, notably as members states’ energy transitions are national in scope and do not regularly account for cross-border impacts and the regional geopolitical setting. Energy security is a key priority, as countries phase out coal and retire nuclear baseload and see domestic gas production falling in the coming years, while increasing generation from variable renewables like wind and solar PV and strategic fuels, such as Hydrogen (IEA, 2020).

As a next step, the EU needs to fully implement and guarantee the envisaged regional approach by building on regional security and defense cooperation mechanisms with neighboring countries. This is a prerequisite if natural gas, as a regional trading good, has a key role to play, as it can boost coal to gas switching (in particular in Central and Eastern European countries) and support the transition to cleaner fuels, including hydrogen.

This paper will study further the role of gas in EU’s pathway to decarbonization and the contribution of the most important gas infrastructure in EMEA to the upcoming EU hydrogen strategy.

2. Europe’s presence in MENA region – Policy convergence mechanisms

As for Europe’s external relations, European Commission has launched its European Neighborhood Policy (ENP) that among others, cover Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria, Tunisia, etc and aims to strengthen the prosperity, stability, and security among them.

More specifically through this framework, the EU offers its neighbors a privileged relationship, building on a mutual commitment to common values, such as

democracy, rule of law, best practices in governance, market economy principles and sustainable development.

In 2011, the EU reviewed the ENP and, responding to developments in Arab countries, strengthened its focus on promoting deep and sustainable democracy and inclusive economic development, while on March 2019, the European Parliament passed a resolution on the post-Arab Spring and the way forward for the MENA region, which acknowledged some democratic gains in the region but also called for further economic, democratic and social reforms (European Parliament, 2019).

The key EU financing instrument for bilateral cooperation from 2014 until today, in order to support the fulfilment of the ENP objectives, was the European Neighborhood Instrument (ENI), with an allocation of EUR 15.4 billion, whereas the new Neighborhood, Development and International Cooperation Instrument (NDICI) – ‘Global Europe’ – will frame the EU’s cooperation for the period 2021-2027. The instrument’s approach includes grant funding as well as blending grants with loans from European and international financing institutions, with an overall allocation of EUR 79.5 billion (F., Jongberg, Trapouzanlis, Carmona, & Oaida, 2021).

In addition, the EU has launched the Union for the Mediterranean (UfM). A framework that includes the 27 EU Member States, the European Union and 15 Mediterranean countries (Albania, Algeria, Bosnia and Herzegovina, Egypt, Israel, Jordan, Lebanon, Mauritania, Montenegro, Monaco, Morocco, Palestine, Syria - whose membership is suspended because of the civil war-, Tunisia and Turkey). Furthermore, the League of Arab States has participated in all meetings since 2008 and Libya has observer status (Union for the Mediterranean, 2021).

It was officially launched in 2008 at the Paris Summit as a continuation of the Euro-Mediterranean Partnership (Euromed), also known as the Barcelona Process. The UfM is inspired by the goals set out in the Barcelona Declaration, namely to create an area of peace, stability, security and shared economic prosperity.

The PA-UfM has five standing committees, each consisting of 56 members:

- 1) Political Affairs, Security and Human Rights
- 2) Economic and Financial Affairs, Social Affairs and Education
- 3) Improving Quality of Life, Exchanges Between Civil Societies and Culture
- 4) Energy, Environment and Water
- 5) Women’s Rights in Euro-Mediterranean Countries

In order to support the implementation of the above highlighted areas, the Commission released in February 2021, a joint staff working document by the title “Renewed Partnership with the Southern Neighborhood Economic and Investment Plan for the Southern Neighbors” which includes a series of preliminary flagship investments and projects that could be financed under the Neighborhood, Development and International Cooperation Instrument (NDICI) (European Commission, 2021).

Some of the policy cooperation proposals connected to energy, environment and green transition in MENA region, proposed under NDICI, are (European Commission, 2021):

- **Regional:** The EU will provide technical assistance and support access-to-finance for key sustainable value chains and clusters in sectors with the potential for economic integration and export, to help them integrate into regional and global value chains. Furthermore, in order to meet the scale of investment required and help public authorities whether central government or local authorities, to raise the necessary capital from both national and

international private investors, the EU will explore ways to deploy innovative financing instruments, including Green Bonds, in line with the EU taxonomy, and where appropriate. The EU could support the regulatory framework at country level and support capital market development to create conducive conditions for green bond issuances.

- **Algeria:** The EU will support Algeria in its efforts to develop further a green and circular economy, which optimizes preserves and protects environment and the sustainable use of natural resources. The hydrocarbon sector is the backbone of the Algerian economy and the main contributor to GDP and the state budget with energy transition as a key priority. The EU will support Algeria's efforts to exploit its considerable but largely untapped potential of renewable energy (solar and wind) and to optimize energy efficiency. The diversification of the energy mix will allow Algeria to strengthen its position in evolving international energy markets, with demand shifting from fossil to green energy, while enabling the country to manage its domestic energy consumption in a sustainable manner.
- **Morocco:** In line with the "EU-Morocco Green Partnership", the EU will accompany and fast-track the transition to a circular, low emissions, inclusive and resilient economy, including through measures aiming at strengthening the circular economy, boosting the energy transition and supporting sustainable investments. Also, the EU will continue to support renewable energy infrastructure – notably through the EFSD+, and to strengthen its technical and financial cooperation with a view to accelerate the production of green hydrogen.
- **Egypt:** The EU will support Egypt's transition to a green economy. This includes support to universal access to affordable, reliable, and modern energy services, increasing substantially the share of renewable energy in the global energy mix, radical improvements in energy efficiency, enhancing international cooperation to facilitate access to clean energy research and technologies, including renewable energy and energy efficiency, and promote investment in the sector.
- **Jordan:** The EU will support the implementation of the 2020-2030 energy sector strategy, which has a focus on maximizing local sources and enhancing further use of natural gas and renewable energy sources. The energy sector main priorities lie within the energy-water-food nexus, such as pumped storage projects, maximisation of the use of green energy and energy efficiency for water pumping and wastewater treatment as well as desalination and further use of renewable energy within the agriculture sector.
- **Israel/Palestine:** The EU will invest funds, in the construction of Gaza's gas pipeline. It will also coordinate and invest in the Gaza Central Desalination Plant and Associated Works programme. Together, these investments can lead to a step change in access to clean and affordable water and electricity, contributing to development, humanitarian needs and stability.

3. Blue Hydrogen & related technologies

Hydrogen is gaining a lot of recognition the last few years, due to its important role in EU's energy transition planning. Its use as a "versatile energy carrier" can play a significant role in decarbonizing the global economy and achieving the very high ambitious sustainability goals that Paris Agreement has set (Calabrese, 2021).

Demand for hydrogen, which has grown more than threefold since 1975, continues to rise – almost entirely supplied from fossil fuels, with 6% of global natural gas and 2% of global coal going to hydrogen production, as shown in the graph below (International Energy Agency, 2021).

Global demand for pure hydrogen, 1975-2018

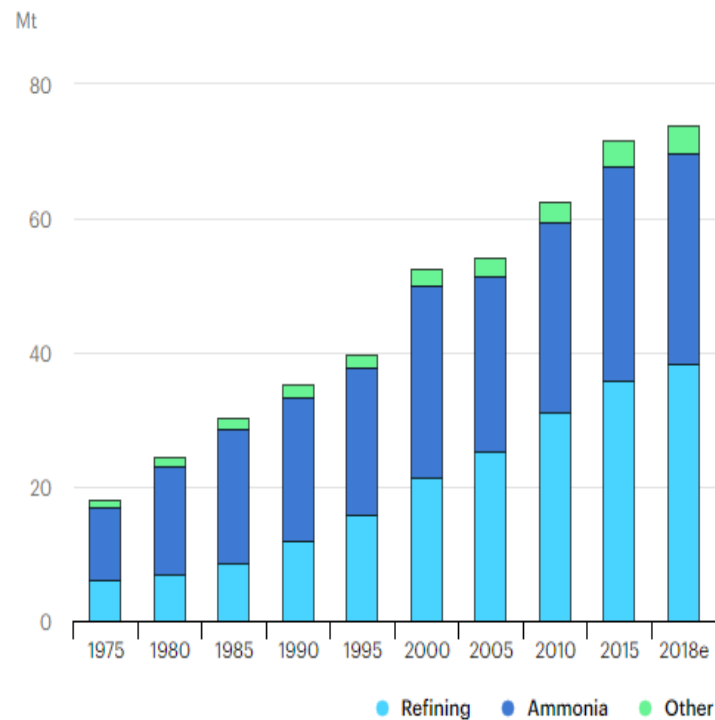


Figure 1: Global demand for pure Hydrogen, 1975-2018 (Source: IEA 2021)

Hydrogen has multiple advantages. The fuel is light, storable for relatively long periods of time, reactive, and has high energy content per unit mass, which means it can be readily produced at industrial scale. There are four main sources for the commercial production of hydrogen:

1. Natural Gas
2. Oil
3. Coal
4. Electrolysis

The following figure highlights the color codes standards of the energy industry describing the various hydrogen types per source of production.

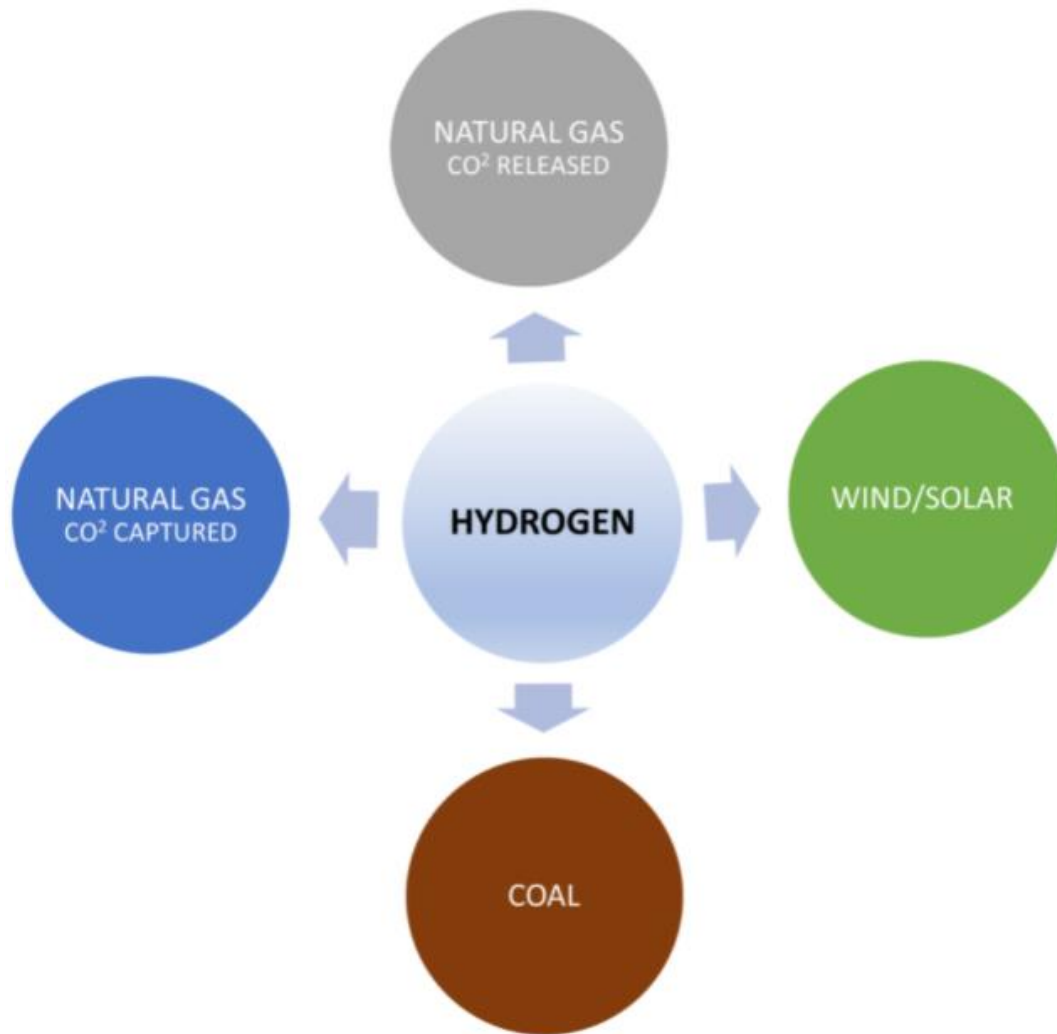


Figure 2: Color codes for different types of Hydrogen (Source: Middle East Institute, 2021)

Hydrogen from natural gas is produced through a process involving water called “steam reforming” that generates large volumes of CO₂. If the emissions generated from this process are captured and stored through industrial carbon capture and storage systems, the hydrogen is considered “Blue”. In any other case, hydrogen is considered “Grey” (Liebreich, 2020).

In general, developing “Blue” hydrogen production, which utilizes natural gas, carbon capture and storage technology is commonly viewed as a bridge in the global energy transition to greener technologies. Globally, production capacity of blue hydrogen is expected to grow significantly over the next decade (J Robinson, 2020) and though it is considered low-emitting (meaning that its production is not completely without carbon emissions), it does fall well within emissions limits in most states globally (Bajic, 2020).

4. Gas Reserves & Production in MENA region

Endowed with half of the world's known oil reserves, the Middle East and North Africa (MENA)³ region is at the forefront of the global energy sector. Besides that, the Middle East has also significant amount of natural gas reserves, as the region holds approximately 38% of the world's total proven natural gas reserves (NS Energy, 2019).

Total Natural Gas proved reserves at end 2020 (in tcf) (BP, 2021)			
No	Country	Volume	% of total
1.	Iran	1133.6	17.1%
2.	Qatar	871.1	13.1%
3.	Saudi Arabia	212.6	3.2%
4.	United Arab Emirates	209.7	3.2%
5.	Iraq	124.6	1.9%
6.	Algeria	80.5	1.2%
7.	Egypt	75.5	1.1%
8.	Kuwait	59.9	0.9%
9.	Libya	50.5	0.8%
10.	Oman	23.5	0.4%
11.	Israel	20.8	0.3%
12.	Syria	9.5	0.1%
13.	Bahrain	2.3	0.02%

Source: BP - "Statistical Review of World Energy 2021"

Total Natural Gas production for 2020 (in bcm) (BP, 2021)			
No	Country	Volume	% of total
1.	Iran	250.8	6.5%
2.	Qatar	171.3	4.4%
3.	Saudi Arabia	112.1	2.9%
4.	Algeria	81.5	2.1%
5.	Egypt	58.5	1.5%
6.	United Arab Emirates	55.4	1.4%
7.	Oman	36.9	1.0%
8.	Bahrain	16.4	0.4%
9.	Kuwait	15.0	0.4%
10.	Libya	13.3	0.3%
11.	Iraq	10.5	0.3%
12.	Syria	3.0	0.1%
13.	Israel	-	-

Source: BP - "Statistical Review of World Energy 2021"

³ MENA region consists of: Iran, Qatar, Saudi Arabia, Algeria, United Arab Emirates, Egypt, Oman, Kuwait, Bahrain, Iraq, Libya, Israel, Syria

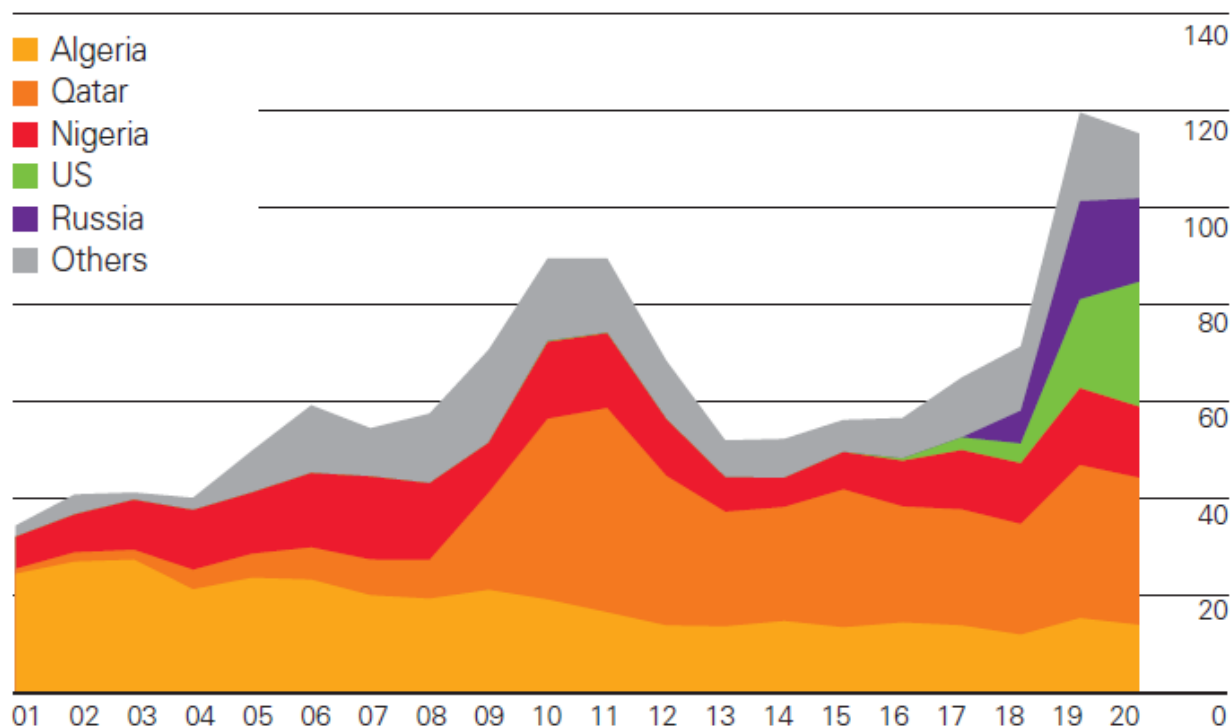
The MENA region's geographic position and its natural resources, throughout history, have given it immense strategic importance and its circumstances have become closely linked to the stability of the rest of the world. As HE Abdalla S. El-Badri, former OPEC's Secretary General, said in his speech at the "Middle East & North Africa Energy, Investing for the Future in Turbulent Times" conference, "This is why MENA region should always be kept in a state of peace and tranquillity" (El-Badri, 2012).

The global low-carbon energy transition though poses critical questions to MENA oil and gas producers, as it may imply sustained pressure on their development models, which rely heavily on hydrocarbon revenues, which in turn will be translated into macroeconomic and social unbalances (Tagliapietra, 2019).

Therefore, the need to support economic diversification and energy transition not only domestically, but also outside of the EU must become a top priority, not only in terms of Climate Change and Sustainability, but also in terms of security and prosperity, especially in the turbulent Middle East and North Africa. A region that EU heavily relies to meet its energy needs in LNG, as shown on the next graph.

LNG imports by source: Europe

Billion cubic metres



Source: BP - "Statistical Review of World Energy 2021"

Blue hydrogen is an excellent alternative fuel bridging the gap between Europe's Green Deal strategies and Gulf countries, as it can increase the cooperation potential in various energy related economic sectors (logistics, construction, etc) and decrease the concerns of Arab countries about Europe's new goals on energy and sustainability. Bridging this gap will be mutually beneficial, as Europe will benefit by diversifying

its energy mixture and increasing its energy security with reliable alternatives, while Arab countries will use economic diversification and technology innovation in order to transform their economies towards a more sustainable future, depending less on fossil fuels.

In general, blue hydrogen can pave a smooth transition path for hydrocarbon exporting and producing countries to a non-carbon based situation, without confronting the latter with huge financial constraints, political and economic instability or outright conflict (Widdershoven, 2021).

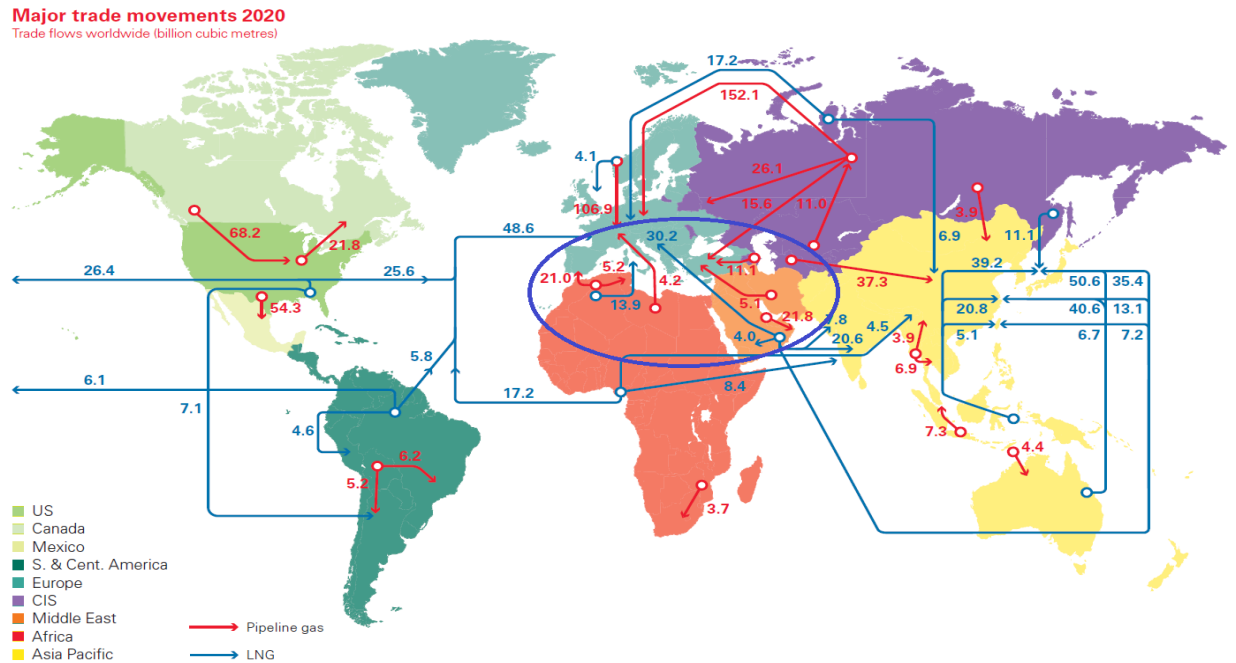
5. Key Blue Hydrogen projects per country

With an increased focus on electrification of the economies through low- or zero-carbon sources, hydrogen is emerging as a promising energy carrier, but at the same time its cost elements and export potential will determine if it emerges as a strong export proposition from the MENA region. As the cost profiles of renewable energy sources decline due to advancements in technologies mainly solar, wind and electrolyzers, green hydrogen is expected to become more cost-competitive over time. However, due to low natural gas prices in the MENA region, blue hydrogen will play a key role in the short to medium term (Benali L., 2020).

Europe and the Mediterranean region have interdependent, complementary and converging energy interests based on the priorities of the green and fair transition and energy security (European Commission, High Representative of the Union for Foreign Affairs & Security Policy, 2021), such as (Met-TSO, 2020):

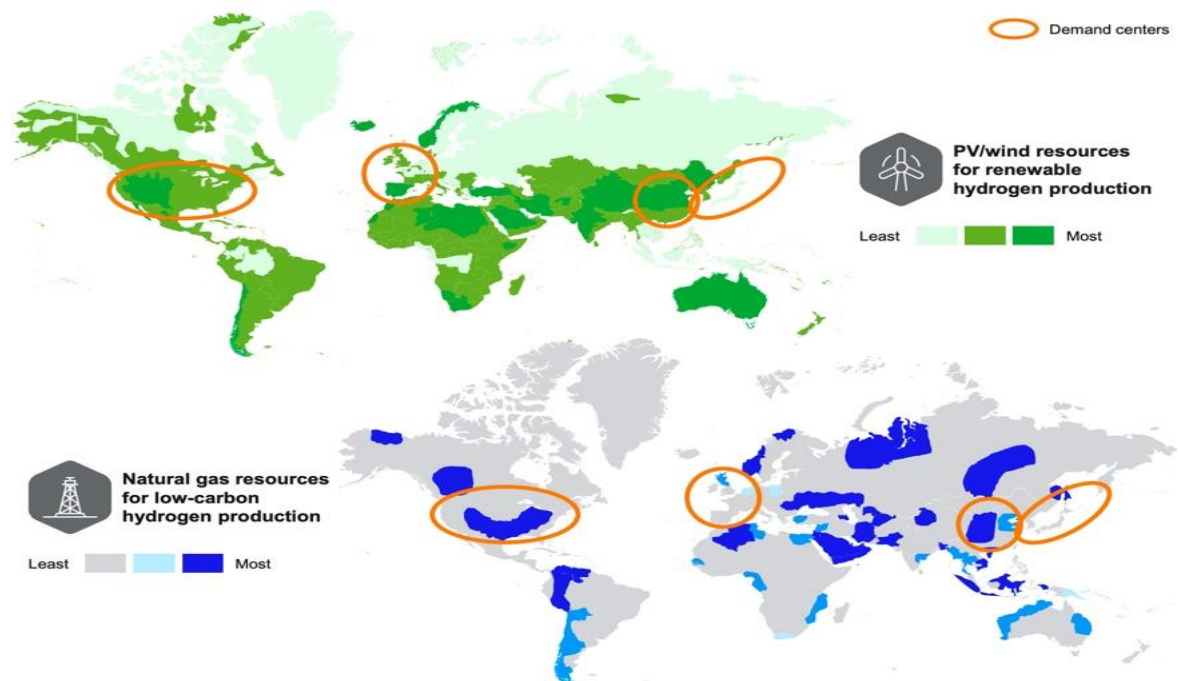
- (i). massive deployment of renewable energy and hydrogen production in the EU Neighborhood by 2030
- (ii). a stronger interconnection of electricity systems
- (iii). energy efficiency efforts and measures, with a focus on buildings and appliances
- (iv). policies to address fugitive methane emissions from fossil fuel production, transport and use, in line with the framework set in the EU methane strategy

Specifically, for blue hydrogen, a large portion of the EU's energy needs in gas is currently covered by the MENA region, both by pipelines and LNG carriers. The major trade movements of 2020, thus interdependency for potential blue hydrogen, are represented on the following map.



Source: CISStat, HIS Markit, PIRA Energy Group, Waterborne, Wood Mackenzie

The same potential for hydrogen production is shown on the map taken from the recent Hydrogen Insights Report, by the title “A perspective on hydrogen investment, market development and cost competitiveness”, authored by the Hydrogen Council in collaboration with McKinsey & Company.



Source: The Hydrogen Council, McKinsey & Co, “Hydrogen Insights Report”, February 2021

The Gulf Arab states are among a growing number of countries that have released or been working on national hydrogen strategies aimed at developing hydrogen

technologies (Calabrese, 2021). In early 2020, Dii and its partners — Acwa Power, NEOM, Thyssenkrupp, Abu Dhabi Future Energy Company (Masdar), MAN Energy Solutions, MASEN and Fraunhofer — launched the MENA Hydrogen Alliance, a platform for public and private sector actors as well as science and academia to kick-start local hydrogen economies and explore export revenue opportunities (Dii, n.d.).

Saudi Arabia

Saudi Aramco have begun to position themselves as blue hydrogen players and are assessing the potential for future export markets. Their access to low-cost gas resources is a strong competitive advantage, along with the fund allocation into carbon capture and storage R&D programs.

Worth-mentioning outcome of this strategy is the collaboration between Aramco and the Japanese think tank IEEJ on a pilot project that shipped 40 tons of blue ammonia to Japan, with further shipments expected to follow (Klaus, 2021). Furthermore, Saudi Aramco has signed already two MoUs, one with South Korea's Hyundai Heavy Industries Holding Company to provide liquid petroleum gas (LPG) to convert to blue hydrogen (Lee H., 2021) and one with Japan's largest refiner, Eneos, in order to develop a CO₂-free hydrogen and ammonia supply chain (Kumagai T., 2021).

United Arab Emirates

In Abu Dhabi, ADNOC recently joined forces with sovereign fund Mubadala Investment Co. and local group ADQ to set up the “Abu Dhabi Hydrogen Alliance”, a very promising alliance that will focus on domestic blue and green hydrogen development. ADNOC is already applying Steam Methane Reforming with Carbon Capture Use and Storage systems at its existing Al-Reyadah plant. The facility has capacity to capture 800,000 tons of CO₂ annually from local steel producer Emirates Steel Industries for injection into the Rumaitha and Bab oil fields to boost production. This is set to increase to 5 million tons per year by 2030, which would make it one of the largest CCUS schemes in the world (Klaus, 2021). Furthermore, ADNOC agreed to collaborate with South Korea's GS Energy on potential development of new value chains for blue hydrogen and carrier fuels, such as blue ammonia (ADNOC, 2021).

Egypt

In a move to develop further its hydrogen strategy, Egyptian Electricity Holding Company along with Natural Gas Holding Company has signed an agreement with the Italian company ENI in order to assess projects of hydrogen production in Egypt. The assessment will look how green and blue hydrogen will affect the potential domestic market demand for hydrogen and propose export potentials (Widdershoven, 2021).

Qatar

Qatar holds a huge natural gas resource base and has invested heavily in emerging CCS capacity. The gas-rich Gulf state is boosting its CCS capacity to 7 million tons/yr by 2027, while blue hydrogen produced by the steam reforming of natural gas is expected to play a major role in the country's export portfolio (Calabrese, 2021).

Kuwait

Kuwait is also exploring opportunities in hydrogen, with Kuwait National Petroleum Company announcing the “Clean Fuels Project” in order to upgrade downstream

operations included construction of a new hydrogen plant at the Mina Abdullah Refinery (Saundalker, 2020), while the Kuwait Institute for Scientific Research successfully launched an experimental prototype of an electric vehicle powered by solid hydrogen (Calabrese, 2021).

Algeria

Holding vast natural gas assets already in Algeria, one of Europe's main gas suppliers, ENI also is assessing potential blue hydrogen development projects. The company is at present even in discussions to acquire more upstream gas assets from other international oils, such as BP's stake in the In Amenas and In Salah gas plants. So, a combined ENI-BP blue hydrogen option is also still on the table, as both holds vast gas assets in Algeria and Egypt (Zohr, Noor-1, Shorouk). Furthermore, the fact that Algeria has a vast gas pipeline infrastructure to Europe could be an additional future advantage, for the country's potential blue hydrogen exports (Widdershoven, 2021).

Bahrain

Even though Bahrain isn't one of the largest players in MENA region, the MoU recently signed between Bahrain's Oil and Gas Holding Company, the National Oil and Gas Authority's investment arm, and Air Products suggests that Bahrain has begun to assess its hydrogen options (Calabrese, 2021).

6. Eastern Mediterranean Gas Pipelines

Although the past decade has been considered successful in respect of new gas reservoir discoveries across the eastern Mediterranean basin, their development, and the associated project delays with regards to offshore natural gas reserves exploitation among the eastern Mediterranean basin countries has been restrained to domestic consumption, mainly in and between Israel and Egypt. Many transnational cooperation projects involving Greece, Cyprus, Israel and Egypt have been progressing at a slow pace. Delays in field developments, pipeline constructions and power energy cables interconnecting the eastern Mediterranean countries with the EU grid can be attributed to a poor understanding of the regional geopolitical setting. The EU's South Gas Corridor is an ambitious but necessary and geopolitically critical concept. In the Eastern Mediterranean basin, the South Gas Corridor is expressed by (not only) the East Med Pipeline project, connecting the Aphrodite Gas Field located at the borders of the Cypriot and the Israeli EEZ. In fact, this project would not only end the energy isolation of Cyprus compared to the rest of EU countries but would, for the first time in the region's history, physically and geographically connect Israeli natural gas resources with Europe and possibly extend the system's design to include Egypt in the same system. The geopolitical significance of this pipeline is evident; the first geographically mapped connection between Israel, Cyprus, Greece, and Egypt (possibly on a later stage). So why is it that a project that can lead to this significant cooperation scheme and lead to prosperity is not progressing at a fast-track pace but rather the opposite?

The reasons are geopolitical in nature. To the authors' knowledge the geopolitical risks and the mitigation factors have had a less significant role in decision making due to their nature; the chaotic structure of geopolitical components could not be easily modelled within any political and economic model for business development; that is because geopolitics goes well beyond business perspectives. In that sense, economic models and related decision-making processes are developed for investments, and

whether or not they are state or private investment or a combination of both, their main driver is economical growth. From a geopolitical point of view, any such model will not withstand the test of time; they will probably fail unless the following systemic factors are accounted for

1. Political convergence of state actors. Do they share the same values and how are they measured?
2. Cultural background of every state actor and its wider acceptance from other actors in the geographical complex.
3. Each nation's defense and security mechanisms to protect their national interest.
4. Energy resource's role for each regional state's economic development in the sense of technological convergence in a regional scale, security of energy supply and the respective transnational trading corridors, regional trading balance, etc.

If we examine a high-level strategy under these conditions, we end up realizing that the Eastern Mediterranean Basin is a highly challenging geographical region where the above factors are summarized as

1. A subsystem of Greece, Cyprus (the Republic of Cyprus) and Israel closer to western democratic values and governance systems.
2. Egypt, the major stability factor of the Eastern Mediterranean Basin, closer to a more authoritarian regime but also closer to the western world and its systemic influence in business and trade.
3. Turkey, a nation state exhibiting extreme authoritarian governance characteristics that diverge from the European Union's democratic values since the AKP party came into power.
4. Lebanon and Palestine, nations of political instability, either due to corruption or the unresolved territorial issues with their neighboring country, Israel.

In this paper, we will not engage in a thorough and deep analysis of the geopolitical confrontations between the state actors of the Eastern Mediterranean basin. Many rigorous and thorough analyses describe the conflicting issues between Turkey and the other neighboring nations are described in numerous publications referring to the deteriorating relationship between Turkey and the European Union, especially since Turkey's entry in Syria, the increase of illegal immigrants' flows from Turkey to Europe, its military presence in Libya and the signing of the illegal MoU regarding the delimitation of its continental shelf with Libya, disregarding Greek sovereignty and sovereign rights.

This paper will focus in one main issue that may prove to be a potential conflict resolution driver: the adoption of the European Climate Strategy by all national actors of the Eastern Mediterranean Basin. Though the goals of the EU are to zero the GHG emissions within the EU territory by 2050, its energy transition policy and the use of blue hydrogen (targeting at 2030) can be geographically extended to the Eastern Mediterranean region, in terms of policy and financial mechanisms.

This would presumably succeed to bridge the regional economies and the respective energy trade balance with the EU and achieve the following goals/scenarios.

1. MENA – EU geopolitical ties and stability via the East Med pipeline. The EastMed pipeline project is in progress and funded by the EU can open the blue hydrogen market access to Israeli natural gas resources (in the short term) and Middle East (in a mid-term basis). With the backup and support of Israel, Cyprus and Greece expressed by the MoU signed at the trilateral meeting in Nicosia in 2020 and the support of industry stakeholders such as Energean Israel, a Greek owned company operating in Israeli EEZ that signed a pre-agreement for the supply of 2 bcm of natural gas on an annual basis from Karish Field to the pipeline the project seems to be on track and the prospects are promising. This support from regional industry players combined with the exploitation of Aphrodite and Glafkos Gas fields (located in Cyprus and owned by Chevron and Exxon respectively) guarantees the commercial viability of this project and provides, most likely, the foundation for a future expansion of the pipeline system to other Middle East natural gas suppliers.
2. Under the assumption that the East Med pipeline construction will come to fruition by 2025, the following scenarios should also be assessed.
 - a. Greece will undoubtedly be required to ensure the supply of the pipeline with additional natural gas resources. The 10 bcm supply required for the East Med pipeline will lead to new natural gas exploration activities with the Greek continental shelf limits. The East Med pipeline itself cannot be economically viable unless gas resources of at least double of the required capacity are made available.
3. The Greek government's positive action towards exploration activities will add another component to the utilization of natural gas as a trading good with Egypt and Libya; supplying natural gas to Egypt and converting it to electric power is a win-win situation for all of the stakeholders involved.
 - a. It can either be transported to Europe via an electric cable or
 - b. converted to blue hydrogen in facilities constructed in Libya and Egypt. The latter has additional benefits, a strong Libyan and Egyptian infrastructure in terms of blue hydrogen supply either via pipelines or LNGs.

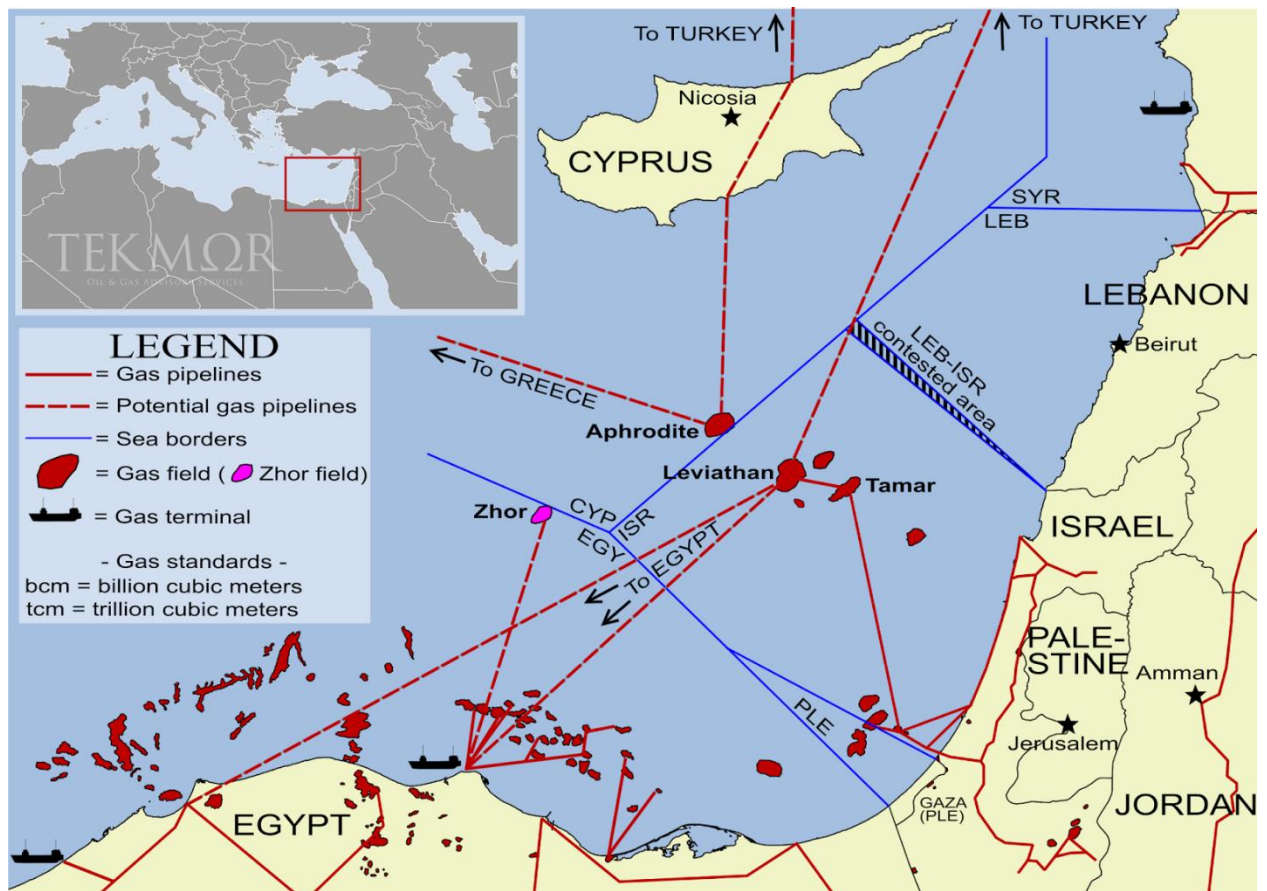


Figure 3. The pipeline interconnections in the Eastern Mediterranean Basin indicating the significant role of Egypt as a potential blue hydrogen regional hub connected with the EU.

We should not underweight the significance of the development of the Libyan economy in terms of a greener energy supply and infrastructure. Europe must understand that the development of the North Africa zone will eventually lead to the mitigation of migration phenomena from the African continent to Europe via prosperity and stability in Egypt and Libya⁴

⁴ Magreb is not part of this study but their significance should be noted in a broader geopolitical and development context.

As it stands, the migration crisis has given birth to issues/problems that require a closer attention and transnational cooperation from 2021 onwards. As stated by (Sgouros & Mazis, 2021) the humanitarian crisis is related to emerging security issues for Europe including the role of political Islam and can be considered a bottleneck towards the social cohesion of EU entry states. The geopolitical stability and energy infrastructure developments in North Africa is one of the most critical components that combined with the improvement of life quality in N. African states, may decrease, or mitigate, the risk of uncontrolled immigration flows towards Europe; the timing towards this change is now given the opportunity to restructure the regional energy sector towards blue and green hydrogen technologies.

7. Conclusion

An international hydrogen market is emerging, and MENA region has a major role to play. Energy security, political stability and sustainable development are only some of the aspects that should be taken under consideration, as hydrogen is drawing a new geopolitical map and shapes new relations between EU and MENA.

Geopolitical theories alone cannot describe and analyze in full potential this emerging energy issue if they don't consider technological and resource availability aspects and vice versa. Current Oil & Gas producers in MENA region have a lot to gain by positioning themselves as secure and reliable hydrogen producers, in order to preserve or gain a geopolitical influence. Respectively, EU will need to import hydrogen, in order to meet its very ambitious climate targets.

Therefore, governments and companies should have a top priority to build stable connections and cooperate harmonically in order to keep security and stability in the region. Without a clear alignment across countries agendas, there is the risk that different visions intersect and may not lead to an optimal deployment of the available resources. To do so, policies and roadmaps need to consider uncertainties and challenges, and regularly adapt to new knowledge and realities (Noussan M., 2021). A role that EU should acknowledge, pursue, and actively lead in the journey to becoming the world's first successful emissions - neutral continent.

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Sustainable Management of Forest Ecosystems: The Views and Attitudes of Primary School Teachers in the Regional Unit of Evros, Greece

Abstract:

Forest ecosystems are the main source of life on our planet, providing multiple benefits of unique importance to the environment and humans. However, nowadays, forests are facing many serious problems, such as forest fires with thousands of hectares being destroyed on an annual basis, causing further environmental issues. For this reason, there is an urgent need for sustainable management of forest ecosystems in order to tackle these problems effectively and to ensure that future generations will enjoy the benefits of forests. In order to achieve this, education and, in particular, primary school has a key role, as environmental knowledge will be transferred through the school and environmental education, generating environmentally friendly attitudes for tomorrow's citizens. For this reason, teachers need to have environmental knowledge, to be trained and prepared.

The present work aims to explore the views and perceptions of primary school teachers regarding sustainable forest management, through a questionnaire survey targeted to the primary school teachers of the Prefecture of Evros.

The results of the research show that the majority of primary school teachers understand the importance of forest ecosystem services. Teachers generally adopt sustainable views and attitudes regarding the management of forest ecosystems. In addition, the vast majority of respondents recognize the crucial role offered by Environmental Education as educational service for forest ecosystems.

Keywords: Environmental Education, Sustainable Forest Management, Primary Education, Teacher's views and attitudes

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1. Introduction

Forests produce goods and utilities and perform several important functions, with multiple benefits and invaluable services to economy, society and environment. Through photosynthesis, they capture and store huge amounts of carbon dioxide (CO₂) from the atmosphere and convert it into biomass. They are also the main source of timber, which is an important natural, renewable, reusable and recyclable resource (European Commission, 2013). In addition, forests are an important habitat for a huge variety of plants and animals, hosting a total of 80% of the world's terrestrial biodiversity, while more than 3 million people live in forests (WWF, 2020). Among the others, forests offer multiple intangible services to humans, such as entertainment and well-being. (Bastrup-Birk, 2016). In modern society with the rapid pace, rapid development of technology and urbanization, the services offered by forests for the use of leisure are more evident (FOREST EUROPE, Liaison Unit Bratislava, 2019).

Moreover, forests play a crucial role in mitigating the phenomenon of climate change (Mengist & Soromessa, 2019). The forest functions, which comprise all goods and services provided by forests, are grouped into four main categories in the international literature (Wullschleger 1982, Gatzojannis 1988, Pelz 1995 in Galatsidas 2001):

1. Production functions (timber, firewood, resin, cork, game animals, fruits, mushrooms, aromatic and medicinal plants, etc.)
2. Protection functions (protection of water resources, protection of human settlements from natural hazards and from annoyance, protection of soil against water and wind erosion, etc.)
3. Recreation functions (recovering in leisure time, landscape enjoyment, environmental education, nature experience, etc.)
4. Environmental functions (maintenance of flora and fauna, contribution to water cycle, air quality and CO₂ sequestration, moderation of local and global climate, etc.)

The functions of the forest ecosystem are in constant interaction with each other and contribute significantly to human well-being (Costanza et al., 2017). The importance of them varies and depends on many factors, such as the geographical, ecological and socio-economic environment of the study area (Mengist & Soromessa, 2019). However, the challenges for forests remain multiple. The most important is the human pressure for the construction of transport networks and the expansion of the urban tissues (Bastrup-Birk, 2016). The balance between the exploitation of forest ecosystem services for human well-being and the conservation of ecosystems should be the basis for achieving sustainable development (Rukundo et al., 2018).

To achieve sustainable development, education has a key role, transmitting knowledge and creating attitudes to young citizens through Environmental Education (E.E.) programs (Siskou & Siskou 2016, Myrtsidis 2019). Forests are one of the main axes of the programs of E.E. and several educational programs are implemented in Greek schools regarding forest ecosystems (Ministry of Education & Religious Affairs, 2020). The purpose of these programs is to raise the awareness of students and to acquire knowledge and environmental attitudes. Students through the various phases get to know the forest and its biodiversity, understand the long-term relationship between the forest and society, be aware and understand the importance of sustainable forest management. In addition, they learn to work together as a team and treat with respect every form of life that exists in our planet.

The aim of this paper is to investigate the views and attitudes of primary school teachers of the Regional Unit of Evros related to the sustainable management of forest ecosystems. In particular, it is attempted to capture and analyze teachers' perceptions of forest ecosystems and the importance of the services they offer.

2. Materials & Methods

Study Area

The Regional Unit of Evros, which is part of the East Macedonia and Thrace region, is the geographical area of research. The population of Evros is 147,530 according to the latest population census (2011). Capital of the Regional Unit is Alexandroupolis, home of the Evros Forest Directorate, which is the largest directorate of forests of the General Directorate of Forests and Rural Affairs of the Decentralized Administration of Macedonia-Thrace, which covers a total amount to 4,242 sq. km (General Directorate of Forests and Rural Affairs of the Decentralized Administration of Macedonia-Thrace, 2020).

The population of the research consisted of the teachers at all school units of Primary Education of Evros Regional Unit. According to the data of the Evros Directorate of Primary Education in October 2019 there were 1,002 teachers of Primary Education in the 49 Primary schools of Evros Regional Unit (RU).

Design and Procedure

For the collection of the research data, a structured questionnaire was developed, which was distributed through visits to the teachers of all school units of Primary Education of Evros RU. Due to the limited time of the teachers in the schools, mainly closed-ended questions were formed, which were grouped into 3 categories: Personal Data, Environmental Specialization, Activity and opinion questions.

The 1st category contained questions regarding the personal data (gender, age, specialization, work status and duration) of the teachers who participated in the research. The 2nd category included questions related to the investigation of teachers' specialization in environmental issues and the environmental activity of the respondents. Finally, the 3rd category is related to the investigation of the main research questions and contained questions to express opinions and views. The first three questions of this category concerned the Production services, the Protection - Environmental services and the Recreation services of the forest ecosystems. The respondents were asked to rate these services for their importance in forest ecosystems of Evros RU, on a 5-classes graded scale (Not important – very important). In addition to the services mentioned, respondents could add other forest ecosystem services that they considered as important. The fourth was a multiple-response question, aiming to explore teachers' views on practices for the implementation of sustainable forest ecosystem management. It contained twenty-two implemented forest management practices and respondents were asked to state their degree of agreement with these practices on a 5-class graded scale (Not important – very important).

The same questionnaire was created in electronic form for data collection from remote schools where it was not possible to visit. Successive reminders to the invited teachers to complete the questionnaire were made and finally 330 teachers from 45 schools of the Regional Unit of Evros participated in the research, giving a participation rate 32,9%.

Data Analysis

After collecting the questionnaires, the answers were coded and the data were entered electronically in Microsoft Excel in order to process and analyze the results. The answers to the last multi-thematic question, which concerned the degree of agreement of teachers with specific sustainable forest management practices, were introduced into the software SPSS. The validity of the data was checked and multivariate statistical analyses followed.

Factor analysis was performed to investigate the existence of common underlying factors. The method of Principal Component Analysis was chosen, which extracts statistically independent factors. The Guttman and Kaiser criteria were used (Cattell 1978, Fragkos 2004), according to which, the export of the appropriate number of main components is determined by the factors having eigenvalues higher than 1. A second criterion was the scree plot, where the appropriate number of factors to be extracted is determined by the position of the “elbow” in the diagram (Cattell, 1966). The matrix of the main components was rotated (Factor Rotation), with the method of maximization of the common variation (Varimax), to better interpret the factors (Korres, 2011).

3. Results

Based on the answers given, honey production is considered by the majority of respondents as the most important productive service of forests in the Regional Unit of Evros (Figure 1), as 85.7% stated that it is important or very important productive service, followed by timber & other wood products (75.1%), grass for grazing livestock animals (71.4%), aromatic and medicinal plants (70.5%), fruits (67.1%), mushrooms (59.3%) and the mold (54.1%). On the other hand, the answers are divided as follows: resin (40.4% that it is important or very important and 21.2% that has low importance or not at all important) and hunting (45% that it is important or very important and 32.9% that has low importance or not at all important).

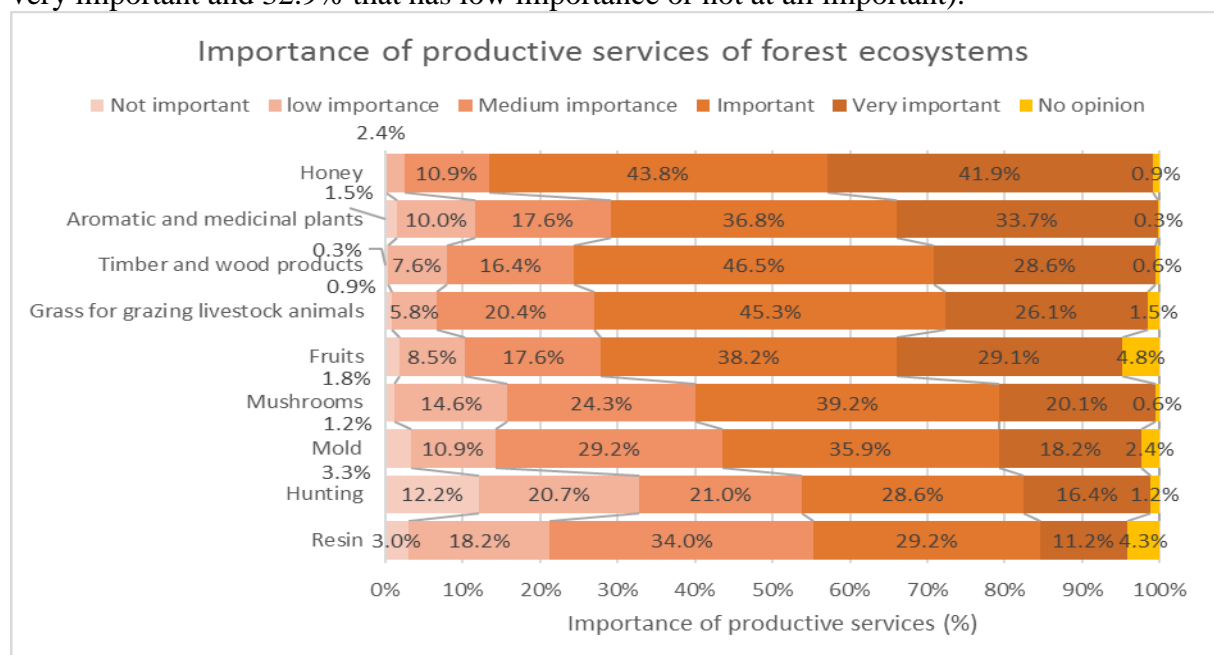


Figure 1: Importance of the productive services of the forest ecosystems of the Regional Unit Evros.

All the protective services of the forest ecosystems of the Regional Unit of Evros are considered as “very important” or “important” by most respondents (Figure 2). The maintenance of flora and fauna has the highest percentages (83.6%), then flood protection (83.3%), the moderation of climate (77.5%), rainwater filtration (75.5%), carbon sequestration (75.2%), protection of soil against water and wind erosion (75.2%), landslide protection (68.8%) and the protection of human settlements from natural hazards and from annoyance (59.4%). In all cases the “not important” or “low importance” response rates are in single digits, except for the “little” noise and landslide responses (10.3% and 10% respectively).

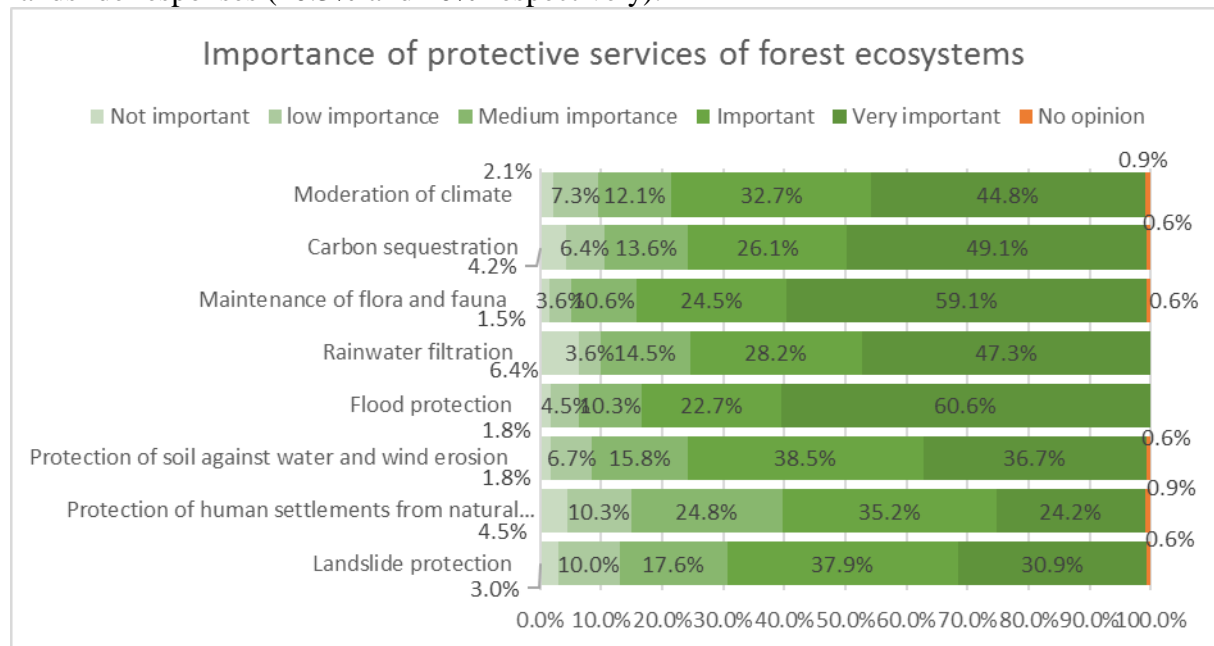


Figure 2: Importance of the protective services of the forest ecosystems of the Regional Unit of Evros.

However, the views of the respondents on the Recreation services of the forest ecosystems of the Regional Unit of Evros are divided (Figure 3). In particular, “very important” or “important” are considered by the vast majority of respondents the trip - visit for leisure (83.7%), Environmental Education (80%), the organization of cultural activities (72.4%) and the camping (62.1%). On the other hand, hunting is considered as “not important” or “of low importance” (46.4%) recreation service, while the views of teachers are divided for fishing (28.3% response “very important” or “important” and 30.9% response “not important” or “low importance”) and photographing nature (26.1% response “very important” or “important” and 31.8% “not important” or “low importance”).

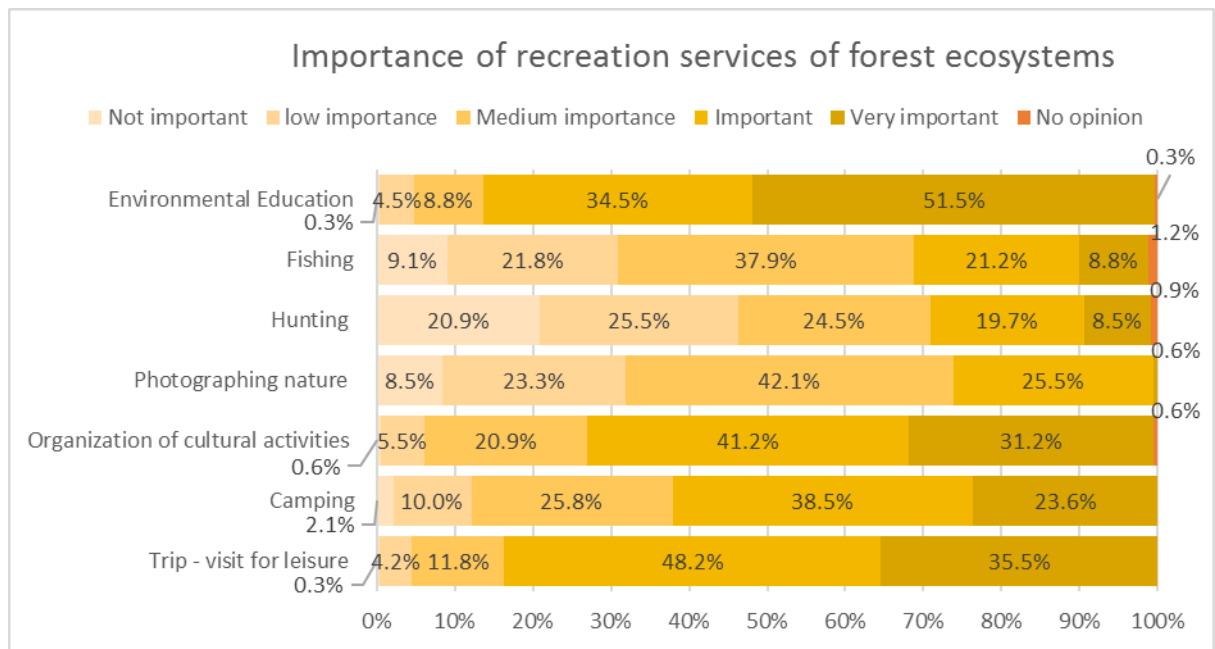


Figure 3: Importance of the recreation services of the forest ecosystems of the Regional Unit of Evros.

The answers to the multiple-response question on sustainable management practices were subjected to Factor Analysis in order to investigate the possible existence of underlying common factors, which in our case indicate directions of shaping the views of the respondents.

Table 1: The 6 extracted factors (principal components)

Component	Total Variance Explained								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.811	15.617	15.617	2.811	15.617	15.617	2.020	11.222	11.222
2	2.150	11.947	27.564	2.150	11.947	27.564	1.935	10.747	21.969
3	1.523	8.461	36.025	1.523	8.461	36.025	1.783	9.903	31.872
4	1.377	7.647	43.672	1.377	7.647	43.672	1.733	9.626	41.498
5	1.243	6.905	50.577	1.243	6.905	50.577	1.452	8.068	49.567
6	1.180	6.556	57.132	1.180	6.556	57.132	1.362	7.566	57.132
7	.916	5.087	62.219						
8	.866	4.811	67.030						
9	.855	4.752	71.782						
10	.774	4.303	76.084						
11	.731	4.061	80.146						
12	.630	3.499	83.645						
13	.600	3.334	86.979						
14	.591	3.282	90.261						
15	.539	2.992	93.253						
16	.454	2.521	95.775						
17	.427	2.372	98.147						
18	.334	1.853	100.000						

Extraction Method: Principal Component Analysis.

The investigation of the correlations between the 22 initial variables (of the multiple-response question) showed that 4 questions had little correlation with the rest and therefore excluded from the analysis. The remaining 18 variables gave six factors that showed eigenvalues higher than 1, satisfying the Kaiser criterion and explaining 57.1% of the total variance of the initial variables (Table 1).

Although the percentage of total variance explained is not very high, it is considered satisfactory to capture the directions of shaping the views of respondents, which was confirmed in the next steps of the analysis. Table 2 shows the factor loadings extracted from the principal components analysis after rotation. Loadings can be interpreted as the correlation of the initial variables with the extracted factors.

Table 2: Factor loadings of initial variables (multiple-response questions) after rotation

S/n	Initial variable (question)	Component					
		1	2	3	4	5	6
1	Hunting should be free in the forest	.676	.231	-.130	-.017	.088	.122
	Animals that cause damages such as fox, wolf or wild boar should be considered varmint	.672	-.262	.004	-.089	-.031	.386
	Forests are not affected by the negative effects of climate change	.613	.223	-.248	.055	-.036	.040
	Dried, dead or old deciduous trees should not be in forests	.593	.068	.071	.257	-.043	-.207
2	Traditional activities, such as the collection of mushrooms, aromatic and medicinal plants, fruits, etc. should be free in the forest	.103	.808	-.071	.113	-.003	-.029
	People's access to forests for recreation must be free	-.063	.667	.063	.121	-.206	.223
	Grazing of livestock animals must be done freely without restrictions in the forest	.334	.646	-.103	-.126	.037	.283
	The services provided by the forest exist independently of human use	.350	.430	.164	-.009	.178	-.181
3	To cut a tree in the forest we must ask for permission from the forest service	.015	.001	.706	-.176	-.239	-.033
	Road and other projects should not be constructed in forests if they cause soil erosion	.002	-.074	.659	.170	.033	.065
	Any product harvesting that causes damage to the ecosystem should not be allowed	-.140	.019	.617	.214	.214	-.127
	The amount of wood harvested from forests should be less than the forests can produce	-.196	.083	.502	.040	.329	.139
4	In reforestation local species should be planted and not imported from other countries	-.015	.032	.149	.869	-.046	.105
	In reforestation local species should be planted and not imported from other areas of Greece	.153	.093	.038	.847	.007	.038
5	The forestry sector can contribute, through biomass production, to the replacement of non-renewable energy sources	.036	.019	-.074	-.050	.800	-.068
	The forest sector can contribute to the capture and long-term storage of carbon dioxide	.015	-.108	.182	.009	.704	.144
6	The production of forest products increases the income of the locals and should be encouraged	-.103	.101	-.103	.176	.121	.728
	We need to ask breeders, farmers and citizens that live near forests about what we need to do in forests	.200	.120	.124	-.016	-.025	.618

As for the 1st factor, the initial questions (forest management practices) with high loadings are: hunting should be free in the forest; animals that cause damages such as fox, wolf or wild boar should be considered varmint; forests are not affected by the

negative effects of climate change; dried, dead or old deciduous trees should not be in forests. The high loadings with a positive sign in the above questions suggest that respondents consider human to be the dominant species of nature and his interventions in it (even climate change) do not create real problems. Thus, the first factor could be called “human is the ruler of nature”.

The 2nd factor includes positive responses to statements as: traditional activities, such as the collection of mushrooms, aromatic and medicinal plants, fruits, etc. should be free in the forest; people’s access to forests for recreation must be free; grazing of livestock animals must be done freely without restrictions in the forest; the services provided by the forest exist independently of human use. Freedom to implement traditional activities without restrictions is the predominant feature of the questions with high loadings on the 2nd factor.

The 3rd factor comprises statements of four questions: to cut a tree in the forest we must ask for permission from the forest service; road and other projects should not be constructed in forests if they cause soil erosion; any product harvesting that causes damage to the ecosystem should not be allowed; the amount of wood harvested from forests should be less than the forests can produce. Compliance with rules in forest interventions is the predominant view expressed by the questions loaded on this factor.

High loadings on 4th factor have the statements: in reforestation local species should be planted and not imported from other countries; in reforestation local species should be planted and not imported from other areas of Greece. This factor is clearly related to reforestation, expressing a strong correlation with the view that reforestation should be done with local species and not with species from other areas of the country or with imported species.

The 5th factor comprises high correlation with the statements: the forestry sector can contribute, through biomass production, to the replacement of non-renewable energy sources; the forest sector can contribute to carbon sequestration and long-term storage of carbon dioxide. The loadings of these questions on the 5th factor indicate the significant value of forest biomass both as a source of renewable energy and as carbon storage.

Finally, the 6th factor includes two statements of forest management practices: the production of forest goods increases the income of the locals and should be encouraged; we have to ask breeders, farmers and citizens that live near forest about what we plan to do in the forest. This last factor reflects the contribution of forest productive services to local income and the need to participate in decision-making that directly affects the local population.

Summarizing, it can be considered that the 6 extracted factors (principal components) form the following directions of views of the respondents:

1. Man is the ruler of nature
2. Freedom to engage in traditional activities
3. Compliance with rules in forest interventions
4. Reforestation using local species
5. Contribution of the forestry sector to renewable energy sources and carbon storage
6. Enhance local income and participate in decision making

4. Discussion

About 30% of the primary school teachers working in the Regional Unit of Evros participated in the research, completing the questionnaire, a sufficient and expected percentage in social research for teachers (Xohellis 1984, Papanoum 2003, Papaeconomou 2015). The views of teachers are generally considered in line with the principles of sustainable management of forest ecosystems, which may be due to the existence of important forest ecosystems and protected areas in Evros (Regional Unit of Evros, 2020). Besides, Evros is one of the areas with the highest comparative value of forest land (Albanis et al., 2015).

At first, the vast majority of respondents (63%) think that forest productive services are important. The most important productive service is honey, the production of which is particularly developed in Evros RU as only in the Forest National Park of Dadia produced more than 100 tonnes of honey per year (Management Body Dadia – Lefkimi – Soufli Forest National Park, 2020). Second in importance is timber production and grass for grazing livestock animals, which continue to constitute a significant source of income for many residents (Management Body Dadia – Lefkimi – Soufli Forest National Park, 2020). However, the last period livestock farming activity is gradually dying out in the Regional Unit of Evros. Fruits, mushrooms and mold, especially the endemic ones, are also important. In contrast, teachers' views related to the importance of resin and hunting are divided. The answers with regard to the resin are rather expected, as despite the existence of many pines in Evros, species that produce mainly resin (Albanis et al., 2015), there are not enough resin producers operating in the area (Malkotsi, 2018). Finally, with regard to hunting the views are justified as in the Regional Unit of Evros several hunters and hunting clubs are active, while on the other hand in the area there are several environmental organizations related to animal protection as well.

The protection and environmental services of forest ecosystems are considered as very important by teachers and resume very high levels of importance. All services without exception are considered important by the great majority of the respondents. In particular, almost all respondents consider valuable services the conservation of flora and fauna and the flood protection. The results are reasonable as the flora and fauna of the area is rich (Eco Thraki, 2020). But we have to draw attention to the fact that in previous research in other geographical areas, teachers did not seem to understand the value of biodiversity (Gkargkavouzi, 2015). Also, the frequent floods of the river Evros and the tributaries of Ardas and Erythropotamos highlight the contribution of forests to the reduction of the flood danger. Moderation of climate, rainwater infiltration, carbon sequestration and protection of soil against water and wind erosion are considered also important forest ecosystem services. The results are reasonable, since abundant pine and broadleaf forest in the region affect regional climate, capture large quantities of carbon and contribute to soil protection (Albanis et al., 2015). The low importance of the protection from landslides, noises - exhaust gases – dust can be attributed to the non-existence of high mountains and large urban centers in the area of the Regional Unit of Evros. Consequently, the landslide risks and noise pollution levels are low, so the teachers do not consider this service so important.

The views of the respondents on the Recreation services of the forest ecosystems of Evros seem to be divided. On one side, trip - visit for leisure and environmental education are considered particularly valuable. These choices seem reasonable as the forests of Evros have places for recreation and most schools visit the forests for their

school trips (Ardas Riparian Forest, Tsihla Forest, Dadia Forest). Organizing cultural activities and camping are also important, which are also realistic, as a variety of cultural activities are organized in the forests of the Regional Unit of Evros with a large number of visitors (e.g. Ardas festival, mushroom feast). On the contrary, hunting is not considered as an important recreational service, as teachers may be influenced by the activities of environmental and animal protection associations. Finally, teachers' views are divided on fishing and photographing nature. As far as fishing is concerned, different opinions exist. Professional and leisure-time fishermen in the area consider this service important, while some NGO's support restrictions on fishing activities due to overfishing (Mozumber et al., 2018). Regarding photography, there are amateur and professional photographers, whose work exercise a positive impact on public opinion, while others believe that photography disrupts the fauna in the forest ecosystems (Dattatri & Sreenivasan 2016, Groo 2019).

Based on the factor analysis of the results, the views of teachers on the sustainable management of forests are formed on the basis of six main axes: Man is the ruler of nature, freedom to engage in traditional activities, compliance with rules in forest interventions, reforestation using local species, contribution of the forestry sector to renewable energy sources and coal storage and enhance local income and participate in decision making.

In 1st axis, teachers support the declaration of animals causing harm, which has been banned in our country since 1993 with the incorporation of European Directive 92/43 (Council of European Communities, 1992). Also, they believe that hunting should be exercised freely in the forests, without restrictions and dried, dead or old bark trees should not be in the forests, showing a limited understanding of the role of these forms of trees on biodiversity of the ecosystem. In summary, although human activity and overexploitation are direct causes of biodiversity loss (Millennium Ecosystem Assessment 2005, Dimopoulos 2014), respondents consider that human interventions in forest do not create real problems. Teachers' views converge with the results of Erdogan (2009) research that human dominance and the economy are superior to nature.

In 2nd axis respondents support the free grazing of livestock, without restrictions, as far as the free exercise of traditional activities (such as mushroom and fruit picking) in the forest. Also, they believe that access of citizens to the forests should be free and they do not realize that forest ecosystem services exist independently of human activity (United Nations 2017, Masiero et al. 2019). Teachers in this axis believe that there should be no restrictions in traditional forest activities. However, the irrational use of natural resources leads to the reduction of biodiversity (Dimopoulos, 2014).

The 3rd axis is dominated by compliance with rules in interventions performed in forests. The teachers believe that the amount of wood we get from forests should be less than what our forests can produce, which is one of the basic principles of sustainable forest management (Galatsidas, 2012). In addition, the majority agrees that permission from the forest service is necessary to cut a tree in the forest (Tambakis & Karanikola, 2015). Respondents agree with the ban of products which could harm the ecosystem and believe that projects (roads, etc.) should not be constructed in forests if they lead to the drifting of the soil by rainwater, adopting sustainable perceptions. Furthermore, the majority of them argue that taking products should not be encouraged if it causes damage to the environment.

The 4th axis is related to the reforestation. The vast majority of respondents support the planting of local species both instead of those imported from other countries and of those imported from other Greek regions. These results seem reasonable and agree with the results of other studies (Gkargkavouzi 2015, Malkotsi 2018). In addition, in the area of Orestiada, the festival of traditional seeds is being organized in recent years. According to Malkotsi (2018) the answers may be influenced by the media.

The 5th axis is placed in favor of the use of small branches and debris from logging in the production of biomass. With the growing majority of respondents believing that forests can contribute - through biomass production - to the replacement of non-renewable energy sources, recognizing the importance of forests in energy production (European Commission, 2013). Furthermore, respondents understand the importance of forests in capturing and storing carbon dioxide (Masiero et al. 2019), which is in contrast to other research's, where teachers did not seem to distinguish this role of forests (Gkargkavouzi, 2015). Note also that the majority of respondents understand that climate change affects forest ecosystems.

The 6th axis illustrates the contribution of forest productive services. Respondents agree that the production of products increases the income of the inhabitants of the area (Masiero et al. 2019) and therefore should be encouraged. Teachers believe that stakeholders should be involved in the management of forest ecosystems (Masiero et al. 2019).

5. Conclusions

The teachers of Primary Education of the Regional Unit of Evros appear sensitive, adopting environmentally friendly general views and attitudes consistent with the sustainable management of forest ecosystems. They seem to have a satisfactory frame of reference, which appears to be improved compared to previous research, understanding the importance of forest ecosystem services for both human and the environment and for their protection. They realize that services are interdependent with each other and some may not be reflected in financial terms. Respondents also understand the concept of sustainability and its implications for forest ecosystems, considering that the receipt of products and services should be done with rules without causing problems in the forest ecosystem. Moreover, almost all teachers recognize the importance of Environmental Education, which they consider as valuable educational service of forest ecosystems.

The present study is a first reflection of the perceptions and attitudes of the teachers of Primary Education for the sustainable management of forest ecosystems by examining the views of the teachers of the Regional Unit of Evros. The results of the research can contribute to the creation of new better organized training programs for teachers and the implementation of more organized programs for both present and future generations, in order to acquire knowledge and create attitudes for the sustainable management of forest ecosystems. Furthermore, this research can be a motive for future researchers to investigate the views and attitudes of teachers of all levels of education and to generalize the conclusions. Also, in the future the research could be extended to more regional units, considering larger populations of teachers. Finally, the research can be the basis for further investigation, in order to identify any differences or correlations between gender, level of education and years of service of teachers.

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The collective form of resilience: How are cooperatives responding to the Covid-19 crisis in Hungary?

Abstract:

Since cooperatives are not just enterprises that operate in the market for economic interest, this paper pursues the responses of cooperative formations to the pandemic, their adapting process, and their relations with members. This paper, indeed, argues that cooperatives, as people-centred organizations, adapt to the needs of their communities with their specific organizational model, and therefore, remain resilient in times of crisis. As illustrated by cases of cooperatives that survived the COVID-19 pandemic, the solidarity-based organizational structure, a long-term governing approach and participative governing models of cooperatives influence their resilience positively during challenging times. This paper concludes by demonstrating how two cooperative formations: Gólya and Cargonomia, from Budapest, Hungary adapted to the new conditions despite being affected by the pandemic in both economic and social aspects.

Keywords: Cooperatives, COVID-19, Participative Economy, Resilience, Solidarity

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1. Introduction

All over the world we are facing new emerging and re-emerging viral infectious diseases more frequently. Human factors, such as population growth, urbanization, international travel, the globalization of commerce, the animal trade, hunting and pasturage practices, which expedite direct exposure to animals' bodily fluids, are seen as the most contributory factors driving the emergence of these diseases. (Ka-Wai Hui, 2006) The epidemic caused by the newly discovered coronavirus (COVID-19) is a case in point (see WHO, 2020). With the ongoing pandemic, however, people have faced a global health shock and severe economic problems. The mandatory shutdown of non-essential businesses caused many people to be out of work, and implied significant income losses for workers (ILO, 2020a, 2020b).

Cooperatives and their members have also been impacted by the pandemic, even though some research demonstrates cooperatives' resilience in crises is better than other types of businesses (e.g., Roelants et al., 2012; Birchall, 2013; Narvaiza, Aragon-Amonarriz, Iturrioz-Landart, BayleCordier, & Stervinou, 2017). Cooperatives Europe (2020) presents that cooperatives across Europe have been impacted by the pandemic in their business activities, turnover, and workforce regardless of their size. On the other hand, since cooperatives are not just enterprises that operate in the market for economic interest, but also, by their nature, prioritize the well-being of their community, it will be an entailment to ask how cooperatives responded to the crisis and maintained a relationship with their members. This paper, indeed, argues that cooperatives, as people-centered organizations, adapt to the needs of their communities with their specific internal structure and, therefore, remain resilient during challenging times. This resilience is mostly based on cooperatives' participatory governance, long-term governing approach, and solidarity networks (Birchall & Ketilson 2009; Roelants et al., 2012; Saner, Yiu & Filadoro 2012; Smith & Rothbaum 2013; Smith 2014). This paper, therefore, raises the following research questions: What are cooperatives' practices to adapt to the needs of their communities during challenging times? How have these practices affected the resilience of cooperatives? And in this context, how are cooperatives responding to the COVID-19 pandemic?

The paper first explores the resilience potentials of cooperative formations to the crises, looking at the previous research in this frame. It also brings together several emerging examples of the resilience of cooperatives to the pandemic from all around the world. Then, the pandemic experiences of two Budapest based cooperative formations are explored: Gólya, a cooperative bar and community house, and Cargonomia, an open collective run by cooperative principles. The research conducts semi-structured interviews with members of two cooperative formations. It also collects data based on the selected cooperatives' official websites, social media accounts, and benefits from email exchanges. Thus, this research contributes to the research on the collective experiences of being resilient in the face of adversity. It may also assist practitioners in identifying strategies required to respond to the Covid-19 crisis.

2. Empirical Setting: Hungary in a Nutshell

The cooperative movement in Hungary has a long history, dating back to the 19th century. Hungarian cooperative development can be divided into three distinct periods: the period before World War II, starting with the Act on Commerce (37/1875), in which cooperatives first appeared (Kiss & Mihály, 2019), the period

after World War II, and the period following the regime change in 1989 (Cracogna, Fici & Henry 2013: 431–432). In the first period, Hungarian law was based on the principles and practice of Rochdale², in harmony with the European law materials of that period (Cracogna, Fici & Henry 2013: 447). Following World War II, the operation of cooperatives transformed significantly under the policies of state socialism, and for an extended period, most cooperatives were centrally managed by the state (Kiss & Mihály, 2019). After the regime change, however, the number of cooperatives decreased. Most of the cooperatives that were still in activity were either transformed into for-profit companies or had ceased to exist (G. Fekete, Hubai, Kiss, & Mihály, 2017). These developments were quickly approved in society and by the political elite since cooperatives were considered part of the former state socialism (Gagyí, 2019; Kiss & Mihály, 2019). In line with world economics, the initiation of neoliberal economic policies also bolstered this tendency of anti-community-based economic activities (Kiss & Mihály, 2019). On the other hand, while the economic crisis of 2008 created a need for alternative community-based initiatives to overcome market failure in the world (Vieta et al., 2015), cooperatives stood out as a solution with their own participatory and democratic structures (Birchall & Ketilson, 2009; Birchall, 2013). Parallel to this new cooperative movement, the proliferation of new cooperative formations was also observed in Hungary (see Ádám & Czerván, 2020), although the development of a strong cooperative movement was not supported enough after the regime change. Two of these new cooperative experiences from Hungary will be discussed regarding their response to the Covid-19 crisis in this paper.

2.1. Researched Cooperatives

The first case, Gólya, is a cooperative bar and community house in Budapest, Hungary. Its roots go back to 2011 with a previous project, Frisco Café. Later, the cooperative of Gólya was opened in 2013 after the group that ran the previous place decided to move and reform itself. Gólya has a mission of *developing a working cooperative model of organization and production that can assure members' control over the means of production, the well-being of members and their long-term safety* (Gólya, 2021). Currently, Gólya not only serves as a bar, but has different blocks³ with independent internal mechanisms, such as the hospitality block (including the bar, the catering, the concert hall, etc.), the construction block, the bike courier block, the community projects block, and the back-office and building management block (including HR, finance, management, etc.) within the cooperative (Participant from Gólya, personal communication, May 22, 2021). The second case, Cargonomia, **which is the formalisation of a pre-existing cooperation between three socially and environmentally conscious small enterprises operating in or near Budapest** (Cargonomia, 2021). Cargonomia is the crossover point between the activities of its partners- *Cyclonomia*, Do it Yourself Bicycle Social Cooperative; *Zsamboki Biokert*, an organic vegetable farm and sustainable agriculture community education center; and *Kantaa*, a self-organized bike Messenger- aiming primarily to

² The original Rochdale Principles were officially adopted by the International Co-operative Alliance (ICA) in 1937 as the Rochdale Principles of Co-operation: voluntary and open membership, democratic member control, member economic participation, autonomy and independence, education, training, and information, cooperation among cooperatives, concern for community, see: <https://www.ica.coop/en/cooperatives/cooperative-identity>

³ Blocks are independent working groups with separate economic and managerial mechanisms under the roof of Gólya.

increase access to locally produced products. Cargonomia promotes direct trade from local producers to consumer communities seeking healthy and environmentally conscious food options (Cargonomia, 2021). Although, as a group of friends, its roots go back further, Cargonomia was founded in 2015. While Cargonomia is an open collective run by cooperative principles with its partners and six core members, Gólya is officially a cooperative with its 16 members. Even though there is no particular reason for selecting these two cooperatives, the fact that they are both new and different from the traditional understanding of cooperatives and that they survived during the pandemic period facilitated their selection for this research.

Table I. Two Cooperative Cases

Name	Location	Activities	Organization	Members
Gólya	Budapest	Hospitality Construction Bike courier Community projects	Cooperative	16
Cargonomia	Budapest	Cargo bike sharing system Organic farming Urban agroforestry Education-Research	Open collective	6 core members*

* The number of core members refers to members who attend the activities and decision-making process of Cargonomia regularly. Apart from the core members, Cargonomia has three partner organizations: [Cyclonomia](#), [Zsamboki Biokert](#), Kantaa.

3. Method

The research consists of two parts. In the first part, the data collected are based on reviewing of various data set, including previous research papers and the reports of international organisations, such as Cooperatives Europe, International Labour Organization (ILO) and International Cooperative Alliance (ICA), on the resilience of cooperatives to economic and natural crises. In this context, to draw a general framework on the resilience of cooperatives to the crises, the research primarily seeks an answer to the questions "What are cooperatives' practices to adapt to the needs of their communities during times of crisis? And how have these practices affected cooperatives' resilience?"

To support the drawn frame, answer the question "How are cooperatives responding to the COVID-19 pandemic?" searched through several emerging examples of the resilience of cooperatives to the pandemic from all around the world. Reviewing previous research and examined examples reveals three commonalities regarding cooperatives' resilience: having **participatory means of governance, a long-term governing approach, and a solidarity network.**

In the second part, the researcher collects data from the selected cooperative formations'-Gólya and Cargonomia- official websites and holds in-depth semi-structured interviews with the members of both cooperative formations to provide empirical evidence. Between November 2020 and April 2021, eight interviews were conducted in Budapest, four with Gólya and four with Cargonomia. If and when

further information was needed, it was obtained via email exchanges. Email exchanges are labelled as "personal communication" in the text.

As a first step, the organisational structures of Gólya and Cargonomia were analysed through their official websites and the interviews conducted with their members to reveal whether specified commonalities are related to the cooperative formations' resilience during challenging times. As a second step, the interviews of the selected cooperative formations were analysed to reveal the responses of the cooperatives to the Covid-19 pandemic in this context.

4. The Resilience of Cooperatives in Times of Crises

4.1. Entrepreneurial resilience

The concept of resilience has been used across different fields, including education, sociology, psychology, medicine, ecology, management, and entrepreneurship (Korber & McNaughton, 2017; Franco, Haase, & **António**, 2020). The interdisciplinary nature of the concept has led to multiple conceptualizations and measurement approaches in every scientific field (Myers & Smith et al., 2012; Angeler & Allen, 2016; Kativhu, Mwale, & Francis, 2018; Franco, Haase, & **António**, 2020). However, since 2008 the idea of resilience has aroused particular interest in the entrepreneurship discipline (Korber & McNaughton, 2017). It was no coincidence that its growing relevance came up in the period following the economic crisis of 2008. Entrepreneurs, indeed, often confront contingencies that potentially threaten their business survival, such as financial crises, technological innovations, or market competition (Franco, Haase, & **António**, 2020). Being resilient, in this sense, is seen as a strength to be able to handle these contingencies for the enterprises. Resilience, indeed, refers to the ability of entrepreneurial individuals or organizations to overcome difficulties, thanks to their qualities and adaptability, combined with the culture in which they are immersed (Manzana & Ayala, 2014).

Most papers, however, discuss entrepreneurial resilience vaguely through some concepts such as success, survival, and persistence. Confirming the suggestions of Korber and McNaughton (2017), the concept of entrepreneurial resilience should express more than just preparedness, persistence, or an ability to cope. It needs to be conceptualized as a dynamic process of positive transformation under adverse conditions. This expression connotes moving away from only portraying resilience as a success factor of enterprises and individuals toward discussing the role that resilient entrepreneurship plays in long-term sustainability. It is, indeed, always possible that not everyone benefits from the consequences of being a resilient entrepreneur or firm. The decisions of entrepreneurial individuals and firms might be economically resilient in the short term but less so in the long run if they ignore the socio-economic balances (Korber & McNaughton, 2017). Aldrich and Martinez (2001) also argue that to understand entrepreneurial success, a process, context, and outcome-oriented approach is needed. Thus, the emphasis shifts from the characteristics of entrepreneurs to the consequences of their actions. With the inclusion of environmental forces, such as community and society, the concept of entrepreneurial resistance is embedded in a wider context in the analysis (Aldrich & Martinez, 2001).

Observing the collective practices of resilience also requires this perspective: Not reducing resilience to individual textures. Cooperatives, indeed, made a name for themselves, regarding their resilience to the deepening global economic and job crises in association with their democratic and participative model of governance (Birchall & Ketilson 2009; Cooperatives Europe 2012; Saner, Yiu & Filadoro 2012; Smith & Rothbaum 2013; Smith 2014). This paper, therefore, assumes that cooperative

resilience based on collective practices is an important part of the conceptualization of entrepreneurial resilience. It is also an essential part of the discussions on long-term socio-economic sustainability as cooperatives **work for the sustainable development of their communities through policies approved by their members** (ICA, 2018a). And, cooperative tradition is based chiefly on values of **honesty, openness, social responsibility, and caring for others** (ICA, 2018a). These aspects make cooperatives an example for economic, social, and environmental sustainability (ICA, 2013).

4.2. Cooperative resilience

From this point of view, in the following sections, collective practices of resilience are discussed through cooperative formations, however, with the awareness of the different possible effects of different types of threats -economic and natural- on cooperatives. For example, in cases of financial and economic crises, there are commonly massive layoffs of industrial workers and growth in general unemployment. Investment in productive assets often ceases, and there is often a breakout of external capital and the transfer of private capital out of the country (Parnell, 2001). In such conditions, however, the emergence of many new cooperatives is seen (Parnell, 2001). According to Esteban Kelly, an executive director of the U.S. Federation of Worker Cooperatives, when challenging times come, a worker cooperative equitably shares the burden and tries to find collective solutions. For instance, voting to take voluntary pay cuts prevents workers from losing their jobs and trying to find new markets that cooperatives can expand into, instead of mass layoffs as traditional firms do (Kelly, 2020). Thus, the participatory governance models and specific collective structure of cooperatives come to the fore concerning remaining resilient, and there are studies to support this phenomenon (e.g., Birchall & Ketilson 2009; Roelants et. all., 2012; Saner, Yiu & Filadoro 2012; Smith & Rothbaum 2013; ICA 2013; Smith 2014). Parnell (2001) also emphasizes that cooperatives can continue to be available with their services in times of crisis since they put the benefits of their members before the pursuit of more profit. However, this is not to say that cooperatives will be unaffected by the prevailing general economic conditions. Still, they **will not be involved in the general flight of capital and will not seek to relocate outside of the communities that they serve** (Parnell, 2001).

The resilience of cooperatives has also been attributed to their long-term approaches for the sake of their communities, rather than focusing on short-term profit-oriented goals (ICA, 2013). A study conducted by the European Confederation of Cooperatives links the economic resilience of cooperatives to cooperatives' specific internal structure and long-term governing approach that helps them anticipate and address changes in the context of financial crises (Saner, Yiu & Filadoro, 2012). Solidarity among other cooperatives and the concern for the surrounding community are also seen as important elements for cooperative resilience. This dimension also includes the establishment of alliances, networks, promoting organisations, federations, groups, consortia etc. (Roelants et. all., 2012).

Previous research regarding cooperative resilience reveals three predominantly highlighted commonalities: **the participatory way of governance**, as cooperatives are democratic organizations controlled by their members, who actively participate in setting their policies and making decisions (ICA, 2018a). **Long-term governing approach**, which helps them to anticipate social and economic changes in the long-run (Saner, Yiu & Filadoro, 2012). This commonality is also related to cooperatives'

long-term desire to transform economic and social practices towards a more democratic and sustainable line (ICA, 2018a; ICA, 2013). **Having solidarity networks**, which assists them obtaining alternative economic and social tools based on solidarity to maintain their activities without them being entirely dependent on market fluctuations (Cooperatives Europe, 2012). In this paper, however, these commonalities will not be considered separately, but rather as interconnected processes. On the other hand, these commonalities are mostly derived from the responses of the cooperatives to the economic crises. The following chapters will trace the effects of these commonalities on the cooperatives through Covid-19 crisis.

5. How Cooperatives Responded to the COVID-19 Crisis?

World Health Office (WHO) defines COVID-19 as an infectious disease caused by a newly discovered coronavirus (WHO, 2021). Since the virus was first identified in December 2019, approximately 190 million confirmed cases have been reported (WHO COVID-19 Dashboard, June 2021). However, the transformation of the COVID-19 outbreak into a pandemic in such a short time would not only mean a health crisis. Job losses or reduced working hours due to the impact of the pandemic cost the world the equivalent of 255 million jobs in 2020 (UN News, 2021). It is also predicted that the pandemic will have significant consequences for global GDP growth. In 2021 global growth is estimated at 5.4 percent. This would leave 2021 GDP some 6½ percentage points lower than in the pre-COVID-19 projections of January 2020 (World Economic Outlook, 2020). Importantly, the pandemic has not affected all segments of society equally. People who were already at risk of poverty have lost their basic livelihoods by losing their jobs due to forced quarantines. Similarly, now people who are already vulnerable and marginalized are subject to further limited or even non-existent access to health and social care (Dave, 2021). Also, across every sphere, the impacts of COVID-19 are significantly worsened for women and girls since they are already earning less, saving less, and holding insecure jobs or living close to poverty (UN, 2020).

In such a situation, inevitably, cooperatives and their communities would also be affected by the pandemic both in economic and social terms, as stated before. However, it is crucial to consider the different responses of cooperatives to a crisis caused by a pandemic and an economic rout. Until now, the reactions of the cooperatives to economic crises have been discussed at length. Even though the pandemic is a new phenomenon, it is possible to trace emerging responses of the cooperatives to the pandemic. For Parnell (2001), in the case of natural crises, cooperatives can play an essential role in facilitating the lives of those affected by the crises. The primary role for cooperatives is found when the rehabilitation and reconstruction process has begun after the natural disasters, even though they can also play a role in disaster prevention and mitigation. On the other hand, the responses given by cooperatives to natural disasters might vary according to the nature of the event since some of the natural disasters are sudden and catastrophic, while others are slower in their onset, as in the case of drought and epidemics. The pandemic, indeed, directly affected the core structure of cooperatives by disturbing social and individual habits (ICA, 2020). As cooperatives are driven by values- fairness, equality, and social justice- not just profit (ICA, 2018b), it is essential to establish and maintain social networks within the community. However, since the pandemic brings physical distance between individuals and, to a certain extent, social distance, it is likely to affect the ability of cooperatives to maintain their basic structure based on social

relations. Therefore, this paper asks how cooperatives responded to the pandemic and maintained a relationship with their members instead of ending their works and severing all ties. This query, indeed, will be addressed in the continuation of the study.

5.1. Cooperative responses around the world

Although it is possible to encounter examples of the resilience of cooperatives to the pandemic (see Kelly, 2020; Mohan, 2020; UNDP, 2020; The Manila Times, 2020), little is known about the effects of the COVID-19 crisis on cooperatives. These emerging examples are not enough to generalize the results. Indeed, it cannot be sure whether other cooperatives act similarly with the presented models, and therefore, there is a need to increase such studies.

A report prepared by ICA (2020) looks at how large cooperatives coped with the pandemic, exploring some of the practices in different countries based on existing data and the results of a survey carried with ICA members. According to the report, apart from the financial results, cooperatives have shown adaptability and flexibility during the global pandemic, as was the case with previous economic crises. Retail cooperatives, for instance, such as S-Group and Midcounties Co-operative, changed their business models to adapt to the new safety requirements and support the most vulnerable members and customers. According to the report, they started foodbank funds. They developed new concepts such as take-away and home delivery services to facilitate access to products, other than increasing e-commerce outlets. Thus, cooperatives have adapted to the new conditions by having not a short-term profit-based approach, but solidarity and member-centrality.

According to the report of the International Organisation of Industrial and Service Cooperatives (CICOPA, 2020), worker and social cooperatives continued their mission of being cooperative during the pandemic process: Protecting their workers, responding to the needs of society, and acting at the local level. The report collects many examples regarding cooperative response to the pandemic all around the world. The reaction of The SEWA Cooperative Federation, for instance, is a good example of solidarity and inter-cooperation by providing food, health kits, and direct cash transfers to its members. Twelve Italian cooperatives affiliated with Legacoop joined forces to provide 400,000 cotton, washable masks for people working in sectors that were still operating during the emergency. Coopfond, the promotion fund of Legacoop, financed the project.

Ross Newport, a worker-owner in Community Printers, a US cooperative with 33 members, explained how his cooperative dealt with the inevitable problems which arose from COVID 19; *whole segments of work have disappeared overnight* (Newport, 2020). However, the cooperative has not compromised on its democratic inner structure and maintains its collectively made decision-making. They, for example, have not laid anyone off, but they had to restructure the shop to maintain social distancing. To do this, half of the workers voluntarily furloughed, while the cooperative kept paying for their benefits (Newport, 2020). Here too, it seemed that to maintain the cooperative activities in the pandemic, the cooperative took advantage of its participatory decision-making mechanism and solidarity aspect.

Overall, emerging examples show that despite the economic downturn, many cooperatives continue contributing and adapting to the pandemic situation with their measures based on solidarity, inter-cooperation, member-centered, and long-term

approach. In the study's continuation, cooperatives' responses to the pandemic will be further investigated with two concrete examples from Hungary.

6. The Resilience of Cooperatives: participatory, long-term, and solidarity-based approach

When the official websites of Gólya and Cargonomia were examined, shared characteristics were observed, with both having a participatory and long-term governing approach and strong solidarity networks, although there are distinct operational differences between them. While Cargonomia describes itself as an open collective and avoids using legal forms to define itself (Participant from Cargonomia, personal communication, 22 May 2021), for instance, Gólya officially describes itself as a cooperative (Gólya, 2021). Both cooperative formations define their decision-making process with collective and democratic approaches; for Gólya, this is a one member-one vote system; for Cargonomia however, this is having horizontal management practices despite there being no strict set of rules regarding the voting system of members. And again, both organizations explain their long-term approach focusing on their communities' long-term safety and equity-based partnerships. In regard to solidarity networks, they both express their intention to be open to the public and cooperate with similar projects. The figure below shows the relationship of these characteristic features with three resilience commonalities that have been previously identified based on the literature.

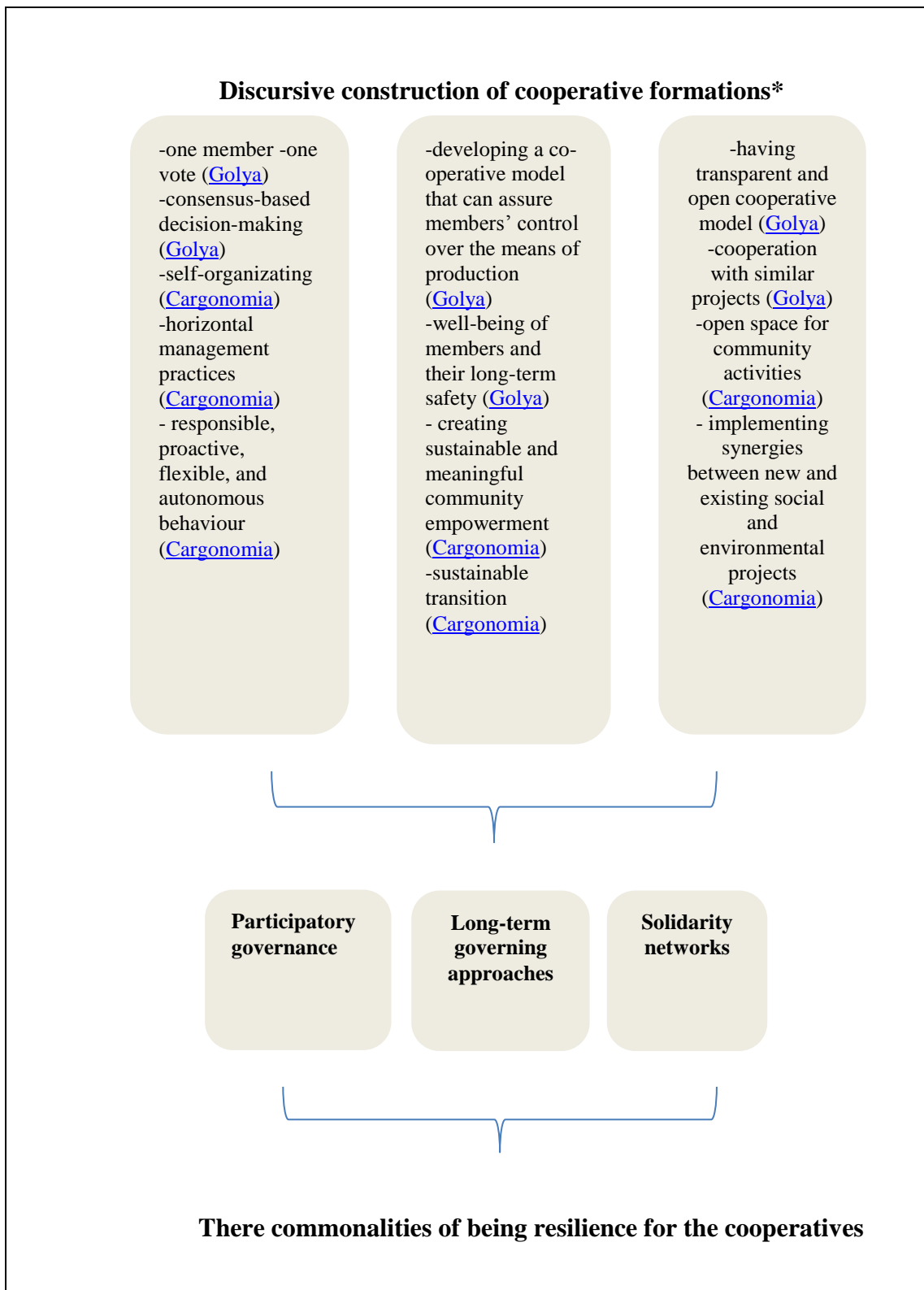


Figure 1. Online representations of the researched cooperatives in terms of their way of organization

*Discourses were derived from the official websites of [Golya](#) and [Cargonomia](#).

Hale and Carolan (2018) argue that cooperatives can be quite “uncooperative” in practice if they do not make their decision-making process inclusive enough. This

may reproduce inequalities through leadership performance. Setting participatory practices and collaboration for decision-making, indeed, is seen as a strength for cooperatives and, therefore, for their members:

“Here in Gólya, I feel I am more beneficial and also actively involved in the decision-making process. And every member in Gólya must know about the cooperative’s social mission, financial things. I prefer this... to be a decision-maker in the place where you work.” (Gólya)

“Working together, not just as colleagues but as friends, has a big impact. When you deal with a lot of things like our case, then collaboration makes things easier. When it comes to working, it keeps me interested because of the results I see and also for me, spending time together with friends who care about the city, which we live in, and that’s enough for me” (Cargonomia)

The following excerpt explains the motivation of a Gólya's member regarding working in a cooperative rather than a private company. It seemed that working for himself but at the same time for society by experiencing participatory governance was the primary motivation for the interviewed member:

“I worked in a company for three years. I didn't feel like I was working for myself but only for the company’s profit. I didn't feel useful, I wanted to do more. You can be free in Gólya but at the same time you can work for benefit of society. Also, there is no boss. I can join the decision-making process. This is important for me.” (Gólya)

A member of Cargonomia mentioned the importance of putting critical and transformative approaches into practice:

“We have the right mixture, or a unique mixture of people who are interested in critical analysis of classical economy, like degrowth theory. A lot of people are just working on ground level stuff and stay away from higher level, transitional theories. Even though a growing number of people are taking degrowth theory as a transitional theory, as a research field, they do not know how to interact with the practical part of the movement, which is unfortunate. We try to keep activities for each side. So that to me is unique.” (Cargonomia)

Dash (2014) argues that humans have different and complex long-range dispositions against short-term interests and rationality. In the long-term, they have evolved an elaborate system of ethics and morality, with ingrained norms of individual and collective conduct, which enable them to act for long-term benefits, not only for short-term interests. This evolution has braced humans’ long-term survival and evolutionary success. In this context, the degrowth theory that inspired Cargonomia is explicitly an idea that requires a long-term commitment to the downscaling of production and consumption, as against the global capitalist system, which seeks for growth at all costs. Thus, degrowth transformation reorganizes the society in a more just way, intentionally and democratically (Degrowth, 2020), and as it is, a long-term strategy of being resilient and sustainable. And, again, as a part of a

long-term commitment, the following excerpt explains how solidarity relations are performed concretely, particularly concerning the other organizations within the network:

“There is a network, Solidarity Economy Center (SEC), in Hungary. It involves, I don’t know, 25-30 organizations around Hungary. Gólya is also a part of it. This SEC is a kind of network, but also something like a research group, they conduct conferences and so on. This center also supports the member organizations to cooperate with each other. And as a research group, they have much more knowledge in tenders, international platforms that we can cooperate with. They support the members of this network to get involved in some project and find alternative income sources” (Gólya)

Both Gólya and Cargonomia are partners of the SEC. SEC is a mutual-help network, motivated by the threat of economic and climate crisis, committing itself to support organizations that work with the principles of the social solidarity economy (SEC). As can be seen from the excerpt, being a part of a network and prioritizing solidarity enables cooperatives to find alternative income resources, and cooperate more effectively, which may in turn help them to develop resistance over the long term.

In another example, a member of Cargonomia reflected on how their organization practices solidarity with other cooperative organizations. Here, the solidarity dimension of being resilient manifests itself with a non-monetary-based exchange. When Cargonomia members had to move out of their former community space in November 2020, they were accommodated by Gólya temporarily. During this period, Gólya’s members were also able to benefit from Cargonomia’s cargo bikes:

“We have temporary housing in Gólya. You can also look at that as an extension of our already existing cooperation with Gólya in organizing events for years. We organized discussions, conferences, social events together. Gólya started to focus bike messenger activities as a result of Covid-19. They are using the bikes from our community, cargo bike sharing system. And our organic food box distribution, which used to be in our former place, has shifted to Gólya. (Cargonomia)

Non-monetary based exchanges are often used in Cargonomia. As one member explained; *we are consciously or explicitly trying to avoid depending on money, actually, we don't want to use money in Cargonomia. We try to organize everything in an alternative route through reciprocity, for example, gift economy or through exchange* (Cargonomia). There are studies found in the literature related to building relations between various exchange models and solidarity (see Lévi-Strauss, 1969; Malinowski 1922; Mauss 1925). Molm, Collett, and Schaefer (2002), for instance, argue that indirect exchange, which is characterized by a more collective orientation involving more than two people, high levels of trust and without strict accounting, produces greater solidarity than other direct exchanges models, in which two actors give benefits to one another. Another member of Cargonomia described how they moved to Gólya with similar dynamics as to indirect exchange:

When we moved to Gólya, we were not presented like a one page excel table of how many square meters of space we can use and how much it is going to cost us per week. It was not about that all. We knew Gólya, we spent time there all the time, we went there as collaborators (Cargonomia).

As can be seen from the excerpts, the experiences of solidarity-based, non-rigid exchange practices have facilitated both Gólya and Cargonomia to continue their activities, especially throughout the pandemic. The commonalities derived from the literature in regards to the resilience of cooperatives, a participatory way of governance, a long-term governing approach, and strong solidarity bonds, manifest themselves greatly in the two selected cooperative formations. And again, it is observed that these commonalities have a close relationship with their resilience.

7. Cooperative Reactions to the Pandemic

The statements of cooperative members confirm the earlier findings that having solidarity networks, a long-term governing approach, and democratic participation of members reinforce the resilience capacity of cooperatives. The following excerpt clearly illustrates both aspects of cooperatives' resilience; solidarity and participatory governance, specific to the pandemic. Even though Gólya had difficult times during the pandemic, this challenge was somewhat mitigated through collective decisions based on solidarity:

“In the first wave of the coronavirus, most of the members had savings at home. For example, I didn't ask for salary for a month because I had some savings at home. But, the second round was much harder as nobody had savings left, but still it is not the same with other companies. Because we distribute money in solidarity, and in social way. For those who have children, for example, they get much more money than childless members. For example, some members who are bike messengers may earn much more money than people in other blocks in the cooperative. One member from the bike messenger block said that he had savings at home, so he did not need all the money, and we distributed it in solidarity to people who receive less money during the lockdowns” (Gólya)

Due to the member-centered organizational structure of cooperatives, it is, perhaps, much easier for them to adapt to address their members' new needs. The bond between cooperatives and members is bolstered through the support of members to their cooperatives, and the support of cooperatives to their members to get through the crisis (Billiet, Dufays, Friedel, & Staessens, 2021). Nevertheless, it is not always easy to adapt to the changes and challenges:

“We knew that the second wave would come in September or October. Most of the bar workers in the cooperative joined other blocks and less people worked in the bar. But this is not always easy for everybody. Because bike messengers or construction workers, for example, are physical jobs, and not everybody can do that. But also, there are advantages to work in a cooperative in these corona times. Indeed, instead of being unemployed, you have work here and get something. Maybe sometimes not full salary, but at least something. Gólya is much safer in corona times than other companies.” (Gólya)

Gólya started posting announcements on Facebook (Facebook post 19 April 2021 22.31 pm) to recruit new workers (member candidates), just as the third wave of the pandemic eased in Hungary. It seems that Gólya has expanded not only its sector- as indicated before, Gólya no longer only serves as a bar, but also contains other services such as bike messengers and construction- as well as providing employment in other work fields during the lockdowns. The fields where the activities were carried out outside the bar provided new working areas for the blighted members after the bar was closed because of the quarantines.

Although Cargonomia was likewise affected by the pandemic and had to stop some of their previous activities, such as organizing workshops or training, a member commented that this had also been a period of standstill and reflection for them (Cargonomia). Moreover, the demand for organic agricultural products, which are essential work items for Cargonomia, surprisingly increased during the pandemic. In a video interview with one of the partner initiatives of Cargonomia, Zsamboki Biokert (YouTube video 24 June 2020), it is expressed that in the beginning, there was a shock, and orders for organic vegetables decreased. However, later, more people started to order and prefer home delivery with cargo bikes. For him, it was sort of testing the ground for what happens when the food or social systems are under pressure. It was clear that people were panicking about food. However, having resilient, sustainable, local, organic systems set up is a very resilient solution. Another member of Cargonomia also commented on the same issue:

“After the curfews began, we started to focus on what we are able to do in this situation. I cannot say that we are so well. But this is also good that other groups can use our cargo bikes. Also, gardening and organic farming became very popular. So nowadays, we are dealing with gardening. What we are doing is meaningful. I mean there is a pandemic, there is economic collapse in the world, but what we are doing is local, is meaningful, is important” (Cargonomia)

However, there were also limitations:

“But nowadays, it started to be a bit much, because what we are doing is based on events, based on relationships. These relations only work if you have face to face relations. The other day we were talking about it. It is so unfair that in the name of saving the economy, only those activities, which you can use money, have been allowed. People are allowed to go out if they go to work, or go for shopping. Where the money flows, it is allowed to go out, but where it does not, then you cannot go anywhere. We still maintain our organizations but not much is happening. (Cargonomia)

Overall, it is clear that the pandemic, with its mandatory lockdowns, directly affects the core structures of cooperatives, such as building close relationships and creating social ties. However, it is also observed that both cooperative formations adapted their work to the accommodate the needs of their members and their communities, and remained resilient rather than halting their work altogether.

8. Concluding Remarks

This paper contributes to the literature on a cooperative model of resilience. It confirms the previous research results that cooperatives are resilient to crises by prioritizing solidarity, having a long-term governing approach, and making their organization more participative. It illustrates how these practices contributed to the resilience of the cooperatives in question -Gólya and Cargonomia- during the recent COVID-19 crisis.

Cooperatives are, indeed, designed to serve the needs of their communities, even during periods of crises and uncertainty. It seems that the cooperatives have adapted their methods of operation to meet the new conditions, and are working towards recovery from the recent pandemic crisis. Overall, the democratic and participatory governance practices improve the members' sense of belonging and engagement, and thus contribute to the organizations' resilience. Having a long-term governing approach helps cooperatives to address changes in the context of crises. It also contributes to the creation of more sustainable development strategies. Entrepreneurial resilience, indeed, should express more than just preparedness, persistence, or an ability to cope. It needs to be conceptualized as a dynamic process of positive transformation (Korber & McNaughton, 2017), namely, sustainable socio-economic planning. It would appear that cooperatives set a good example for creating strategies compatible with social, economic and environmental sensitivities.

This discussion leads us to another important practice of cooperatives regarding their resilience, creating solidarity bonds between their members and other organizations. Strengthening solidarity bonds among members and other organizations, indeed, enables cooperatives to maintain their activities without being so adversely affected by fluctuations in the market by obtaining alternative economic and social tools based on solidarity. This approach also allows the formation of an understanding based on sustainability apart from the profit-centered structure of capitalist market relations. As can be seen from the examples in the paper, cooperatives can establish various solidarity networks in order to ensure their sustainability in times of crisis. Organizational structures that are not profit-oriented can facilitate the realization of this situation.

It should also be noted that cooperatives' resistance to the pandemic could not completely prevent them from being affected by the crisis. On the contrary, cooperatives have been impacted by the crisis in their business activities (Cooperatives Europe, 2020) and their core structures, especially due to physical distancing measures, regarding the building of social and solidarity relations (ICA, 2020). This paper, however, favored pondering the responses of cooperative formations to the pandemic, their adaptation process, and their relations with members, since cooperatives are not only business for profit in the market.

Clearly, though affected in economic and social aspects, both Gólya and Cargonomia, adapted their modus operandi to better cope with the new conditions. As in the Gólya example, instead of reducing the number of workers (member candidates) and members, the members and candidates, who were left idle, with the bar's closing (Gólya's main source of income), were scattered among different working blocks. And again, with collective decisions, instead of getting no remuneration, the wages were redistributed in the spirit of solidarity, and the members with lesser needs shared their salaries with those with greater needs. In the Cargonomia example, it seems that the activities of Cargonomia were also affected by the crisis, and they had to cease some of their work activities requiring face-to-face communication. However, they

used the advantages of being local and could continue, for example, through organic farming as it does not compete with the market, and supports local production.

In conclusion, as stated before, this work does not generalize the results based on the examples of Gólya and Cargonomia. As the Covid-19 pandemic is a new phenomenon, this work encourages empirical research to be increased through actual cooperative examples to see the responses to the crises, specifically to natural crises, like the pandemic.

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