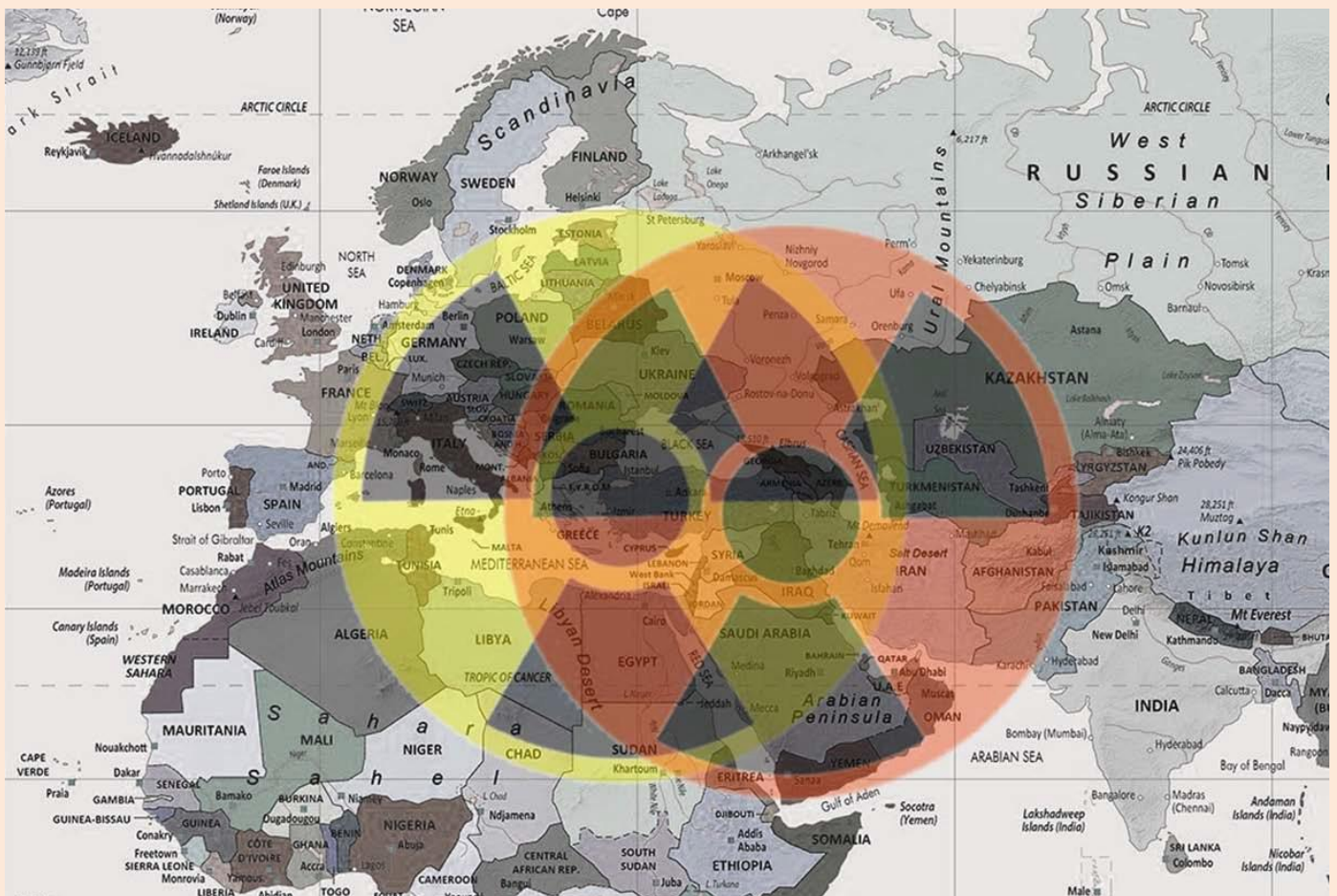


TURKEY: A POTENTIAL NUCLEAR THREAT IN THE MEDITERRANEAN



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HOW IT CAN OBTAIN NUCLEAR WEAPONS

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Review

The current report is observing the intentions and the possibility of Turkey to transform itself into a nuclear power, which will have the result, in case of success, to drastically change the power balance not only in the region but even further.

For the time being, the International Treaties which Turkey has signed as well as the agreements with its supplier countries regarding the country's peaceful nuclear program are the burdens to Turkey's plans to construct a nuclear weapon. However, due to the offensiveness of the established Neo-Ottoman Turkish Government and its bald intentions to consolidate the country as a hegemonic force within the region, the endeavor of acquiring nuclear weapons should be considered quite possible. The international community and the countries of the area should react to this intention based on International Law.

Keywords

Treaty on the Non-Proliferation of Nuclear Weapons, nuclear power plants, Pakistan, Iran, Russia, Kazakhstan, Neo-Ottomanism, power-efficient, nuclear choice, nuclear strategy, hegemonic power, Turkish revisionism policy, United Nations resolution, The Treaty of Lausanne, International Law

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Introduction

This report refers to a potential existent issue regarding national, European and even broader security of the SE Mediterranean as well as of central Asia. The aforementioned concerns Turkey's intention to develop nuclear weapons in the future. This pursuit has been officially stated by Turkey's President R. T. Erdogan during a speech to his supporters [1] when he referred to his desire to place his country into an elite group of countries with nuclear weapons. This specific pursuit is not accidental because it is included in the strategic aspiration of Ankara to become the leading power within the Islamic world and regional sovereign country. The ideological background of this aspiration is the Neo-Ottomanism doctrine, which many EU citizens and citizens from the rest of the world daily witness due to the escalation of the Turkish aggressive behavior. Turkey has been converted into a revisionist power which uses the International Law and its international obligations according to its whim, in order to accomplish the goals set.

Therefore, the question which this report attempts to answer is whether Ankara, in order to succeed in its goal, will pursue to develop nuclear weapons, either by itself or with the assistance of its allies. In case this scenario becomes a reality, which is expected to be the International Community's reaction, given it will probably change the balance of power in the region? The authors rate that the nuclear arsenal development is a time-consuming, costly and laborious high-tech procedure which only a few countries can afford. Furthermore, the power and the destructive ability of these weapons are determinate and as a result, their possession can greatly upgrade every country. Nonetheless, in the current geopolitical circumstance, Turkey has chosen to follow the gun-boat (or better the research-vessel) diplomacy against all the neighboring countries in its effort to overturn the status quo and become the dominant power of the region. Its aim is quite ambitious and it is connected to the Neo-Ottomanism doctrine which is predominant among Turkish leading elites. However, the Turkish provocation, which confronts any limits, the trespassing and the pleas of the International Law according to its whim, have resulted to the

country's clashes with other states, including EU, France, Israel, Egypt, USA, Israel and even Russia which historically maintains competitive interests with Turkey and would never want to see a nuclear Turkey with hegemony ambitions. For this reason, we reckon that the International Community will pose serious obstacles to the development of a future Turkish nuclear program, which is gradually becoming a realistic eventuality.

Therefore, in order to answer the main questions of this report, we initially analyze the broader sense of nuclear energy – how it is produced and how easy it is for a state to be converted from a producer of nuclear energy to a nuclear weapons manufacturer. In the next chapter, we concentrate on the relationship between nuclear weapons and Turkey, in order to provide an answer to a series of queries regarding the following: Which countries possess nuclear arsenal and the subsequent know-how, what kind of benefits will Turkey gain from the development of such weaponry, with which states does Turkey cooperate in this context and which is the track record of Turkish defense industry in regards to the crucial segment of missile capabilities. In the next chapter, the important Non-Proliferation Treaty (NTP) is analyzed as well as the transgressive/revisionist Turkish behavior. This chapter comes to closure with the probe of possible sanctions that Western Powers could pose against Ankara in order to prevent the latter from accomplishing this ambition plan.

How does nuclear energy produce electricity?

Before our analysis starts, it is vital to describe in a nutshell how nuclear energy is produced. The raw material used either for peaceful reasons or not, is uranium which is excavated and converted to aerial form. This chemical element possesses the heaviest and biggest core in Nature. Uranium is mainly a mix of two isotopes: Uranium-235 (U-235) and uranium-238 (U-238). U-235 is especially important because it easily undergoes fission (in contrast with U-238) and is also exceptionally rare, as it represents less than 1% of global natural uranium and the most volatile compound of uranium known to exist. This is the reason why we enrich U-238 with U-235.

The nuclear fission is the method from which the energy is produced and it is a rather simple procedure. If we bomb a U-235 core with neutrons, then a U-236 will be created, which is also exceptionally volatile and two solid atoms almost simultaneously: Krypton and Barium. Apart from these, large quantities of energy and three new free neutrons are released. These new neutrons are essentially the key to the procedure, as they bomb in turn, three adjacent U-235 cores and the process described before keeps happening, again and again, causing a chain-like reaction.

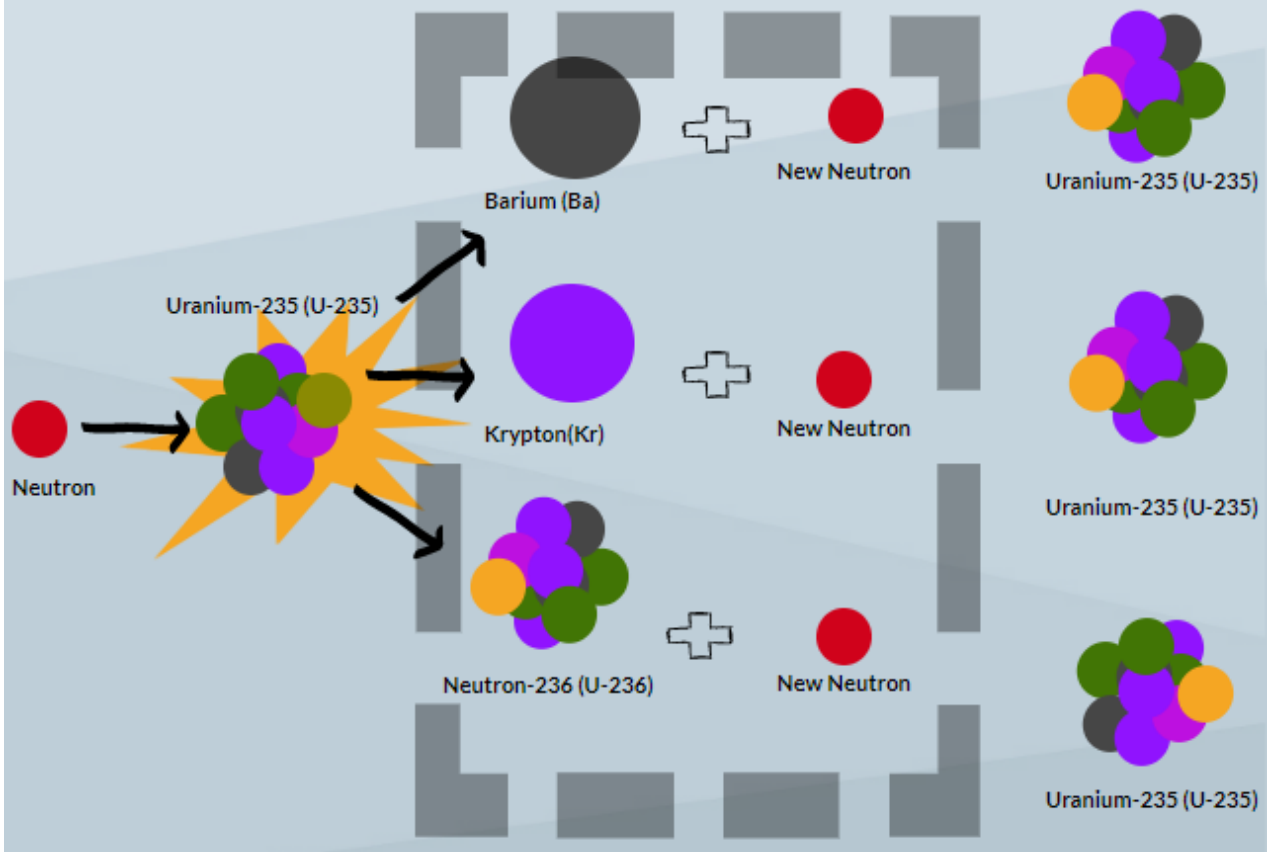
Uranium in nature and nuclear fission



Uranium isotopes in nature



- Uranium-238 (U-238) (99%)
- Uranium-235 (U-235) (1%)



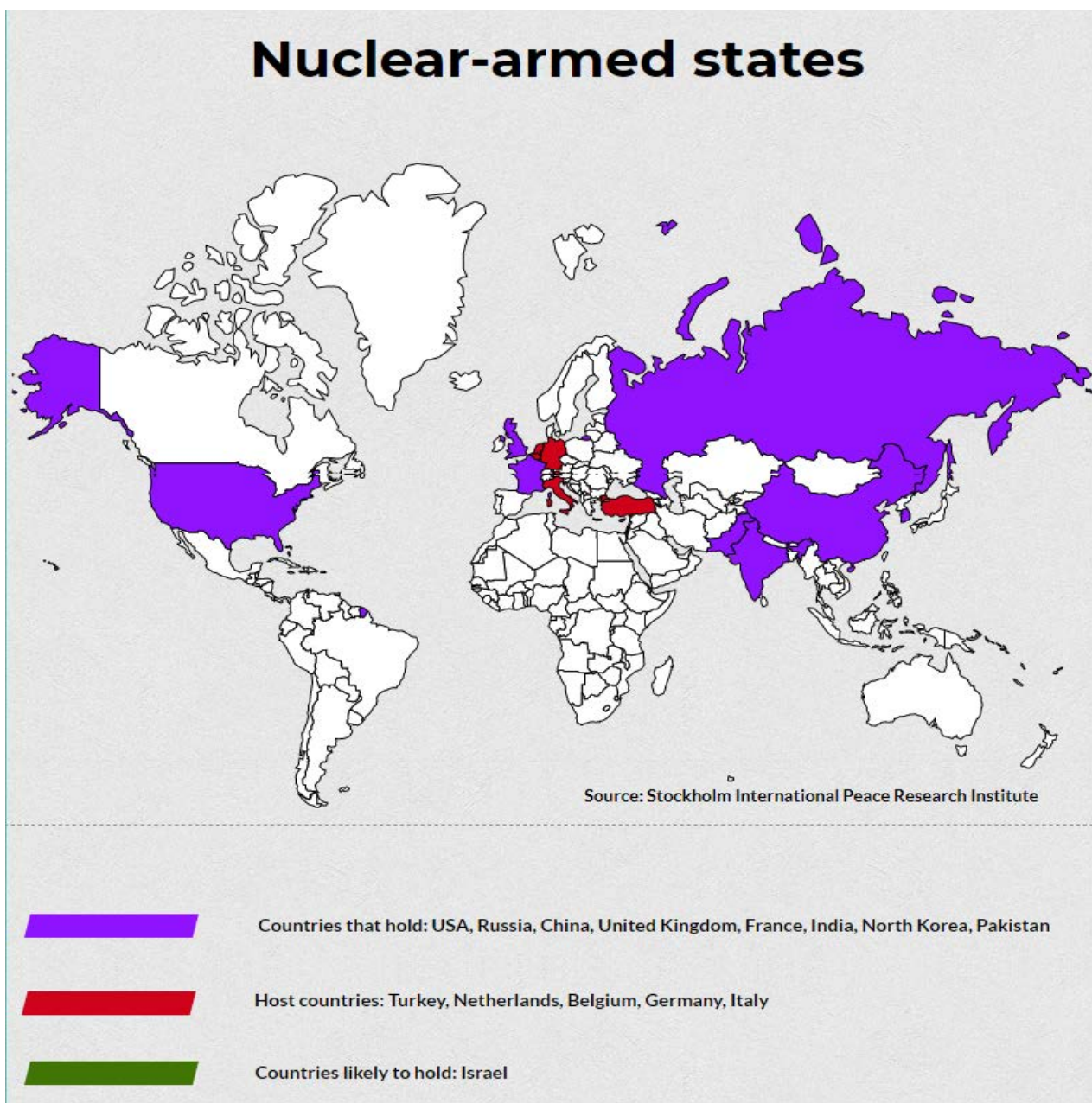
This process is followed by the stations of nuclear reactors, which operate in a similar manner to the electric power production stations. The only difference lies in the fact that nuclear stations do not use carbon or gas but nuclear fission reaction, for heat production.

Heat deriving from the aforementioned nuclear reactions converts water to steam after it is pushed from the first circuit. Later, it is moved through steam generators to turbines generating electric energy. Inside the nuclear reactors, uranium bars are bunched in blocks and sunk in water tanks under high pressure. This procedure heats the water, which is released to a steam generator and the generator produces electric energy. There are other ways of producing atomic energy as well, such as the plutonium use but the use of uranium is also required as raw material. Hence, in order to be brief, we will not analyse it further.

From the point of dissemination, enrichment and reprocessing technologies are of dual-use, whether the intentions are peaceful or not. For example, uranium enrichment for reactors is also essential for fuel production for a nuclear weapon. The difference lies in the percentage of U-235. For instance, the reactors use 3-5% of enriched uranium fuel, whereas the core of a nuclear weapon uses 90%. In both cases, uranium in gas form is supplied through a series of centrifuges - of rapid spinning pipes which isolate U- 235 from U-238, since U-238, which is heavier, moves towards the walls of the centrifuge, while the lighter U-235 towards the centre, where they are eventually collected.

Moreover, nuclear reprocessing is also especially important, as it concerns the chemical division between the fission products and the unused uranium from the used nuclear fuels. This process was utilised for the export of plutonium for the nuclear weapon production, while due to the commercialization of nuclear energy the reprocessed plutonium was recycled to nuclear fuel ("Mixed oxide fuel") for thermal reactors. The reprocessed uranium can be reused as fuel but this is financially acceptable only under specific conditions of used fuel efficacy.

Countries with nuclear ambitions have to either find quantities of U-235 (which as we mentioned is extremely rare) or enrich the widespread U-238. The next obstacle to overcome concerns the creation of an operator which must possess the suitable shape and material to hold the “free” neutroniums after the fission so that they can keep repeating this procedure until the explosion; at the same time, the operator must hold them separately before the launching. Although the idea of creating a nuclear bomb is simple, the implementation is quite complex.



Nuclear Weapons and Turkey

How likely is it to acquire them?

1. Which countries have nuclear ambitions? Iran, North Korea, Turkey

The power of modern nuclear weaponry and its mass destruction capability make the Non-Proliferation Treaty probably the most crucial nowadays. Nevertheless, its vagueness at some important points provides the revisionist or ambitious powers with the opportunity to pursue a nuclear arsenal by itself or via coalitions. The aforementioned situation makes it hard to practice the procedure of Nonproliferation. In addition, the collapse of the USSR, in 1991, led large quantities of nuclear material unchecked into the black market. As a result, until the present day, 'pariah' states such as North Korea or even terrorist organizations have been possessing valuable nuclear materials in order to develop weapons (nuclear terrorism). More recently, Iran is an example of a state which defies the Treaty, as Iranians attempt to acquire nuclear weapons with the assistance of Pakistan [2], while they undergo sanctions from the International Community. The same applies to North Korea, as well.

These two aforementioned states have clearly stated their desire to acquire nuclear weapons, since they consider them as the ultimate means of deterrence for even a super-power, such as the United States. However, there are more ambitious countries with less prominent goals regarding nuclear weapons. We are referring to modern Turkey, which under the leadership of Islamist President R. T. Erdogan appears to be a revisionist power which desires the revival of the Ottoman Empire and as a consequence, the hegemony of SE Mediterranean and even further.

2. How will Turkey be benefited from the acquisition of nuclear weapons?

Over the past few years, Turkey has been radicalized into Islam and this result in keeping distances from the West in which it still is part of. This 'Islamisation' can be integrated to the turn of the country to the Muslim world and the East in general. **Neo-Ottomanism** constitutes the doctrine of the Turkish political leadership which aims to impose the country as regional sovereign power and leader of Sunni Islam. The ideological base of this doctrine can be found at the book of A. Davutoglu (who is considered to be the father of Neo-Ottomanism) [3] "Strategic Depth", in which he analyzes the high strategy that Turkey ought to follow if it ever wanted to constitute a great power and simultaneously to avoid the disintegration which is a constant fear of the country's elites. In this context, it was concluded that the West, USA and EU, have not ever rewarded Turkey, as they should have done, for the utility of the country as an embankment against the USSR during the Cold War and of course today against the Russian Federation. For this reason, Turkey should have become independent of American hegemony and concentrate on its role as a "bridge" which connects Europe and Asia, West and East. The latter should have produced great benefits for the country. This strategic aspiration was declared via a recent statement of a high ranked diplomat counselor of the Turkish President, Ibrahim Kalin [4]. When referred to Joe Biden, candidate of US presidency (the elected President of the United States today), he stated [5]: "*The days when you gave orders to Turkey have passed. But if you still think that you can order us, you would be our guests. You will pay the price, though*". Hence, Turkey should turn to the countries of its neighbour in the East, with which share the same religious beliefs, in order to draw power from, as it did. This significant change of the Turkish strategic orientation, though, would come at a great cost; the country's gradual alienation from the EU and West in general. It is true that today Turkey cannot be described as a European state since the Turkish government's domestic and foreign policies have provoked many of the Western values causing reactions, sometimes bolder and whilom milder.

Hence, we can validly assume that Turkey desires to maintain good relationships with both the USA and Russia with the condition that these two countries will acknowledge the hegemonic claims of Neo-Ottomanism in the region of SE Mediterranean.

The latter, of course, entails the losses or at least the dramatic decrease of the sovereignty rights of many states, including Greece, Egypt, Syria, Israel and Cyprus, while, at the same time, results in intense turbulence within the NATO security policy in the Mediterranean. All the same, the subsequent reactions which such an ambitious plan of regional hegemony will provoke should be taken for granted. Those reactions will keep making Turkish position even more precarious. In fact, Turkey behaves as a clumsy great power which desires to play an important role in the politics of the region and simultaneously to become the protector of all Muslims. Turkey, however, lacks a variable of hard power, which is of extreme importance, in order to be considered as a great power. Of course, this variable pertains to the possession of nuclear weapons which destructive force provides the country that possesses them to be considered a quantifiable "player" within the international system of states even for the great powers. For instance, we can refer to the example of USA-North Korea. It is evident that whatever comparison between these two states is absurd, as the United States possess unparalleled hard and soft power, whereas North Korea is an isolated, small, indigent country which virtually struggles for its survival. Nonetheless, North-Korean leadership desires to develop nuclear weapons in order to counterbalance the American power; and despite the limitations posed by the International Community, North Koreans manage to succeed on their nuclear agenda. This example is characteristic for the reader to realize the magnitude of the possession of nuclear weapons in the modern international system of states. Hence, Ankara will gain multiple benefits as it will enter the elite group of nuclear powers and at the same time, it will be unmatched in the entire region in military terms. This potential possession of nuclear arsenal will differentiate the US, Russian and other great powers' policy towards Turkey as they could become more flexible regarding Turkish demands for regional hegemony (New-Ottomanism doctrine). Undoubtedly, the possession of **nuclear weapons will provide Ankara with the crucial hard power factor** that is lacking now and will bring the

dream of hegemony in the SE Mediterranean and Muslim world a step closer to reality.

The table below summarizes the motives for the nuclearization of Turkey which are important:

Turkey's nuclearization motives	
High Intensity	<ol style="list-style-type: none"> 1. Nuclear threat from Israel / Iran / Russia 2. Turkey's insecurity at the conventional level (fear of strategic encirclement due to Sevres Syndrome which occupies the Turkish elite) 3. Ambition to achieve regional hegemony 4. Hegemony in the Muslim world
Mild Intensity	<ol style="list-style-type: none"> 1. Blackmail of non-nuclear opponents (e.g. Greece, Egypt) 2. Geographical proximity to the core area of Middle East 3. Improving country's military position within NATO 4. Pursuit of political-military independence as a candidate regional power (mainly from the US-EU)
Low Intensity	<ol style="list-style-type: none"> 1. International Recognition (even within the Muslim world) 2. Technological modernization and boost the morale of Turkish people (proud successor of the Ottoman Empire) 3. Cost savings of conventional forces

3. Cooperation with Russia, Iran, Pakistan, Kazakhstan regarding the development of such weapons

The complexity of nuclear weapons constitutes their development or even their purchase is an extremely difficult procedure. We should remind that Ankara is separated from the technologically and economically developed West due to the Turkish invasion to Syria. The USA did not manage to intercept this invasion and the subsequent attack to American's allies, the Kurds. Nevertheless, Turkey is a country that will soon possess the essentials for the manufacturing of a nuclear bomb, such as uranium reserves and research reactors. Simultaneously, Turkey allegedly preserves relationships with the notorious nuclear physicist Abdul Qadeer Khan [6] from Pakistan, who was rumored to sell thousands of centrifuges to Iran, North Korea and Libya between 1987 and 2002.

Meanwhile, as mentioned before, we should not forget the close relations between Turkey and Pakistan, as well as the Turkish approach to Iran, a country that preserves active nuclear ambitions. We will mainly focus, however, on the developing axis of Turkey-Pakistan, as the latter has already become a nuclear power. Turkey even assisted the Pakistani government with its nuclear program some years ago, as Pakistan needed many elements that was unable to purchase by itself. So it turned to Turkey which eventually was the country that provided Pakistan. It is not coincidental that Ankara is ranked at the lowest tier in the evaluation index of Peddling Peril Institute, which assesses the effectiveness of the control systems of the countries' exports worldwide [7]. With such a background, it's not surprising that the secret intelligence agencies mention that these two countries share a significant scientific exchange up to this day. A not so widespread story took place in 2003, when a shipment of centrifuge parts and other items which was destined for Libya, was "vanished" during a journey from Malaysia to Tripoli via Dubai. Even though the International Atomic Energy Agency (IAEA) had been attempting to solve this case for many years, the mystery was never clarified. Nonetheless, IAEA could not just

excuse the case, as the disappearance of the dispatch could mean one thing: apart from the three well-known clients of Abdul Qadeer Khan, there must have been one more. As a result, many experts mention a mysterious "fourth client". Apart from the centrifuges, Khan also supplies his clients with explanatory charts for nuclear weapons designing.

The statement of Turkish President [8] during his official visit to Pakistan in the beginning of 2020, is demonstrative of these countries' relationships: *"We don't forget the assistance the Pakistani people sent us during our national liberating fight (the war against Greece during 1919-1922). The same applies to us now, for the Kashmir region. We will keep providing our aid to the fight of Pakistan against terrorism"* and later added, *"I want to state that our Pakistani brothers must be sure of the friendship of Turkish people. This is now for us, Kashmir region. Yesterday, it was Canakkale, nowadays it is Kashmir. There is no difference between those two"*. Furthermore, the historical example of Pakistan [9], a country which was established in Islamic law, cannot leave the Islamist Turkish President untouched. Consequently, these two powers ally with each other based on a wider ideological base, whereas possibly trade-offs would be the mutual military support in the Mediterranean and in India. This coalition in both defensive and energy sectors is granted. Their relationship, however, is not limited to these sectors. Ankara and Islamabad enhance their ties in cultural and commercial/financial levels as well, as they are planning to increase the transaction volumes to \$5 bn until 2023 while plans concerning infrastructure and renewable energy sources' developments are also on the table. Thus, we conclude that the cooperation between these two Sunni powers is multi-faceted, while its ideological base is Islam [10]. Hence, the possibility of nuclear cooperation between the two countries in the foreseeable future cannot be ruled out. In addition, Turkey and Pakistan executed joint aeronautical drills within the potential Greek EEZ in Kastelorizo surroundings and a Pakistani spying aircraft violated Athens FIR [11] recently. Considering these facts, a nexus of a complex coalition has appeared which cannot leave the states of the region unconcerned.

Naturally, though, the complexity and the cost of nuclear weapons development from scratch will require years of R&D from

Turkish scientists until the final aim is accomplished. It is also alarming the fact that Turkey seems to have the biggest nuclear power unit-wise, Russia, by its side. In 2011 and 2013 Turkey signed deals worth \$42 bn with the Russian Rosatom and a French Korean consortium regarding the beginning of manufacturing of nuclear power plants in the regions of Akkuyu (Mersin) and Sinop respectively. We will refer to these deals later in this report. Moreover, it had been announced in 2017 that [12] three nuclear power plants will become operational from 2023 to 2030, with Ahmet Davutoglu stating that [13] the third one will be 100% under national ownership. The Russian interference in Turkish nuclear program is not coincidental since Moscow makes a NATO ally dependable from Russian technology/know-how. At this point, additional information regarding Russian intervention is necessary. Moscow supports the Turkish nuclear ambitions through the nuclear power plant (i.e. for the peaceful use of nuclear energy) in its attempt to benefit from the fragmentation within NATO and to destroy the organization's SE flank, in order to gain geopolitical advantages. In case Turkey moves under the Russian sphere of influence, this will constitute a great Russian victory against the West and especially the United States. This is, however, a dangerous Kremlin's plan as its aim is not to make Turkey more powerful via nuclear weapons acquisition, since these two countries have historically conflicting interests. The recent "Russian-Turkish" coalition is not essentially an alliance but both countries utilize it in order to threaten/blackmail the West (and the USA) for their own interests, as mentioned above.

Finally, we must note that Ankara has recently signed [14] a military cooperation deal with Kazakhstan regarding the development of AI for military applications, the extension of cooperation during both war and peace times, the cyber-security and many more agenda topics from 17 different segments. Kazakhstan is a country that contributes 35% to international uranium production [15], while Turkey also seems to possess [16] some deposits in its soil.

4. The Turkish defense industry

As far as the technological level is concerned, the Turkish Armed Forces have been enhanced recently. More specifically, the Turkish defense industry [17] is constantly evolving in its attempt to make the country independent from imports regarding the military equipment. The SSM was related to the Turkish Presidency in December 2017 and was renamed to Presidency of Defense Industries (SSB) in July 2018. As a result, SSB is responsible [18] for the research/ development/ funding/ implementation of the various military equipment programs, as well as for the cooperation between the private and the public sectors in order to fulfill the needs of Turkish Armed Forces.

The Turkish defense industry is flourishing, as it is evident from the numerous ongoing projects nowadays. Regarding the Land Forces, the program ALTAY for the national combat unit will soon deliver 250 units, while more programs concerning armored combat units/amphibians/anti-mines are on their way. The Turkish Navy possesses extensive equipment programs, as Ankara is interested in the wealthy hydrocarbon deposits in SE Mediterranean. In more detail, the scheme for the national ship named MILGEM is under development. This concerns the frigate shipbuilding (4 corvette crafts have already been delivered to Turkish Navy). Alongside this program, the development of other types of ships, such as patrol ships, submarines rescuers, landing crafts and most importantly, the /amphibious assault (light aircraft carrier) ANADOLU, which will be the biggest ship in Turkish history, is under way. The programs of the Turkish defense industry have expanded to the Air Force, as the plans for the national jet fighter TF-X, the attacking helicopter ATAK and the unmanned air vehicle BAYRAKTAR (armed) and ANKA (unarmed) are advancing. GÖKTÜRK, a program designed by Turkish defense industry of satellite surveillance is especially interesting, as this satellite has already been in orbit since 2016. This specific accomplishment illustrates the capabilities of Turkish industry in high level technology development.

Finally, we will focus on the achievements of the Turkish military industry on the field of **missile technology**, since the program of SOM-J

cruise [19] is under process. This is a subprogram of the program concerning the 5th generation jet fighter F-35, from which Turkey was excluded. Meanwhile, the Syrian civil war showcased the American and Russian made missiles Tomahawk and Kalibr, due to their great range. Turkish Armed Forces deemed that they need great reach missiles in order to hit Kurdish positions deep within the Syrian and Iraqi soils [20]. In order to cover this gap, the R&D Institute of Turkish Defense Industry has been constructing a combustion engine, suitable for standoff missiles (SOM), with a reach of 300 km (186 miles). At this point, we should remind that Turkey has been participating, alongside 34 other countries, in the international regime of the Missile Technology Control Regime (MTCR) [21] since 1987. MTCR's purpose is to limit the perils of dissemination of weapons of mass destruction, including those of nuclear weapons, via the screening of materials which will aid the development of dispatch channels for such weapons (excluding aircrafts). Turkey intends to produce its own channels of dispatch with a maximum reach of 2,500 km and specific capabilities of aiming [22]. As mentioned beforehand, Turkey develops the missile SOM-J, which was destined for the F-35, as well as for the Turkish jet fighter TF-X. Simultaneously, the missile Gezgın is being developed with a range of 1,500 km [23], which will have the capability to be launched from land forces, surface ships and submarines. In addition, the anti-naval missile Atmaca (with a reach of 280-360 km) is being developed in the country, which is anticipated to forearm the Turkish Navy and replace the American Harpoon. It is evident that the Turkish defense industry is developing its missile capabilities. This is especially alarming, since the possession of nuclear warheads is not by itself enough, as the suitable dispatch channel is also required. Regarding Greece, the proximity of the continental country to the Turkish coastlines is another source of restlessness, while the reach of Turkish missiles will create problems to many more countries of the region.

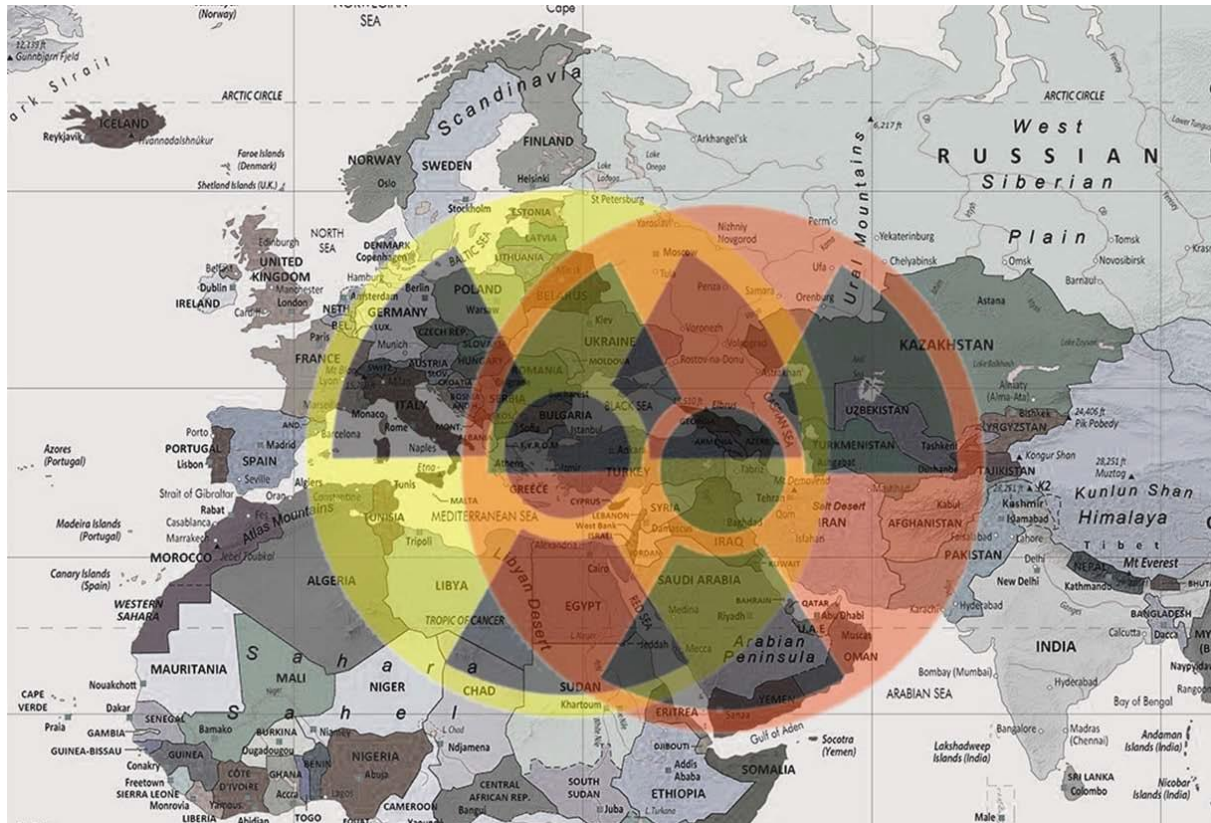
In conclusion, the Turkish defense industry with the coalition of companies from the private sector, is booming and is providing the Armed Forces with state-of-the-art equipment, extending their capabilities constantly. The know-how acquired is also important, while at the same time Turkey has achieved its first exports. Nevertheless, the development and manufacture of nuclear weapons is an extremely

costly and technologically demanding procedure which only very few countries have achieved to accomplish. The manufacturing of a nuclear reactor with the aid of Russian expertise will allow the Turkish industry and Turkish scientists to get involved in the nuclear energy sector while gaining valuable experience.

Indications regarding nuclear weapons purchase

Turkey's case is not as crystal clear as Iran's. This occurs because there are no firm proofs of possible weapons manufacturing. The indications, however, are quite a few, thus Western secret intelligence services spy on Turkey, since they fear that an undercover development program of nuclear weapons, from Ankara, is under process. One of it concerns the aforementioned equipment program of the Turkish defence industry, especially regarding missile systems/dispatch channels of nuclear warheads. Indeed, the country has turned to the development of missiles with medium and long-range (with a maximum range of 2,500 km) since 2011. This indicates the existence of a nuclear program, as stated by Hans Rühle [24], a former member of the German Ministry of Defence. He also claimed that the Western secret intelligence services community now agree to a large extent that Turkey has been working on both nuclear weapons and their dispatch means (missile technology).

The following map depicts the potential targets which are located within the missile reach of Turkish-made missiles:



The range of Turkish made missiles (up to 2.500km)

In addition to this, it's worth mentioning that the "key factor" for the nuclear reactors manufacturing contracts is the fact that there are references in these contracts about the provision of the required low-enriched uranium and about the recovery of used fuel bars. Offers for these contracts were made by both Rosatom and the Japanese-French consortium [25]. In both bids, however, Turkey insisted that the agreement will not include either the uranium provision or the rebate of the used fuel bars. This could mean that Turkey intends to enrich uranium even in low levels and this potential intention made the German intelligence services BND [26] start the investigation for this matter [27]. Moreover, the Turkish Minister of Energy, Taner Yildiz, stated in January 2014 that the denial of the conventional settlement of the

uranium provision with the aforementioned companies occurred due to Turkey's desire to comprehend the full circle of the nuclear fuels. Despite the absence of advanced factory processing wastes in Turkey, studies have shown that such a factory can be built within six months and have the size of a normal office building while experts claim [28] that the most difficult part of producing a bomb is essentially the acquisition of the fuel.

Turkish authorities officially deny that they are aiming to enrich uranium with the ultimate goal to develop nuclear weapons. They have, moreover, declared on many occasions that uranium enrichment is every country's right in the context of the Nonproliferation Treaty to be used for peaceful reasons. Besides, various Turkish officials' statements denote the country's intentions. More specifically, in 2011, the Turkish Ambassador in Washington claimed that his country could not bear the fact that Iran possesses nuclear weapons. Two years later, President Abdullah Gül, noted in his interview at Foreign Affairs magazine that Turkey will not allow a neighboring country to own nuclear weapons, while they do not [29]. Even clearer was the statement of current Turkish President R.T. Erdogan, according to which [30] he could not accept rules which prevent Turkey from acquiring nuclear weapons, since there is no developed country that does not possess a nuclear arsenal.

Based on those mentioned above, Turkey has declared, through the most high-ranked officials of the state, its desire to develop nuclear weapons, whereas at the same time the country possesses the essential network to find resources and know-how via its allies. Besides, Turkey has already signed agreements concerning the construction of two nuclear power plants which are under process and it has invested upon its missile capabilities. In case Turkey eventually manages to construct these power plants, the acquisition of its own nuclear arsenal will be merely some months away. Thus, it will have the **Nuclear Option**. This is a term of **Nuclear Strategy**, which constitutes the capability of acquiring nuclear weapons within a period of 12 months after the relevant decision has been made [31]. The Nuclear Option originates as a result either from a deliberate political decision or from a peaceful nuclear energy program. In addition, Nuclear Option for a country is sometimes the optimum choice, since it constitutes an interim situation of acquiring

or not a nuclear arsenal. In other words, it offers the best combination of possessing nuclear energy, which rapidly converts into weapons without the sanctions of the International Community.

Finally, according to some sources [32], on 15 March 2010, Israeli Prime Minister Netanyahu informed Greek counterpart Papandreou that Turkey could become a nuclear power and could also convert into a regional power in Mediterranean, Middle East and Central Asia, whenever it would think the timing was right [33]. Having analyzed the above, a question arises regarding the ability and the desire of the International Community to pose sanctions upon Turkey in case the latter attempt to produce nuclear weapons, considering Turkish conduct towards International Law and its relationship with adjacent countries.

Which are the International Community sanctions to countries attempting to purchase nuclear weapons?

1. Treaty on the Non-Proliferation of Nuclear Weapons (NTP)

The NTP [34] was signed in 1968 among the United Kingdom, the United States, USSR and 59 more countries. The initial 62 countries including the 3 nuclear powers agreed that other countries should not contribute to the production or acquisition of nuclear weapons. The Agreement was activated in 1970, lasted for 25 years and reflected the mutual desire of the two superpowers, USA and USSR, to cooperate, although they disagreed on a variety of different topics and both preserved enormous conventional and nuclear arsenals [35]. The Agreement was maintained until after the original arrangement of 25 years when in 1995, 174 member states of the United Nations signed for its indefinite extension. [36]. Moreover, in 2007, only 3 countries had not signed the Agreement yet (India, Israel and Pakistan), whereas only North Korea had initially signed it but abandoned it later.

This Agreement is unique, as it is “uniquely unequal”, since it **obliges the non-nuclear powers, i.e. the vast majority of the member**

states of the UN, to abstain from nuclear weapons development, while, at the same time, it allows the nuclear powers to preserve their arsenals. This blatant unfairness was agreed since back then, the non-nuclear powers did not have either the ability or the desire to acquire nuclear weapons. The nuclear powers, however, in exchange for maintaining their weapons, would provide their expertise to the rest of the states to develop nuclear technology for peaceful purposes. The Agreement contributes to nuclear disarmament, as nuclear powers cooperate in this context securing balance in global level regarding nuclear weapons, whose ability to destroy is beyond words. Nonetheless, the Agreement has been recently tested by ambitious nuclear powers, such as North Korea, Iran, India and Pakistan. North Korea exited the Agreement in 2003, Iran has its own nuclear program, while India and Pakistan have been declared as nuclear powers (i.e. countries with nuclear arsenal), without International Community's sanctions to prevent them from advancing with their plans.

Currently, the Agreement has been signed by 191 member states of the UN [37], including the 5 nuclear powers which are simultaneously permanent members of the United Nations Security Council, namely USA, Russia, United Kingdom, France and China making it the most widespread international treaty in force. The participation of almost all the nations of the World indicates the importance of the NTP, as it constitutes the cornerstone of the global regime of Nonproliferation and essentially the foundation of the attempts for nuclear disarmament. Additionally, it enhances the cooperation for the peaceful use of nuclear energy among nations. Nuclear Weapon Free Zones (NWFZ) have also been established based on the Agreement. These zones are defined by the 3472 (XXX) Second Resolution of the General Assembly of UN, as every such zone that is recognized by the General Assembly of UN, which every group of countries have created based on an agreement or a treaty, according to which:

- (a) The charter of the absence of nuclear weapons in which the zone is conditioned, including the zone delimitation procedure,
- (b) International control and validation system is created which guarantees the abidance to the obligations deriving from the charter.

The Treaties which are involved in zones without nuclear weapons are

the following:

The following treaties form the basis for the existing NWFZs:

1. Treaty of Tlatelolco — Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean
2. Treaty of Rarotonga — South Pacific Nuclear Free Zone Treaty
3. Treaty of Bangkok — Treaty on the Southeast Asia Nuclear Weapon-Free Zone
4. Treaty of Pelindaba — African Nuclear-Weapon-Free Zone Treaty
5. Treaty on a Nuclear-Weapon-Free Zone in Central Asia
6. Antarctic Treaty
7. Outer Space Treaty — Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies
8. Moon Agreement — Agreement Governing the Activities of States on the Moon and Other Celestial Bodies
9. Seabed Treaty — Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and in the Subsoil.
10. Apart from the Treaties above, the self-proclaimed regime of Mongolia without nuclear weapons has been internationally recognized via the approval of the resolution of 55/33S of the General Assembly of UN concerning "The International regime of security and nuclear weapons of Mongolia.

The aforementioned zones without nuclear weapons are shown in the picture below:



Source: <https://www.un.org/disarmament/wmd/nuclear/nwzf/>

More specifically regarding Treaty [38], the Articles I and II, the nuclear powers agree that they will not assist the non-nuclear ones with the development or purchase of nuclear weapons, even some of the latter pursue such purchases. Article III guarantees that nuclear materials will not be used in the development of weapons and it also assigns the International Atomic Energy Agency (IAEA) the auditing of nuclear premises of non-nuclear powers. Article IV recognizes as **“indefeasible right”** of the countries forming the Treaty, the right to research and develop nuclear energy and supports the maximum possible exchange of information among countries. Article V is the most obsolete of the Treaty, as it concerns the nuclear trials which are prohibited by the Treaty itself and all five nuclear powers have signed. Article VI binds the countries of the Treaty to **“continue the negotiations with good faith for the creation of effective measurements the soonest possible in order a race for nuclear equipment to be avoided and for the nuclear disarmament to remain valid under international control”**. Acknowledging the necessity of the middle steps in the nuclear

disarmament procedure, Article VII enables the peripheral zones creation without nuclear weapons, as analyzed above. Article VIII provides a relatively long and complex procedure for the amendment of the Treaty. This intends to prevent any change unless there is a vast consensus beforehand. Finally, Article X defines the conditions under which a country can withdraw from this Treaty, having provided a three months' notice, in case any "imminent events" pose danger to country's national interests. The rest of the Treaty deals with its administration, mentioning a revisionist conference every five years and a resolution every 25 years regarding with the extension or not of the Treaty. As mentioned above, the Treaty was extended infinitely in 1995.

2. Turkey is a revisionist power which interprets International Law and International Treaties according to its whim

It has been already mentioned how the modern Turkish Foreign Policy has been integrated within the Neo-Ottomanism doctrine. This policy is aggressive towards adjacent countries and a typical example is the spotlighted Turkish aeronautical drill called "Blue Homeland (Mavi Vatan)" and the relative statements of R.T. Erdogan regarding the "borders of his heart". These borders have featured at times the countries between Andalusia (Spain) and Bukhara (Uzbekistan) [39], Bulgaria, Greece, Bosnia, Albania, Kosovo, northern Africa, Syria, or even the Al-Aksa Mosque in Israel [40]. Hence, Turkey is a revisionist power which interprets International Law and their obligations, according to its whim. More specifically, Ankara violated the Resolution (2526/2020) [41] of the UN concerning the weapons embargo to Libya. The incident occurred recently between a Turkish and a French warship, NATO allies, in the broader waters of Libya, is evident of this aggressiveness. The French warship attempted to investigate a commercial ship executing the UN resolution for the weapons embargo to Libya. The Turkish frigate aimed at the French one resulting in an unprecedented crisis within NATO [42] which in turn resulted to the French withdrawal from the drill as a protest to the

disgraceful fierceness from Turkey to an ally. Unfortunately,[43] the same behavior Turkey has shown more recently towards a German warship which also tried to investigate a cargo vessel which was heading to Libya. Of course, Turkish impudence continued when Ankara demanded via the Foreign Minister, M. Cavusoglu that France and Germany, must apologize; an apology that has not been given of course till this day by the French while the German Foreign Ministry has rejected all Turkish complaints.

At the same time, Ankara also violated UN Resolutions regarding the Republic of Cyprus, which is not recognized by Turkey until today. More precisely, Turkey violate the Resolution of UNSC (353/1974) [44] and the respective on of UN General Assembly (37-253/1983) [45] which ask all the states involved to respect totally the independence, sovereignty and the territorial integrity of Republic of Cyprus. The same Resolution asks for the immediate military forces' disengagement of third-party states located in the soil of the Republic of Cyprus; this refers of course to the Turkish Armed forces which illegally invaded the island IN 1974. With a more recent Resolution (541/1983) [46], UNSC condemns as illegal the inauguration of "Turkish Republic of Northern Cyprus", the fake-state as has been recognized only by Turkey.

Turkish violations of International Law are not limited only in the ones mentioned above, as their provocations in the Aegean occur daily. The constant violations of Greek territorial waters, airspace and of Athens FIR from both Turkish Navy and Air Force have been expressed by Athens to EU and NATO. Nevertheless, the Turkish provocative behavior is escalated every year with more and more incidents, which have resulted in deaths of Greek pilots, as it is clearly shown in the chart below:

Turkish aggression 2000-2019



Turkish defiance towards International Law becomes even clearer when their fighter jets' flyovers occur overpopulated Greek islands (!) and the official statement for casus belli in case Greece practices the right recognized by the Maritime Law to extend Greek territorial waters to 12 nautical miles. In other words, Turkey threatens Greece to open war if the latter implements the International Law in its territory!

Lately, Turkish violations of Greek and Cypriot sovereignty rights have been increased, since Ankara threatened with hydrocarbon exploration both within Greek and Cypriot EEZ. In fact, Turkey has already executed seismic research violating the Maritime Law. The flagship of this Turkish provocation in the East Mediterranean was the recent EEZ Treaty that was signed with the Libyan government. This Treaty does not essentially recognize the EEZ of Greek islands Rhodes, Crete, Karpathos and Kastelorizo and therefore was naturally rejected by the Greek government.

The aforementioned actions do not comply with good neighborliness and as a result, Greece faces daily the Turkish revisionist policy in both the Aegean and East Mediterranean. Moreover, Turkey requested the demilitarization of the major Greek islands of the Eastern Aegean, while it also disputes Greek sovereignty on Dodecanese and Crete and, of course, Turkey has not stopped focusing on Muslim minority of Thrace as it falsely accuses Greece that suppresses the Muslim minority with the Greek nationality, whereas, at the same time, Turkish authorities have literally annihilated Greek minorities of Istanbul, Imbros and Tenedos infringing the Lausanne Treaty. Ankara's aspiration is to amend Lausanne Treaty on its whole, while the selection of the day for the first Muslim pray in Hagia Sofia (UNESCO's World Heritage monument) is not coincidental. R.T. Erdogan converted Hagia Sofia to a mosque and he chose 24th July as the first day of prayer, the very same date of the Lausanne Treaty signing [47]. Regarding the most recent episode of Hagia Sofia conversion to a mosque, this shows yet another time how Ankara perceives their international obligations, the International Law, the international institutions as well as its Western allies. This Turkish arrogant behavior has worried its NATO allies [48] as well as its neighboring countries. So, the reactions from the aforementioned, USA, Russia, Israel, Greece, Cyprus, almost the entire Arabic World [49] like Egypt, Saudi Arabia and UAE, France and Austria (EU), can terminate the ambitious hegemonic plan of Ankara. The latter seems to walk the line between the American superpower and Russia while leaning towards the one or the other side based on its interests, while simultaneously behaving even more provocatively towards the EU. The most recent example of Turkish infringement is the raw exploitation of the refugee issue to blackmail the EU. The European and Global communities witnessed dumbfounded actions of Turkish authorities of which the President stated that [50] if European Union characterized the Turkish operation in Syria as an aggressive occupational move, then Turkish Government would have forwarded 3.5 million refugees to Europe. During this period, Turks directed numerous refugee groups towards Greek borders to put pressure on the Greek side, which had specified that the borders were closed. When the "invasion" attempts to Greek-Turkish land borders failed, the Turkish authorities (especially its Cost Guard) redirected the refugee

groups towards Aegean harassing Frontex boats [51]. In addition, foreign sources claimed that transport of advanced weapons systems to Libya, a country amid civil war, occurred. The American weapons systems "Hawk" are mentioned to be transported according to these sources [52].

Summarizing the above, we can draw the conclusion that revisionist Turkey attempts to change the status quo in the East Mediterranean in its favour and for this reason, it does not hesitate to violate the International Law or to use it according to its own whim threatening the other countries of the area, or even the EU. The desire of Turkish elites to become a hegemonic power in the region is greater than any respect of the country towards its international commitments, which it pompously defies. As a result, it would not come as a surprise if Turkey attempts to develop/purchase nuclear weapons violating the NTP, which has already signed.

3.Reaction/Possible sanctions imposed by West to Turkey

Turkey presents itself as the greatest regional power which every other country of the region should take seriously into consideration. The image of great power, however, that Turkish leadership wants to present is far from reality. Turkey remains a financially frail country, mainly dependable from the West and especially the EU; the latter is by far the biggest Turkey's partner in both imports and exports as well as the country's major source of investments [53]. The 27 members of EU have set in motion the postponement of Turkey's accession negotiations, although it has been an under-accession country to EEC since 1963, while in 1987 an official application to access EU was made. Ankara was recognized as a candidate country for entering the EU merely in 1999. The negotiations began, however, with serious delay, in 2005 [54]. The detainments were spectacular from the very beginning, while it is worth noticing that only 16 out of the 35 chapters of the procedures have been opened and only 1 has been finalized. Till today, the deathblow to this accessing route of Turkey was achieved by **the suppression measurements R.T. Erdogan practiced after the failed coup against him in 2016. These measures hit with a**

deplorable manner the European standards regarding the freedom of Press and expression [55]. At the same time, the reintroduction of the death penalty is totally incompatible to the European values and especially to the **European Convention of Human Rights**.

Another Ankara's aggressive act in northern Syria, which caused great numbers of casualties and the displacement of thousands of civilians was condemned by many countries, including the EU. As a result, European Parliament Members adopted a Resolution requesting stricter measurements against Turkey [56]. More specific, they considered **despicable the utilization of refugees from R.T. Erdogan as a weapon against the EU** and called the European Council to pose a series of targeted sanctions as well as prohibitions of validations (VISA) for Turkish officials who are responsible for the human rights violations. They also suggested that the European Council should consider aimed economic measurements against Turkey in addition to the suspension of commercial rights in the context of the agreement for the agricultural products and finally, as a last resort decision, the suspension of the customs union between EU and Turkey.

One more major issue due to which more sanctions were imposed on Turkey was the purchase of Russian anti-aircraft system S-400. This purchase triggered US reactions. After negotiations and benefits provisions proposed from the American side to Turkey to prevent this transaction, since S-400 would not be compatible with NATO systems and especially with F-35, Ankara was ultimately suspended from the 5th generation jet fighter F-35 program development. Turkish bravado continues despite the loss of billions \$ which had been invested on the F-35 program, as the Turkish government attempts the activation of S-400, [57] as actually did earlier this year. This has as a result the Imposition from the U.S.A. Sanctions on Turkish Presidency of Defense Industries against Turkey [58]. Concurrently, the country is known to host, at the military base of Incirlik, nuclear weapons originated from the United States, which makes the two countries' relationships even more complex.

Apart from the above, Turkish revisionism in the broader East Mediterranean region has caused the frustration of other important powers, including France, Israel, UAN and Egypt. Turkey seems to be challenging a number of important powers, which are increasingly

concerned about its aspirations. The most recent episode was the French and more recently German anger regarding the events with the warships of these NATO allies at Libya's coastlines mentioned beforehand. In addition, Israeli reaction to Turkish expansive plans in the Mediterranean as well as its support to Palestinian authorities was fierce and led Israel to an axis creation with Greece and Cyprus, which comes with Washington's blessings. The United States discusses the possibility of imposing sanctions on Turkey as if the latter is not a NATO-allied country but an enemy. Finally, Egypt does not want the presence of Turkish armed forces near the country's western borders and of course, it would like to prevent Turkish domination in the Muslim World (the same applies for UAE and Saudi Arabia as well as other Arab States). For this reason, Egypt has approached Greece, Cyprus and France [59] and set the stage for a possible Egyptian military operation in Libya [60]. At the same time, the recent Russian-Turkish coalition appears to have certain problems, as the Russian side does not hesitate to attack Turkish or Turkish-friendly forces in both Syrian and Libyan soils, since their interests do not exactly coincide. Not to mention the complex situation at the Nagorno-Karabakh conflict between Armenia and the close allies of Ankara Azerbaijan. In this conflict, Turkey actively supported the Azerbaijani armed forces which eventually forced the Armenian army to withdraw as Russia did not openly intervene in favor of Armenia [61].

It must be highlighted that the excessively aggressive/revisionist conduct of Ankara has displeased many of Turkish traditional enemies, allies and competitors in the region. The ostentatious violation of International Law, the non-compliance to international commitments, such as the weapons embargo from the UN to Libya or the conversion of Hagia Sofia to a mosque, have driven Ankara to isolation. Consequently, the current sanctions and the possibility of new ones to be imposed, especially from the West, have become a reality and as a result actions in the direction of developing/purchasing of nuclear weaponry could have a quite negative impact on the already fragile economy of the country. For the reasons above, we consider that **due to the current conjuncture, the International Community has to react immediately to any Turkish nuclearization attempt, since such an attempt could make this country even more dangerous to the**

international order and the Western security system in the region. The history of WW2 underlined that Appeasement is not always the best option.

The table below summarizes the disincentives regarding Turkish nuclearization which are equally important:

Disincentives regarding Turkish nuclearization	
High Intensity	<ol style="list-style-type: none"> 1. Country's alliance with major Nuclear Powers (e.g the US) 2. Reactions of other Nuclear Powers to the possibility of Turkish nuclearization including economic measures (sanctions) to the fragile Turkish economy 3. Possibility of nuclearization of other rival forces to balance Turkish power (e.g. Greece, Egypt, Saudi Arabia, UAE etc.)--> Nuclear Arms race in the Region
Mild Intensity	<ol style="list-style-type: none"> 1. Possibility of a preemptive strike against the country by another force(s) recommends the destruction of a potential source of threat 2. International Legal Consequences by the UN, EU etc.
Low Intensity	<ol style="list-style-type: none"> 1. Reputation of a peace-loving country that respects the International Law and its international obligations 2. Internal reactions

At the same time, the idea of the creation of Nuclear Fuels Bank [62] has been promoted during recent years. Such a bank would provide access and cover of the needs of these countries, without the requirement for the stakeholders to develop facilities of enrichment.

Enrichment, of course, is the main issue which poses queries regarding the technology of 'dual-use'. This essentially marks the enrichment responsibility shift from countries to multinational organizations. This idea greatly contributes to the need of prevention nuclear weapons development in the broader Middle East and Asia regions, while it also creates a new international model of non-proliferation [63] which will prevent the countries from using the pretext of nuclear energy, while their real ambition is to develop nuclear weapons.

Conclusion

To conclude, in this article we tried to outline the issue of Turkish nuclearization, which could affect many countries' security in the region of Southeast Mediterranean, the Middle East and Europe as well. Turkey's goal to become a regional power makes the scenario of development/purchase of nuclear weapons an especially realistic case, regarding which the International Community must show extreme attention.

For the moment, the international circumstance is against Turkey, as the EU - with France, Greece, Cyprus and Austria being in the front line, USA, Israel, Libya, Syria, Armenia and Arabic countries (Egypt, Saudi Arabia, UAE) have been hurt by the revisionism of Ankara. This behavior affects the Western edifice of security in the area. France, Greece, Cyprus, Libya, Syria and Armenia experience from first-hand the Turkish expansiveness which is mainly characterized, as analysed above, from the violation of the International Law.

The Turkish policy, which is in line with the Neo-Ottomanism dogma, refers to the country's pivot to the East, where Islam thrives and the simultaneous distancing from the West and the Western values in general. This belief of course aims to transform Turkey into a regional power. As a result, the development of the Turkish defense industry intends to cover the increased internal needs, resulting from this dogma.

Despite the international circumstance and the difficulty in developing nuclear weapons, the increased cost and the International Treaties mentioned beforehand, Turkey still works methodically towards nuclearization with the aid of Russia (nuclear station's construction contract in the Mersini province). Nonetheless, serious delays are noticed (because of the skyrocketing of the construction cost, due to the increased security standards after the recent accident in Fukushima and of course due to the downside of the Turkish economy). Special attention must be paid, however, to the relationship of Turkey with the nuclear Pakistan, which is multilevel and based on the common belief that the state organization must be under the Islamic

Law. This fact enables Turkish leadership to be optimistic about nuclear energy development for peaceful reasons, at least initially (energy requirements cover).

In case Ankara attempts to develop a nuclear arsenal, sanctions are intended to be heavy since the entire Western security system will be disrupted as all the states of the region will be vulnerable to Turkish nuclear weapons. Moreover, in case of Turkish nuclear weapons development, we should take into consideration that there is a serious possibility that other states of the region will attempt to develop their own arsenal to balance the Turkish threat and such attempts would make the sensitive area of Mediterranean a nuclear equipment race with unpredictable consequences.

Finally, the possibility of Turkish nuclear weapons development exists, despite realistic difficulties. If this possibility converts to reality in the future, this will result in a dramatic reversal of the power balance between Turkey and other states of the region. This is a worrying fact for the International community, which must include the issue of Turkish nuclearization to public discussion. The writers of this report hope that they have contributed, with their share, to the emergence of this issue, which concerns the security of the entire region.

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«The Russian-Turkish nuclear agreement states that Turkey will not have access to fuels or used fuels from the energy production station. The fuels will be imported by Russia and the used fuels are exported immediately. This agreement reduces the danger of Turkey further enriching the fuel or isolating the plutonium from the used fuels. Hence, Russia can fully control the Turkish nuclear program. Respectively, the Japanese-Turkish updated in 2014 agreement for the second nuclear factory does not allow the plutonium enrichment technologies' transportation or the movement of reprocessed used nuclear fuel to Turkey. Nevertheless, Chapter VIII of the Agreement defines that this provision can change in the future, if both governments agree, while the details regarding the process of used nuclear fuel remain unknown. Japan has a surplus of used nuclear fuel and it is unlikely that they will consent to the return of used fuel. The nuclear energy agreements with Russia and Japan, as well as the plans for a third, completely national scheme with China signify that Turkey may have accepted the limitations concerning the nuclear fuels cycle. Nonetheless, they plan to gradually reduce foreign guidance and the general control, as these constitute barriers to the development of their own nuclear program.»

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