THE ISRAEL-IRAN CONFLICT AND THE CHALLENGES OF NUCLEAR SECURITY

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Abstract: In the 21st century, many conflicts are taking place in the world, which have a significant impact on international security and weaken it. All this determines the need to establish a new security architecture. The Middle East region has been a very active region in terms of military-political and asymmetric threats for centuries. This is due to the geopolitical and geoeconomic factors in the region and the world. The Israeli-Iranian confrontation has been going on for decades, which has intensified even more after the activation of Iran's nuclear program and the threat of creating a nuclear bomb. The purpose of the paper is to research and analyze the causes of the Israeli-Iranian conflict, the actors involved and the consequences, in the context of regional and international security. Also, the nuclear security policy resulting from the conflict, which has become increasingly relevant in recent years. In the research process of the paper, historical-descriptive, policy research, content analysis and comparative research methods were used, as a result of which we obtained important conclusions. The theoretical framework of the paper is the theory of realism, securitization theory, balance of power theory, regional security theory and nuclear intimidation theory. The research identifies the main findings and analysis of the Israeli-Iranian conflict, which has had a significant impact on nuclear security policy. The confrontation between these two geopolitical players poses a significant threat and challenge for the Middle East region, where the dimension of threats is already large.

Keywords: Regional security, Global security, Israel, Iran, USA, Nuclear program.

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Introduction. One of the most serious challenges to international security in the twenty-first century is the confrontation between Israel and Iran. This conflict is not limited to political tension between two states; rather, it includes military, intelligence, ideological, regional, cyber-security, and nuclear-security dimensions. The nuclear issue, in particular, transforms Israeli-Iranian relations from a regional dispute into a matter of global security.

Iran's nuclear program has been at the center of international attention for decades. Tehran argues that its nuclear activities serve peaceful purposes, while Israel and a number of Western states believe that Iran's technological capabilities may develop into a military nuclear potential (International Atomic Energy Agency, 2025). These opposing perceptions create a security dilemma: a step taken by one side in the name of defense, sovereignty, or energy needs is perceived by the other side as an existential threat.

In contemporary international relations, nuclear security does not refer only to the existence or non-existence of nuclear weapons. It also includes the protection of nuclear materials, the physical security of nuclear facilities, the prevention of radiological risks, international inspections, cyber-security, the prevention of nuclear terrorism, and effective crisis-management mechanisms (International Atomic Energy Agency, 2011). In the context of the Israel-Iran conflict, all these components become especially vulnerable.

The purpose of this article is to analyze the Israel-Iran conflict from the perspective of nuclear security. The paper examines the historical roots of the confrontation, the evolution of Iran's nuclear program, Israel's

security doctrine, the international legal framework, the role of the IAEA, cyber-security challenges, the risks of regional escalation, and the possible responses of the international community.

Research Methodology

This study applies a qualitative research methodology, as its purpose is not the statistical processing of quantitative data, but rather an in-depth analysis of the Israel-Iran conflict and nuclear-security challenges from political, legal, security, and international-relations perspectives.

The research process relies on the method of document analysis. The study examines reports of international organizations, including documents of the International Atomic Energy Agency, United Nations Security Council resolutions, the Treaty on the Non-Proliferation of Nuclear Weapons, as well as academic literature, scholarly articles, and publications of security research institutions. This method makes it possible to assess how Iran's nuclear program is represented within the international legal and security discourse.

The study also uses the historical-analytical method, through which the development of Israeli-Iranian relations from the 1979 Islamic Revolution in Iran to the present day is examined. This method makes it possible to demonstrate the gradual transformation of the conflict—from political confrontation into a regional, military, and nuclear-security crisis.

A significant part of the research is based on comparative analysis. The study compares the approaches of the international community toward Iran's nuclear program, Israel's security doctrine, the policies of the United States and European states, and the monitoring mechanisms of the IAEA. The comparative approach helps explain why the threat perceptions and political responses of the involved actors differ.

The paper also applies the method of international legal analysis, through which the significance of the NPT, the JCPOA, and United Nations Security Council resolutions is assessed in relation to the control of Iran's nuclear program. This method is necessary to determine the extent to which the actions of the parties correspond to the principles of international law and the requirements of the nuclear non-proliferation regime.

In addition, the study uses the method of security dilemma analysis, based on the theoretical framework of international relations. Through this approach, the paper evaluates how Israel perceives Iran's nuclear program as an existential threat, while Iran views its nuclear development as an instrument of sovereignty and security. This method is particularly important for explaining the logic of conflict escalation.

The study further applies the method of risk analysis, which examines possible scenarios related to military attacks on nuclear facilities, cyber-attacks, radiological threats, breaches in the security of nuclear materials, and regional nuclear escalation. This method contributes not only to the description of existing threats, but also to the assessment of their possible consequences.

Thus, the research is based on a multi-method analytical approach that combines document analysis, historical-analytical research, comparative analysis, international legal assessment, theoretical interpretation of the security dilemma, and risk analysis. The combination of these methods makes it possible to evaluate the Israel-Iran conflict as a complex nuclear-security challenge that goes beyond the regional framework and is directly connected to the stability of the international security system.

Historical Foundations of the Israel-Iran Confrontation

Relations between Israel and Iran have not always been hostile. Before the 1979 Islamic Revolution in Iran, there was pragmatic cooperation between Tehran and Tel Aviv based on common geopolitical interests. The Shah's Iran viewed Israel as a regional partner, while for Israel, Iran was important in balancing Arab states (Parsi, 2007).

After the 1979 revolution, the situation changed radically. The Islamic Republic of Iran declared Israel an illegitimate state and made the Palestinian issue one of the central elements of its foreign policy. From this period onward, an ideological confrontation began, which gradually developed into military and strategic competition (Acton, 2012).

Iran supported non-state actors in the region, including Hezbollah, Hamas, and other groups. Israel perceived this support as Iran's indirect warfare against it. As a result, a so-called "shadow war" emerged, involving intelligence operations, cyber-attacks, targeted killings, sabotage, and military strikes against Iranian or Iran-linked targets.

The nuclear factor occupies a special place in this confrontation. Israel's security elite believes that Iran's potential acquisition of nuclear weapons would change the balance of power in the Middle East and significantly weaken Israel's deterrence strategy. For Iran, however, the nuclear program is associated with technological development, sovereignty, energy independence, and symbolic resistance against Western pressure.

The Development of Iran's Nuclear Program

Iran's nuclear program began during the period of the Shah, when Western countries supported Iran's nuclear-energy development. Initially, the program was viewed as part of modernization and energy diversification. However, after the Islamic Revolution, international trust toward Iran declined, and the transparency of its program became a subject of international dispute (International Atomic Energy Agency, 2025).

Particular tension emerged in the early 2000s, when some previously undisclosed elements of Iran's nuclear infrastructure became known. This raised suspicions that Iran might not have fulfilled all its obligations under the Treaty on the Non-Proliferation of Nuclear Weapons. Subsequent IAEA reports showed that certain aspects of Iran's nuclear program required further clarification and monitoring (Associated Press, 2026).

Uranium enrichment is an especially sensitive issue. Low-enriched uranium can be used for energy purposes, while highly enriched uranium approaches the level necessary for producing material suitable for nuclear weapons. For this reason, Iran's enrichment program is considered the main non-proliferation challenge.

In 2015, Iran and the P5+1 countries concluded the Joint Comprehensive Plan of Action, known as the JCPOA. The agreement aimed to limit Iran's nuclear program in exchange for sanctions relief. Iran was required to restrict the level of uranium enrichment, reduce the number of centrifuges, and agree to enhanced international monitoring (United Nations Security Council, 2015).

However, the withdrawal of the United States from the JCPOA in 2018 significantly weakened the stability of the agreement. Iran gradually reduced its compliance with the obligations undertaken under the deal and expanded its enrichment capabilities. This once again intensified Israeli and Western concerns, because the weakening of the JCPOA reduced the predictability of Iran's nuclear program.

Israel's Security Doctrine and the Policy of Preventive Strike

Israel's national security doctrine is based on several core principles: technological superiority, intelligence depth, rapid military response, and the prevention of hostile states from acquiring weapons of mass destruction. This approach is often associated with the so-called Begin Doctrine, according to which Israel will not allow a hostile state in the region to acquire nuclear weapons (Talbot, 2023).

The practical expression of this doctrine is often seen in Israel's 1981 airstrike on Iraq's Osirak nuclear reactor and the 2007 destruction of Syria's Al-Kibar facility. From Israel's perspective, preventive action

becomes necessary when neutralizing a future threat may become more difficult or impossible (Bowen & Moran, 2015).

In the case of Iran, the preventive strategy is much more complicated. Iran's nuclear infrastructure is distributed across multiple facilities; some of them are located deep underground, and the program includes human capital, technological knowledge, and scientific networks. Therefore, the complete destruction of the nuclear program through military strikes alone is practically impossible.

For Israel, Iran's nuclear program is not only a military threat, but also a crisis of strategic deterrence. If Iran acquires nuclear weapons or comes very close to producing them, the regional balance of power may change, Iran's allied groups may become stronger, and the likelihood of riskier actions against Israel may increase.

International Law, the NPT, and the Non-Proliferation Regime

The Treaty on the Non-Proliferation of Nuclear Weapons, or NPT, is the main legal foundation of the international nuclear order. Its three main pillars are nuclear non-proliferation, the right to the peaceful use of nuclear energy, and the long-term goal of nuclear disarmament (International Atomic Energy Agency, 2025).

Iran is a party to the NPT, which means that it has the right to develop peaceful nuclear energy, but it is also obliged not to develop nuclear weapons and to allow IAEA monitoring. This is where the main dispute arises: Iran emphasizes its right to peaceful nuclear technology, while its opponents focus on transparency, inspections, and the lack of trust.

Israel is not a party to the NPT and maintains a policy of nuclear ambiguity. This creates asymmetry in the non-proliferation regime in the Middle East. Iran often points to this fact and argues that Western policy is based on double standards. Israel, however, maintains that its security environment is unique and that its strategic ambiguity serves defensive purposes.

United Nations Security Council Resolution 2231 placed the JCPOA within an international legal framework. The resolution provided for sanctions relief, but also introduced certain restrictions related to Iran's nuclear and missile activities (Milevski, 2011). However, the political weakening of the agreement demonstrates that legal mechanisms are effective only when they are accompanied by political will and a minimum level of trust among the parties.

The Role of the IAEA and the Challenges of Monitoring

The International Atomic Energy Agency is the central institution responsible for monitoring Iran's nuclear program. Its function is to verify whether nuclear materials are being diverted for military purposes. IAEA inspections, cameras, reporting mechanisms, and technical assessments create a minimum basis of international confidence (Fitzpatrick, 2019).

However, in Iran's case, the monitoring process has repeatedly become complicated. IAEA reports have raised issues related to undeclared materials, access to facilities, camera data, and the implementation of the Additional Protocol. When monitoring weakens, suspicion and political tension increase.

The role of the IAEA becomes especially important in conditions of military escalation. If nuclear facilities become targets of attack, it becomes difficult for the Agency to assess the radiological situation, account for nuclear materials, and verify the safety of facilities. Such a situation creates a double risk: on the one hand, there is the danger of a radiological or environmental incident; on the other hand, uncertainty regarding the location and condition of nuclear materials increases proliferation risks (Kibaroglu, 2006).

The effectiveness of the IAEA depends not only on technical capacity, but also on state cooperation. If a state restricts inspectors' access, the Agency cannot provide full assurance. Therefore, the Iranian nuclear issue shows that nuclear security is not only a technical matter, but also a deeply political process.

The Danger of Turning Nuclear Facilities into Military Targets

One of the most dangerous aspects of the Israel-Iran confrontation is the possibility that nuclear facilities may become military targets. An attack on nuclear infrastructure differs from an attack on an ordinary military facility because it may produce radiological, environmental, humanitarian, and political consequences.

The danger caused by damage to a nuclear facility depends on the type of facility. An attack on a reactor may create more serious radiological consequences, while a strike on enrichment facilities may be less catastrophic but still create chemical, radiological, and security risks (Sagan, 1996). In addition, an attack may destroy monitoring infrastructure and create uncertainty regarding the condition of nuclear materials.

Military strikes may delay a nuclear program in the short term, but in the long term they may increase a state's motivation to develop the program in a more secretive and protected manner. In such a case, the use of force may become not a solution to the problem, but a factor that produces a deeper nuclear crisis.

Therefore, military action against nuclear facilities is an extremely risky step from the perspective of international law, humanitarian norms, and nuclear security. It may be perceived by one side as preventive defense, but by the other as aggression and a violation of sovereignty.

Cyber-Security and the Vulnerability of Nuclear Infrastructure

Modern nuclear security is impossible without cyber-security. Nuclear facilities use computer systems, control mechanisms, sensors, databases, and communication networks. Their disruption can be as serious as a physical attack (International Atomic Energy Agency, 2021).

The Stuxnet case was a turning point in this regard. It is widely regarded as the first known cyber operation that targeted the industrial control system of nuclear infrastructure and damaged Iran's Natanz enrichment program (Cirincione, 2007). This case demonstrated that nuclear security is no longer only a matter of physical protection; it also includes software, the human factor, supply chains, and the reliability of information systems.

Cyber-attacks are particularly dangerous because attribution is difficult. This creates a risk of escalation: if a state perceives a cyber-attack as military aggression, it may respond with physical force. In this way, cyberspace becomes one of the least predictable fronts of the Israel-Iran confrontation.

The cyber-security of nuclear facilities requires constant monitoring, system isolation, staff training, incident-response plans, and international cooperation. However, in a conflict environment, such cooperation is often limited, which further increases the risks.

The Regional Security Dilemma in the Middle East

Iran's nuclear program affects the entire Middle East. If regional states believe that Iran is approaching nuclear-weapons capability, a regional nuclear competition may begin. Saudi Arabia, Turkey, Egypt, and other states may become interested in developing their own nuclear capabilities or strengthening external security guarantees (Mearsheimer, 2014).

This creates the danger of a domino effect. The main purpose of the nuclear non-proliferation regime is precisely to prevent such a process. If one regional state possesses nuclear weapons or the real capability to produce them, other states may begin to seek similar security mechanisms (Sagan, 1996).

At the same time, many conflicts in the Middle East are interconnected: Syria, Lebanon, Yemen, Iraq, the Palestinian issue, and Persian Gulf security. Against this background, Iran's nuclear program is not perceived as an isolated technical issue, but as part of a broader regional struggle for power.

For Israel, Iran's nuclear capability threatens not only the military balance, but also its psychological and political security. For Iran, Israel's military superiority, U.S. support, and sanctions pressure create an environment in which the nuclear program may be perceived as an instrument of deterrence.

Scenarios of Nuclear Escalation

Nuclear escalation in the Israel-Iran conflict may develop through several scenarios. The first scenario is a military strike against Iranian nuclear facilities, followed by Iranian retaliation against Israel, U.S. bases, or regional partners. Such a scenario could quickly develop into a large-scale regional war.

The second scenario is the full concealment of Iran's nuclear program. If Tehran concludes that international inspections no longer serve its interests, it may reduce or terminate cooperation with the IAEA. This would increase uncertainty and strengthen the position of those who support preventive strikes.

The third scenario is a policy of nuclear threshold status. In this case, Iran may not directly produce nuclear weapons, but may reach a technological level at which it could produce them rapidly if a political decision were made. This situation is especially dangerous because it increases the likelihood of miscalculation, panic, and pre-emptive military action (Fitzpatrick, 2019).

The fourth scenario is the breakdown of nuclear-material security as a result of internal unrest, sabotage, or military strikes. In such a situation, the threat may not be limited to a state nuclear program, but may also include the loss of materials, illegal trafficking, or their acquisition by terrorist groups.

The Threat of Nuclear Terrorism and Non-State Actors

The influence of non-state actors in the Middle East gives special importance to the issue of nuclear security. Armed groups operating in the region are often linked to states, receive financial, military, or political support from them, and participate in asymmetric conflicts.

The threat of nuclear terrorism does not necessarily mean the acquisition of a full nuclear weapon. A more realistic threat is the use of radioactive materials to create a so-called "dirty bomb," an attack on nuclear facilities, a cyber-attack, or the seizure of materials during transportation (International Atomic Energy Agency, 2011).

Escalation of the Israel-Iran conflict may increase such risks, because during war or chaos, security mechanisms become weaker. If the monitoring of nuclear materials is interrupted or facilities are damaged, the risk of illegal trafficking and the involvement of non-state actors increases.

Therefore, nuclear-security policy must include not only negotiations between states, but also the physical protection of materials, border control, intelligence sharing, and the prevention of regional crises.

The Energy, Environmental, and Humanitarian Dimension

The nuclear crisis is often discussed from a military-strategic perspective, but it also has important energy and environmental dimensions. Iran argues that its nuclear program is driven by energy needs. International law indeed recognizes the right to the peaceful use of nuclear energy, but this right is connected to obligations of transparency and monitoring (Treaty on the Non-Proliferation of Nuclear Weapons, 1968).

An attack on nuclear facilities may cause environmental contamination, population displacement, risks to drinking water and soil, as well as long-term psychological effects. Even if the radiological consequences

are limited, an attack on a nuclear facility creates public panic and undermines trust in state institutions (Reuters, 2026).

From a humanitarian perspective, a breach of nuclear security is especially dangerous in densely populated regions. A nuclear crisis in the Middle East may rapidly turn into new refugee flows, an energy crisis, and instability in international markets.

Lessons for Georgia

The Israeli-Iranian nuclear confrontation is important for Georgia as well, even though Georgia is not directly a party to the conflict. Georgia is located in a complex geopolitical environment where the interests of Russia, Turkey, Iran, the West, and the Middle East intersect. Regional escalation may affect energy security, transport corridors, the economy, and security policy.

For Georgia, it is especially important to strengthen national nuclear and radiological security systems. This includes border control, the fight against the trafficking of radioactive materials, emergency management, cyber-security, and cooperation with international organizations.

In addition, as a small state within the international system, Georgia is interested in maintaining a rules-based international order. If nuclear issues are resolved only through the use of force rather than through international law and negotiations, this creates a dangerous precedent for small states.

Key Challenges and Policy Recommendations

The nuclear dimension of the Israel-Iran conflict reveals several key challenges. The first is the lack of trust. The mistrust among Iran, Israel, the United States, and European states makes the implementation of any agreement difficult. The second challenge is the political nature of monitoring: the IAEA is a technical organization, but its work depends on political will.

The third challenge is the limited effectiveness of the use of force. A military strike may delay a nuclear program, but it cannot eliminate knowledge, technological skills, or a state's motivation. The fourth challenge is cyber-security, as nuclear infrastructure is increasingly dependent on digital systems (Waltz, 2012).

Policy recommendations may be formulated in several directions. First, full IAEA access must be restored and monitoring must be strengthened. Second, a new or renewed diplomatic agreement is needed, one that takes into account both Iran's peaceful nuclear rights and regional security guarantees. Third, channels of communication between Israel and Iran should be established, even if indirectly, in order to reduce the risk of accidental escalation.

Fourth, the international community should strengthen norms protecting nuclear facilities. Attacks on nuclear infrastructure should not become a normal military instrument. Fifth, an integrated approach to nuclear security and cyber-security is necessary, because future threats will increasingly emerge at the intersection of these two areas.

Conclusion. The Israel-Iran conflict is one of the most complex and multidimensional crises in contemporary international security. Its particular intensity is caused by the fact that the nuclear-security issue stands at the center of the confrontation. Iran's nuclear program, Israel's preventive security doctrine, the sanctions policy of the United States and the West, the monitoring challenges faced by the IAEA, and the regional balance of power create an environment in which any mistake may lead to large-scale escalation.

This study has shown that nuclear security is not merely a technical issue. It is closely connected to political trust, international law, military deterrence, cyber-security, energy policy, and regional stability. The crisis surrounding Iran's nuclear program is a clear example of this interdependence.

For Israel, Iran's nuclear capability is perceived as an existential threat. This perception is shaped by historical experience, a sense of regional isolation, and Iran's anti-Israeli rhetoric. For Iran, however, the nuclear program represents sovereignty, technological development, and strategic independence. The gap between these two perceptions creates a security dilemma that cannot be solved by military means alone.

Military action may temporarily delay a nuclear program, but in the long term it increases the risks of secrecy, radicalization, and nuclear decision-making. The use of force against nuclear infrastructure also increases the possibility of radiological, environmental, and humanitarian consequences. Therefore, the policy of preventive strike, despite its short-term military logic, may become a source of greater danger in the long run.

The role of the IAEA in this crisis is irreplaceable. Only international monitoring can create a minimum level of trust and reduce uncertainty. However, the IAEA cannot be effective if states do not provide it with full access and if major powers use its technical mandate for their own political purposes.

Special attention must be paid to cyber-security. The Stuxnet case demonstrated that an attack against nuclear facilities can be carried out not only with bombs, but also with code. In the future, the main challenges of nuclear security will emerge precisely at the intersection of physical and digital threats.

Ultimately, the nuclear dimension of the Israel-Iran conflict shows that contemporary international security requires not only military power, but also diplomacy, legal order, technical monitoring, and permanent crisis-management mechanisms. The nuclear issue cannot be resolved through pressure alone, just as it cannot be resolved through declarations alone. A comprehensive approach is necessary—one that reduces uncertainty around Iran's nuclear program, addresses Israel's security concerns, and preserves the credibility of the international non-proliferation regime.

The main lesson of this conflict is that nuclear security is shared security. One state's fear, another state's ambition, and a third party's geopolitical calculations can turn into a global crisis. Therefore, the management of the Israel-Iran conflict must be based not only on deterrence, but also on confidence-building, transparency, and the strengthening of international law.

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