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EVALUATING THE RISK OF TERRORIST ATTACKS AGAINST IRAQI NUCLEAR/RADIOLOGICAL SITES

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Abstract

Nuclear and radiological terrorism remains a persistent international security concern, particularly within politically fragile and post-conflict environments. This is due to the widespread use of radioactive sources in medicine, scientific research and industry for peaceful applications amid ongoing institutional reconstruction. Iraq represents this challenge due to its continued reliance on radioactive materials and its complex security environment following decades of conflict and political instability. This study evaluates the risk of terrorist attacks against Iraqi nuclear and radiological facilities, focusing mainly on dispersed radioactive source facilities that may demonstrate greater security vulnerabilities than centralized nuclear installations. The purpose of the study is to identify terrorist threats, assess vulnerabilities (existing) and finally evaluate the potential consequences of malicious acts involving radioactive materials, so as to inform risk management and nuclear security policy. The study uses a qualitative documentary research design through United Nations Security Council (UNSC) resolutions, IAEA Nuclear Security publications, peer-reviewed literature, authoritative policy documents and international legal instruments. This study focuses largely on evaluating the risk of terrorist attacks involving radioactive sources used in medical, industrial, research, and other non-centralized facilities rather than nuclear installations. It evaluates the risk of terrorist attacks against Iraqi nuclear and radiological sites using the Threat-Vulnerability-Consequence (TVC) framework by identifying key vulnerabilities such as transport security, cybersecurity, sabotage, theft, insider threats, regulatory oversight and interagency coordination. The findings indicate that nuclear security risk results from the interaction of threats, vulnerabilities and consequences. The study provides a context-specific assessment of Iraq and evidence-based recommendations aligned with IAEA guidance and international best practices, supporting stronger regulatory frameworks, governance, national coordination and integration of nuclear security into counterterrorism strategies applicable to Iraq and other post-conflict states.

Keywords: radioactive sources, terrorist attacks, nuclear security, Threat-Vulnerability-Consequence (TVC) framework

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Introduction

Nuclear and radiological terrorism remains one of the most significant international security challenges due to the widespread use of radioactive materials which create greater opportunities for sabotage, theft and other malicious acts than the acquisition of improvised nuclear devices (INDs). Robust protection is therefore required by radioactive sources used in medicine, industry, agriculture, research and education. The global nuclear security architecture has been strengthened through the Convention on the Physical Protection of Nuclear Materials (CPPNM) and its 2005 Amendment, the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT), UNSC Resolutions 1373 and 1540, and the IAEA Nuclear Security Series since the 11 September 2001 attacks, reflecting a governance-based approach that integrates regulation, threat assessment, cybersecurity, security culture, coordination and emergency preparedness. The evolution of nuclear security also recognizes both internal and external threats. As noted by Joyce Battle and William Burr (2021), the 1981 Israeli airstrike on Iraq's Osirak reactor demonstrated the vulnerability of nuclear infrastructure. Alkis (2022) further argues that international initiatives require integrated threat assessment, vulnerability reduction and consequence mitigation, providing the foundation for the (TVC) framework.



Source: Battle and Burr (2021).

Figure 1: Showing the Osirak research reactor site in Iraq after it was bombed by Israel in 1981

Contemporary nuclear security policy recognizes that nuclear security risk extends beyond technical capability or terrorist intent, arising instead from the interaction between motivated adversaries, institutional and technical vulnerabilities, and the potential consequences of a successful attack. However, existing research has focused largely on global nuclear terrorism, nuclear weapons proliferation and strategic nuclear facilities, with comparatively limited attention given to radioactive materials in post-conflict environments. Moreover, threats, vulnerabilities and consequences are often examined in isolation, limiting the

development of integrated, evidence-based risk assessments for effective nuclear security policy and decision-making.

Iraq provides a particularly important context for examining nuclear security in post-conflict environments. Following the dismantling of its historical nuclear weapons programme after the 1991 Gulf War, Iraq continues to use radioactive materials extensively for peaceful applications in healthcare, industry, research and education. Gerges (2010) further notes that, at the same time, decades of political instability, conflict and the presence of violent extremist organizations have created a dynamic security environment despite improvements in legislative and regulatory frameworks. Persistent vulnerabilities remain in areas such as radioactive source protection, transport security, border detection, insider threat mitigation, cybersecurity and interagency coordination. These factors portray Iraq as a representative of post-conflict states where institutional resilience plays a critical role in nuclear security.

The primary objective of this study is to evaluate the risk of terrorist attacks against Iraqi nuclear and radiological facilities by examining the relationship between terrorist intent and capability, institutional and technical vulnerabilities, and the potential consequences of malicious acts involving radioactive materials using the TVC framework. The study assesses Iraq's existing nuclear security arrangements in order to achieve this objective by identifying critical security gaps and proposing recommendations consistent with UN Security Council resolutions, IAEA guidance and other international nuclear security standards. It achieves this by specifically examining the principal terrorist threats facing Iraqi nuclear and radiological facilities, the institutional, human and technical vulnerabilities that increase attack likelihood, the potential political, economic, psychological and security consequences of such attacks, and measures required to strengthen Iraq's nuclear security regime while fulfilling its international obligations.

This research contributes to both academic scholarship and practical nuclear security policy by addressing the limited literature on terrorist risks associated with dispersed radioactive sources in post-conflict environments. Through the application of an integrated TVC framework, threat, vulnerability and consequence are treated as interconnected elements of risk rather than independent variables. The study therefore provides a more comprehensive understanding of nuclear security challenges than approaches focusing solely on terrorist capability or physical protection.

The findings are expected to support regulators, security practitioners and policy makers by identifying priority areas for enhancing Iraq's nuclear security regime. Such areas may be governance, regulatory oversight, insider threat mitigation, transport security, cybersecurity, emergency preparedness and interagency coordination. The study also supports the implementation of interna-

tional nuclear security obligations under the UNSC Resolutions 1373 and 1540, ICSANT, the CPPNM & its amendment, and the IAEA Nuclear Security Series. The significance of this study also extends beyond Iraq, as the research offers lessons applicable to other post-conflict and fragile states that continue to use radioactive materials while rebuilding governance systems and national security institutions.

Theoretical Framework/Literature Review

To understand the risk of nuclear and radiological terrorism requires an analytical perspective that extends beyond terrorist capability or intent alone. Contemporary nuclear security increasingly recognizes that security risks arise from the interaction between motivated adversaries, exploitable vulnerabilities (within nuclear security systems) and potential consequences (associated with successful malicious acts). This perspective reflects a shift from traditional physical protection approaches centred on physical protection towards comprehensive, risk-informed frameworks that integrate regulatory effectiveness, technical security measures, organizational resilience and governance. Consequently, effective nuclear security depends on understanding how institutional weaknesses may create opportunities for adversaries to exploit existing security gaps, not only on preventing unauthorized access to radioactive materials.

As noted by Schmid (2023), terrorist groups select targets using their ideological objectives and operational feasibility. Widely distributed radioactive sources used in medicine, industry, agriculture and research present more accessible targets as indicated by Huda, Wiringgalih, Hermawan (2022). Consequently, radiological dispersal devices (RDDs) attacks or source sabotage are considered more credible than Improvised Nuclear Device (IND) attempts, with potential political, economic and psychological impacts. (Laqueur, 1999; Rimer, 2016). The international nuclear security policy increasingly promotes risk-informed approaches, as evidenced by the IAEA emphasizing proportionate measures based on systematic assessment of threats, vulnerabilities and consequences. Legal instruments such as the ICSANT, A/CPPNM and the UNSC Resolution 1540, advocate for integrated national systems combining legislation, physical protection, security culture, regulation, threat assessment and coordination, demonstrating that nuclear security is fundamentally a governance challenge.

The study adopts the TVC framework as its principal analytical model for the evaluation of nuclear security risks. In this context, threat refers to the intent, capability and opportunity of malicious actors to conduct attacks involving nuclear or radioactive materials, whereas vulnerability includes human, technical and institutional weaknesses, such as regulatory gaps, inadequate protection, insider threats, transport security weaknesses, cybersecurity deficiencies and

limited coordination. Consequence refers to potential economic, environmental, health, political and psychological impacts. The TVC framework views risk as the interaction of these three (3) elements, hence recognizing that threats alone do not create high risk without exploitable vulnerabilities and significant consequences.

This framework is appropriate for Iraq because the country continues to use radioactive sources for civilian purposes while also rebuilding institutions after prolonged conflict and instability. It enables assessment of how terrorist intent interacts with institutional and technical vulnerabilities, highlighting the importance of governance, resilience and regulatory capacity. The framework also supports identification of priority security interventions based on risk significance.

The TVC framework provides the theoretical foundation for this research and addresses a significant gap within the existing literature, by integrating insights from risk assessment, terrorism studies and nuclear security governance. Previous studies have frequently examined terrorist threats, security vulnerabilities and attack consequences separately or have concentrated primarily on nuclear weapons and large-scale nuclear installations. This study, in contrast, synthesizes these concepts using a unified analytical framework specifically applicable to dispersed radioactive sources in a post-conflict environment. This integrated viewpoint constitutes the study‘s principal theoretical contribution and provides a robust basis for the subsequent methodological approach, empirical analysis and policy recommendations.

Methodology

A qualitative documentary research design was used to evaluate the risk of terrorist attacks against Iraqi nuclear and radiological facilities. The approach was selected due to its ability to enable systematic collection, analysis and synthesis of existing knowledge from authoritative sources where primary data collection is constrained by confidentiality, security and access limitations. The TVC analytical framework guided the research by providing a structured basis for examining the interaction between terrorist intent and capability, technical and institutional vulnerabilities, and the potential consequences of malicious acts involving radioactive materials. The qualitative approach was considered the most appropriate in developing a comprehensive understanding of Iraq’s nuclear security environment, and also identifying risk factors relevant to policy and practice.

The study utilized secondary data obtained from authoritative international sources. Publications from the IAEA, peer-reviewed academic journals, international legal instruments, and additional publications from recognized organizations involved in nuclear security research were used. A systematic literature search was carried out between January and March 2026 using various

electronic databases such as Google Scholar and the IAEA Nuclear Security Information Portal (NUSEC) to reduce selection bias and maximize coverage. Search terms such as radiological terrorism, nuclear terrorism, nuclear security, radioactive sources, Iraq, risk assessment, physical protection, insider threat and nuclear governance were used. Reference lists of key publications were also reviewed to identify additional relevant literature.

Consistency, transparency and relevance were ensured by applying the inclusion and exclusion criteria during document selection. Documents were included if they focused on radioactive materials, addressed nuclear or radiological security, terrorism or risk assessment, nuclear security governance, examined Iraq or any comparable post-conflict environments. They were also included if they were published by peer-reviewed academic journals, recognized international organizations and were published in English. Publications with insufficient methodological detail, publications focusing exclusively on reactor engineering, addressing military issues unrelated to nuclear security, and articles lacking analytical evidence were excluded. The search initially identified forty (40) publications, of which eleven (11) were retained for detailed analysis as they met the selection criteria.

Thematic analysis was used to analyze the selected documents. Relevant information was systematically coded and grouped according to concepts associated with the TVC framework. Codes were grouped into broader analytical themes reflecting major dimensions of Iraq's nuclear security environment after familiarization with the literature. Such themes included protection of radioactive sources, physical protection, insider threats, transport security, border detection, cybersecurity, regulatory oversight, security culture, emergency preparedness, interagency coordination, and the political, economic, environmental and societal consequences of terrorist attacks. The themes were finally interpreted through the TVC framework to evaluate how the interaction between threats, vulnerabilities and consequences influence Iraq's overall nuclear security risk. Evidence was triangulated across multiple independent sources and cross-checked against established international nuclear security principles in international legal instruments and IAEA Nuclear Security Series to enhance credibility and reliability of the findings. Conclusions were then derived by synthesizing recurring themes, identifying areas of consensus across the literature and finally interpreting the findings within the TVC framework so as to develop recommendations which are policy-based and consistent with international nuclear security standards.

Although the use of other qualitative approaches (e.g., expert interviews or comparative case studies) could have complemented the analysis, their application was constrained by limited access to classified data, restricted availability of nuclear security experts and the sensitivity of nuclear security information.

Consequently, the assessment reflects strategic rather than operational nuclear security risks as it relied on publicly available information. Additional limitations include the possibility of incomplete information on certain security vulnerabilities, potential institutional or political bias within some published sources, and the absence of stakeholder interviews to validate specific findings. Although extensive efforts were applied to include authoritative and up-to-date sources, the findings should be interpreted within the context of the available documentary evidence. The mitigation of these limitations was done through critical evaluation of the literature, cross-referencing multiple authoritative sources, rigorous document selection process, thematic analysis and application of the TVC framework to provide a robust and transparent basis for evaluating terrorist risks to Iraq's nuclear and radiological facilities. The methodology also supports the development of evidence-based conclusions and recommendations that are consistent with international nuclear security standards and are aligned with the study's research objective.

Iraqi Context (Nuclear & Radiological materials)

Iraq's nuclear and radiological security environment reflects its transition from a former nuclear weapons programme to peaceful civilian applications in healthcare, industry, oil and gas, research and education following the 1991 Gulf War. Iraq has strengthened regulation, legislation, radiation protection, emergency preparedness, emergency preparedness, border monitoring and IAEA cooperation over the last two (2) decades. As the IAEA (2008) NSS No. 7 emphasizes, effective nuclear security requires coordinated legislation, regulation, intelligence, threat assessment, technical measures, response and mitigation, highlighting the importance of governance and institutional resilience.

Terrorist Threat Environment



Source: Daniel, Frank, Potter (2020).

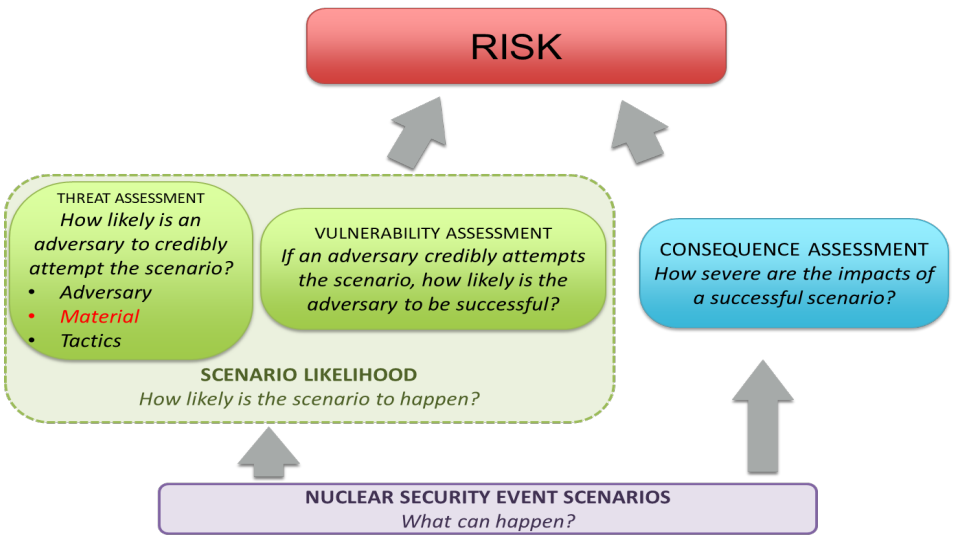
Figure 2: Nuclear Event Pathway

Al-Qassab (2021) notes that the post-conflict nuclear security environment of Iraq remains challenged by extremist threats, instability, governance gaps,

dispersed radioactive sources, and limited institutional capacity. This calls for effective protection which requires strong regulation, security culture, competent personnel and resilience. The study is guided by the TVC framework by assessing the interaction between terrorist threats, vulnerabilities and consequences through a risk-informed approach. It goes further to support analysis of Iraq as a low-probability, high-consequence context, enabling identification of security gaps and evidence-based recommendations aligned with international best practices and IAEA guidance.

Terrorist Threat Environment and Risk Evaluation

The TVC framework is applied in the study to evaluate the risk of terrorist attacks against Iraqi nuclear and radiological facilities. To achieve this, it examines how terrorist intent and capability, institutional and technical vulnerabilities, and potential consequences interact to shape overall nuclear security risk. Rather than focusing solely on catastrophic but unlikely scenarios, the framework identifies credible threats involving civilian radioactive sources and directly addresses the study's objective of assessing Iraq's nuclear security regime, identifying security gaps and informing evidence-based policy.



Source: Al-Dulaimi (2026).

Figure 3: Showing Risk and Its Components for Nuclear Security Events

Iraq‘s terrorist threat environment can be viewed as persistent, although variable. This is due to the continued presence of violent non-state actors, including the Islamic State of Iraq and the Levant (ISIL) and affiliated groups. Even though these organizations no longer exercise extensive territorial control, they still retain the capability to conduct asymmetric attacks against critical infrastructure. Terrorist interest in nuclear and radiological facilities is largely opportunity-driven as shown by the analysis, whereby adversaries are more likely to exploit accessible radioactive sources than pursue technically demanding nuclear weapons. This highlights the importance of continuous intelligence gathering, threat assessment and monitoring of evolving terrorist capabilities as essential components of Iraq‘s nuclear security strategy.

The TVC assessment identifies institutional, organizational and human vulnerabilities as key drivers of Iraq’s nuclear security risk. Inconsistent physical protection, insider threats, transport security weaknesses, cybersecurity risks, border detection limitations, weak interagency coordination and uneven regulatory implementation might be viewed as critical concerns. Dispersed radioactive source facilities such as research institutions, hospitals and industries, remain particularly vulnerable due to differences in resources, capacity and security culture. The consequences of malicious acts are likely to be mainly psychological, political and economic, involving public fear, service disruption and loss of institutional confidence. Effective emergency preparedness, communication and response capabilities are therefore essential.

The interaction of threat, vulnerability and consequence factors shows that Iraq represents a moderate but persistent nuclear security risk environment. The principal threat arises from the theft, sabotage or malicious use of radioactive materials employed in civilian applications. The TVC framework demonstrates that nuclear security risk results from the combined interaction of adversary capability, exploitable vulnerabilities and potential consequences rather than from terrorist capability alone. This integrated assessment permits for the identification and prioritization of credible risks and provides a more comprehensive understanding of Iraq‘s nuclear security environment.

The findings support a preventive, intelligence-informed and risk-based nuclear security strategy which focused on reducing vulnerabilities and strengthening institutional capacity. Priority measures include improved nuclear security culture, detection and response, personnel reliability programmes, transport security, cybersecurity, regulatory oversight and interagency coordination. The study also highlights consequence management, including communication, and response capabilities, as crucial elements of nuclear security planning. Its principal contribution is demonstrating that institutional resilience and governance effectiveness are decisive determinants of nuclear security outcomes in post-conflict states,

where coordination and regulatory weaknesses may present greater risks than technological limitations. The findings inform policy recommendations aligned with the A/CPPNM and IAEA guidance. They also provide practical lessons for other post-conflict states by highlighting the need to complement international compliance with sustained investment in governance, security culture and national coordination mechanisms.

Results Analysis and Discussion

The findings indicate that Iraq's nuclear security risk is associated primarily with the malicious use of dispersed radioactive sources rather than the acquisition or use of nuclear weapons. Radioactive materials used in industry, medicine, and scientific research are more widely distributed and generally protected by varying levels of physical security, making them more accessible to adversaries. Although terrorist organizations such as the Islamic State (IS) lack the technical capability to acquire nuclear weapons or successfully attack heavily protected nuclear installations, they retain the capacity to exploit opportunities through theft, sabotage and the potential use of RDDs. Interpreting using the TVC framework, these findings demonstrate that nuclear security risk is determined not by terrorist capability alone but by the interaction between terrorist intent, institutional and technical vulnerabilities, and the potential consequences of successful attacks. This directly addresses the study's research objective by identifying the principal terrorist threats and the institutional, human and technical vulnerabilities that increase the likelihood of malicious acts.

The analysis further demonstrates that Iraq's overall nuclear security risk is moderate but persistent, hence reflecting the influence of insider threats, weak nuclear security culture, governance challenges, inconsistent implementation of security measures, financial constraints and limited institutional coordination. Contemporary nuclear security scholarship is reinforced by these findings, which increasingly advocates risk-informed approaches that integrate resilience, governance and vulnerability reduction rather than relying exclusively on physical protection or technological solutions. They are also consistent with international nuclear security principles contained in the A/CPPNM, the IAEA Nuclear Security Series, the ICSANT and UNSC Resolution 1540, all of which emphasize comprehensive national nuclear security regimes based on institutional coordination, effective regulation and continuous threat assessment. The findings suggest that sustainable nuclear security depends on strengthening governance, personnel reliability, regulatory oversight, transport security, border detection, cybersecurity and interagency cooperation alongside technical protection measures.

The study demonstrates that malicious acts involving radioactive materials are likely to generate greater economic, psychological and political impacts than

direct radiological harm, including public fear, service disruption, remediation costs and reduced institutional confidence. Consequently, consequence management through emergency preparedness, crisis communication and response capacity is essential alongside preventive security measures. The findings finally address the research objective and highlight risks of illicit trafficking, regional instability and terrorist exploitation. Continued international cooperation, technical assistance, peer reviews and capacity-building remain vital for strengthening Iraq's nuclear security regime.

The principal contribution of this research lies in applying the TVC framework to Iraq's post-conflict environment and integrating nuclear security governance, terrorism studies and qualitative risk assessment within a single analytical model. This research demonstrates how their interaction determines overall nuclear security risk and provides a structured basis for prioritizing security investments, unlike previous studies that examine threats, vulnerabilities or consequences independently. The study also shows that governance capacity and institutional resilience are decisive determinants of nuclear security risk in post-conflict environments, extending existing nuclear security scholarship beyond traditional technology-centered approaches. These findings directly address the research objective by informing evidence-based recommendations for strengthening Iraq's nuclear security regime while offering broader lessons for other fragile and post-conflict states. The analysis concludes that effective nuclear security requires sustained investment in security culture, governance, interagency coordination, institutional resilience, and risk-informed decision-making, while also complementing technical protection measures to reduce opportunities for malicious acts and enhance national, regional and international security.

Recommendations

The findings indicate that in order to reduce the risk of terrorist attacks against Iraqi nuclear and radiological facilities, there is need to have a comprehensive, risk-informed approach that addresses threats, vulnerabilities and consequences in accordance with the TVC framework. The analysis shows that Iraq's principal nuclear security challenge is not the acquisition of nuclear weapons by terrorists, but the potential theft, sabotage or malicious use of dispersed radioactive sources within a post-conflict environment characterized by evolving terrorist threats, governance constraints and uneven institutional capacity. Accordingly, the study proposes the following recommendations to strengthen Iraq's nuclear security regime and support implementation of international nuclear security standards;

- Strengthen Regulatory Governance and Risk-Informed Security – Iraq should strengthen legislative and regulatory frameworks through alignment with IAEA guidance, UNSCR 1540, A/CPPNM and ICSANT. Risk-

informed oversight should prioritize high-risk sources and vulnerable facilities, while intelligence-led threat assessments guide resource allocation and proportionate protective measures.

- Enhance Protection of Radioactive Sources and Insider Threat Mitigation – Iraq should enhance radioactive source protection through secure storage, access controls, intrusion detection, inventory management and life-cycle tracking across facilities. Insider threats require personnel reliability programmes, vetting, monitoring and training. A strong nuclear security culture will reduce theft, sabotage and unauthorized access risks.
- Strengthen Operational Security and Institutional Resilience – Sustainable risk reduction requires institutional resilience alongside technical measures. Iraq should strengthen transport security, border detection, interagency coordination, equipment maintenance, calibration, personnel training and cybersecurity through risk assessments and incident response. Joint exercises, information sharing and emergency planning will improve prevention, detection and response capabilities.
- Expand International Cooperation and Capacity Building – Strengthening Iraq's nuclear security regime requires sustained international cooperation and investment in institutional capacity. Collaboration with the IAEA, neighbouring States and international partners should support technical assistance, peer reviews, regional exercises, specialized training and knowledge exchange. Lessons from incidents, exercises and reviews should inform regulatory improvements, emergency preparedness and public communication strategies, thereby enhancing resilience and maintaining public confidence. These recommendations reinforce the study's central finding which indicates that nuclear security risk arises from the interaction of terrorist intent, institutional vulnerabilities and potential consequences. Strengthening governance, expanding international cooperation, addressing insider threats, protecting radioactive sources, integrating cybersecurity and improving operational coordination will enhance Iraq's resilience while also providing a practical, risk-informed framework applicable to other post-conflict states which seek to strengthen nuclear and radiological security.

Conclusion

This study evaluated the risk of terrorist attacks against Iraqi nuclear and radiological facilities using a qualitative documentary design and the TVC analytical framework. The findings indicate that Iraq's contemporary nuclear security risk arises from the theft, sabotage or misuse of dispersed radioactive sources rather than nuclear weapons acquisition. Despite strengthened

regulation, legislation and international alignment, risks persist due to terrorist threats, institutional vulnerabilities and governance challenges. It shows that effective nuclear security requires addressing threats, vulnerabilities and consequences through strong regulation, physical protection, personnel reliability, coordination, security culture and institutional resilience. The main contribution of this research is the integration of nuclear security governance, terrorism studies and qualitative risk assessment within a unified analytical framework. By applying the TVC model to Iraq, the study demonstrates that institutional resilience and governance capacity are decisive determinants of nuclear security outcomes, addressing limitations in previous research that often examines threats, vulnerabilities and consequences separately. The study recommends strengthening regulatory governance, radioactive source protection, insider threat mitigation, transport security, cybersecurity, interagency cooperation and international capacity-building. These measures support Iraq's ability to prevent, detect and respond to nuclear security threats while fulfilling international obligations. More broadly, the research provides practical lessons for other fragile and post-conflict states, demonstrating that sustainable nuclear security requires adaptive risk management, continuous governance improvement and coordinated implementation of international best practices. Future research should incorporate expert interviews, facility assessments and post-conflict comparisons to strengthen evidence-based nuclear security policy.

References

Al-Qassab, A. (2021). *The Terrorist Attacks in Baghdad: A New Chapter in Iraq's Instability?* https://arabcenterdc.org/resource/the-terrorist-attacks-in-baghdad-a-new-chapter-in-iraqs-instability/

Al-Dulaimi, M. (2026). *Showing Risk and Its Components for Nuclear Security Events*.

Alkis, M. A. (2022). Threat of Nuclear Terrorism. The Developing Nuclear Security Regime. *International Journal of Nuclear Security*, Vol. 7, No. 1.

Battle, J. and Burr, W. (2021). Israeli Attack on Iraq's Osirak 1981: Setback or Impetus for Nuclear Weapons? *National Security Archive*. https://nsarchive.gwu.edu/briefing-book/iraq-nuclear-vault/2021-06-07/osirak-israels-strike-iraqs-nuclear-reactor-40-years-later

Daniel, W.H.K., Frank, H. A., Potter, W. C. (2020). *The Nuclear Matters Handbook 2020* [Revised].

Gerges, F. A. (2010). Broken Middle East: a wasted decade of war on terror: Lecture by Professor Fawaz A. Gerges. *The London School of Economics and*

Political Science. https://www.lse.ac.uk/lse-player/a-broken-middle-east-a-wasted-decade-of-war-on-terror

Huda, K., Wiringgalih, P., Hermawan, D. (2022). Challenges in the development of nuclear security systems for nuclear and other radioactive materials out of regulatory control. *AIP Conference Proceedings 2525*, 100002. https://doi.org/10.1063/5.0127259

International Atomic Energy Agency. (2008). Nuclear Security Culture. *Nuclear Security Series*, No. 7, Vienna.

Laqueur, W. (1999). *The New Terrorism: Fanaticism and the Arms of Mass Destruction*. New York: Oxford University Press. https://journals.sagepub.com/doi/abs/10.1177/0095327X0102700407

Rimer, S. (2016). Series: Explaining Violence. Lessons from terrorists. Jessica Stern. Terror in the Name of God. (for motivations and WMD terrorism). *BU Today*. https://www.bu.edu/articles/2016/psychology-of-terrorists/

Schmid, A. P. (2023). *Defining Terrorism (ICCT Report)*. International Centre for Counter-terrorism.