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Safeguarding Cross-Border Energy Infrastructure: Contractual Remedies and Collective Security in International Construction Projects

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This chapter explores the interdependence between comprehensive international security and international construction contract law (ICCL). Drawing on the Nord Stream pipelines, subsea communication cables and the Colonial Pipeline cyber incident, it maps legal vulnerabilities stemming from sabotage, cyber-attacks and geopolitical volatility. The analysis uncovers systemic gaps in collective-security frameworks and FIDIC-based contract suites that overlook twenty-first-century hybrid threats. Comparative scholarship by Klee, Koskenniemi and Yakovenko underpins a reform agenda

that embeds cyber and environmental safeguards into risk-allocation clauses, establishes a standing international monitoring body and reinforces multi-layered inter-state coordination. Implementing these measures would enhance legal certainty, fortify critical infrastructure and advance global energy security.

The contemporary international security system encompasses not only military dimensions but also economic and infrastructure ties that are directly linked to international construction projects. These projects have a significant impact on global stability and the peaceful coexistence of states, as they require comprehensive legal regulation in an increasingly complex international environment. Issues of collective security—including energy security and the legal standardization of infrastructure projects—play a crucial role in this context.

Major infrastructure projects such as the Nord Stream gas pipeline and subsea communication cables vividly illustrate the intertwining of security interests and legal regulation. Such projects invariably affect the interests of whole populations, and any damage to them impacts the lives of large numbers of people across different countries. A legal approach that considers the interrelation of societal interests and the interests of owners of global infrastructure projects is valuable for identifying the ultimate victims in damage-compensation cases concerning the disruption or harm of these major projects. As Yarkov and Dolganichev (2020) demonstrate, collective lawsuits can become an effective instrument for protecting the rights of participants in large infrastructure projects in cases of widespread violations caused by contractors' misconduct or external threats (Yarkov and Dolganichev, 2020). These findings can be useful when addressing legal protection of infrastructure—particularly regarding the security of pipelines and submarine cables—since such lawsuits facilitate a more effective defense of all affected parties' interests in the event of disruptions arising from cyber-attacks or other forms of external interference.

In light of these new realities, international law requires constant review and adaptation to changing conditions to ensure the effectiveness of legal norms and the protection of states' interests. Effective observance of international security law can only be achieved through a coordinated approach. Such an

approach must take into account both national interests and international obligations, requiring the integration of various levels of interaction—both universal and regional. It is important to note that security cannot be considered in isolation from global processes, since modern challenges such as terrorism, transnational crime, and ecological catastrophes demand joint efforts at all levels. A system must be created in which national and international aspects of security are interconnected and complementary; this is critically important for the effective implementation of international legal norms and standards (Kulagin, 2021).

In the context of a changing global order, as noted by Yakovenko (2019), modern international systems face challenges linked to growing regionalization and the weakening of traditional forms of cooperation. Yakovenko points to a trend of diminishing Anglo-Saxon dominance and the strengthening of developing countries' positions, which requires more flexible security models and an enhanced role for regional structures (Yakovenko, 2019). These conclusions confirm the need to develop new legal mechanisms to protect infrastructure projects, especially in the face of cyberattacks and sabotage. Yakovenko also discusses a shift toward decentralized and flexible forms of interaction, where regional organizations can take a leading role in establishing robust legal frameworks. This approach would be an important step toward reforming collective security systems, which face growing challenges and need to adapt to changing international realities.

In the 21st century, energy resources play a key role in the stable functioning of society, forming the foundation not only of the economy but also of social processes and the realization of human rights and freedoms. Energy security is of particular importance amid increasing threats to national and international security, global economic crises, armed conflicts, and natural disasters (Kukeyev, 2024). It is under such conditions that the need to reform existing collective security systems—including their energy components—comes to the forefront. Current challenges in the energy sector require the development of new legal mechanisms aimed at protecting major international infrastructure projects. This chapter analyzes how the legal support of a comprehensive international security system is closely linked with international construction contract law (ICCL) and how existing legal

mechanisms might be improved in light of current and future threats associated with international construction projects, especially in the energy sector.

One of the most significant challenges in the energy sector of the 21st century is the cyber threat, which has grown to alarming proportions in recent years. According to a study by the European Union Agency for Cybersecurity (ENISA), cyberattacks on energy infrastructure are becoming not only more complex but also more organized, posing a serious danger to national and international security. A prominent example of this phenomenon was the attack on the Colonial Pipeline in the United States in 2021. As a result of this attack, the perpetrators brought one of the largest fuel supply systems in the U.S. offline, causing significant supply disruptions on the East Coast and affecting many consumers and businesses. This incident was a landmark in the context of cyber threats, as it vividly demonstrated how vulnerable energy systems can be to modern cyberattacks and underscored the critical importance of legal mechanisms in ensuring the protection of such critically important facilities.

Effective legal regulation in the field of international security therefore requires a comprehensive approach addressing several key aspects. First, it is necessary to develop and implement new security standards that take into account modern challenges such as global threats related to terrorism, cybersecurity, and climate change. These standards must be flexible and adaptive to meet the dynamically changing conditions of international politics and economics.

Second, an essential component of successful legal regulation is active cooperation between states at the international level. This cooperation should include information sharing, joint exercises and drills, and the development of common strategies for preventing and responding to crisis situations. Sustainable international relations based on trust and mutual responsibility form the foundation for an effective security system. Moreover, integrating existing legal norms and mechanisms is an important step toward increasing legal resilience. This requires not only harmonizing national legislation with international standards but also creating new legal instruments capable of effectively responding to emerging threats. Implementing the comprehensive

approach described above is critically important for successfully meeting future challenges in the field of international security (ENISA, 2021).

The present study is based on a detailed analysis of international legal norms, including treaties governing collective security and normative documents aimed at protecting international infrastructure projects. The work draws on the scholarship of leading researchers in the field, such as L. Klee (2018), who emphasizes the specifics of international construction contracts in her book International Construction Contract Law (Klee, 2018), and Martti Koskenniemi, whose work From Apology to Utopia: The Structure of International Legal Argument examines the structures of international legal argument and the fragmentation of international law (Koskenniemi, 2006). Special attention is given to concrete precedents such as the Nord Stream projects and the security of submarine cable lines, allowing the analysis of real examples of integrating legal security mechanisms with international construction contracts.

The issue of political instability in the energy sector also requires appropriate legal regulation. A striking example of the influence of political conflicts on energy security is the situation in the Middle East. Regional conflicts, such as the civil war in Syria, have had a significant impact on oil and gas transportation routes as well as on the stability of global energy markets (Ahmed, n.d.). In particular, the Syrian conflict has affected the political and economic stability of regional countries, highlighting the necessity of creating international legal mechanisms capable of minimizing the negative impact of political instability on energy supply.

Under international public law as defined by the UN Charter, the primary focus is on establishing states' obligations to cooperate in order to ensure international peace and security. Infrastructure projects—among them transportation and energy pipelines as well as communication cable lines—are critical elements of the collective security system. These components are not only crucial for the global economy but also for ensuring security on the international stage. For example, the Nord Stream gas pipeline has become the subject of numerous international disputes and political sanctions, underscoring its strategic importance and the fragility of international relations in this area.

International security is multifaceted: while some countries prioritize energy security, for others international security is about the ability to protect primarily their spiritual and moral values. For Russia, issues of international security are directly linked to protecting national identity and sovereignty (Karpovich, 2024). Major powers have sought to enshrine issues of national security in legislation. Thus, Russia has enshrined the protection of morality and spiritual values as priorities, while the United States and Germany have mechanisms regulating issues related to energy resources and their exploitation. Such legislative regulation creates clear frameworks for state policy in these areas, which in turn helps minimize risks associated with external and internal threats.

Energy security is closely connected with environmental issues, making it necessary to integrate environmental norms into energy-related legislation. For example, ecological catastrophes such as the Fukushima Daiichi nuclear disaster in 2011 vividly demonstrated how dangerous energy facilities can be without proper protection and oversight. After this incident, the international community began actively reassessing its approach to nuclear safety, leading to the implementation of updated safety standards developed by the International Atomic Energy Agency (IAEA, 2015). This example emphasizes that protection of energy infrastructure must consider not only legal aspects but also environmental considerations, which in turn requires active international cooperation and coordination of measures at the global level.

Modern challenges such as acts of eco-terrorism and attempts to disrupt critical infrastructure operations have become key factors undermining the foundations of international law and threatening international security. These incidents not only endanger the safety of energy facilities but also create additional legal complexities that demand revision and adaptation of existing international norms and standards (Paramuzova, 2020). A particularly salient example of such incidents is the Zaporizhzhia Nuclear Power Plant, where attempts at diversion and sabotage have recently increased, causing serious concern at both national and international levels.

The application of security exceptions in international treaties, including WTO norms, also plays an important role in protecting international construction projects from external threats. Recent studies, such as the work

of Boklan and Murashko (2023) (Boklan and Murashko, 2023), indicate that a broad interpretation of these exceptions can exacerbate international crises, as states may abuse these provisions to justify protectionist measures. For infrastructure projects such as submarine cables and pipelines, this creates a risk of legal uncertainty and necessitates the development of stricter international safety standards.

The importance of coordination among states in the realm of energy security is becoming increasingly evident, as confirmed by the experience of the European Union and the OECD. These organizations are developing legal and institutional mechanisms that facilitate more effective sharing of information, technology, and best practices among states. The European Union, in particular, has adopted an energy security directive that obliges member states to coordinate their actions during an energy crisis, thereby providing joint protection of their energy systems and reducing vulnerability to external threats (European Commission, 2019) (European Commission, 2019). This directive not only serves as a basis for legal regulation but also fosters cooperation among states, which in turn enhances the resilience of their energy systems.

Addressing emerging challenges in energy security requires comprehensive measures and active cooperation between states and international organizations. Oil and natural gas pipeline systems have traditionally been considered among the most reliable in the modern world. For post-Soviet states, these systems appeared indispensable. Built during the Soviet era, this pipeline network connected Russia to distant regions of the Soviet republics. Through these pipelines, Soviet oil and gas were delivered to Western Europe, and the reliability of these supplies was never in doubt. Even during the Cold War, despite heightened international tensions, pipeline-related issues were not viewed as energy security problems. After the dissolution of the Soviet Union, the main supply routes were supplemented with new pipelines, prompting Russia and newly independent states to construct additional gas and oil pipelines. These projects were intended to provide access to new markets or to expand access to existing ones. Local accidents or sabotage incidents, such as the 2009 demolition of the Davletabat–Dariali pipeline (part of the Central Asia–Center system), did not threaten the overall supply network and were usually resolved quickly (Deutsche Welle, 2009). However,

the sabotage of the Nord Stream 1 and 2 pipelines on 26 September 2022 fundamentally altered the security and reliability of pipelines as energy carriers, creating new challenges for the international legal system and agreements.

The incidents involving the sabotage of Nord Stream 1 and 2 have further intensified concerns about the security of strategic infrastructure. In 2023, additional sabotage incidents were recorded, increasing pressure on the international community. At a UN Security Council meeting in October 2024, Russia presented updated proposals to strengthen legal mechanisms for protecting infrastructure, including the introduction of mandatory safety standards and the creation of an international monitoring body. As a result of these discussions, initial steps were taken toward developing new international agreements aimed at preventing similar incidents. Nonetheless, the process of implementing and harmonizing new legal norms remains protracted, underscoring the need for further efforts to respond swiftly to modern security threats.

The Nord Stream incident revealed significant shortcomings in the international legal mechanisms for protecting transboundary infrastructure projects. These projects, being vital to the energy security of states, are often exposed to risks arising both from political instability in transit regions and from acts of sabotage. This makes it necessary to implement more comprehensive and effective legal measures. L. Klee proposes using the universal principles of FIDIC contracts as mechanisms of universal norms that can guarantee the necessary legal transparency for participants in the construction and operation of large infrastructure projects (Klee, 2018). Overall, in the context of external political conflicts, there is a need to improve legal standards and mechanisms to ensure the security of such important infrastructure as gas pipelines, oil pipelines, and communication lines.

In addition to pipelines, submarine fiber-optic cable lines remain key elements of global infrastructure, providing communication between continents and the transmission of data. In 2024, new cases of cyberattacks and physical damage to these systems were recorded, highlighting the need to enhance protection. International legal norms were revised to account for new types of threats, and at a recent summit of international

telecommunications organizations, updated security standards were adopted for submarine cable lines. These standards include mandatory cybersecurity and physical protection measures, as well as the establishment of specialized international agencies for incident monitoring and response. According to a United Nations report on submarine cable incidents (UNEP-WCMC, 2022) (UNEP-WCMC, 2022), such measures enhance infrastructure resilience to modern threats and require active international cooperation for their effective implementation.

A detailed analysis of legal regulation in the field of international construction contract law must pay attention to key actors on whose sovereign territory infrastructure energy facilities are operated and built. Pipeline systems, for example, play a vital role in supplying energy resources from exporting countries like Russia, Azerbaijan, Turkmenistan, Kazakhstan, and Uzbekistan to external markets beyond the former Soviet space. Russian international pipelines, in particular, link the country to the European Union and China. For example, through Ukraine run the "Urengoy–Pomary–Uzhhorod," "Brotherhood," and "Progress" pipelines, which for a long time provided the main supply of natural gas to Europe. Also significant is the Yamal–Europe pipeline, which traverses Belarus and provides reliable gas supplies westward (Gazprom Export, n.d.) (Gazprom Export, n.d.). Under current conditions, the Turkish export route for Russian natural gas is becoming increasingly important (Gazprom, n.d.).

As for oil transportation to Europe, about two-thirds of Russian oil exports to Europe go through Belarus (RIA Novosti, 2009). Also strategically important is the Caspian Pipeline Consortium (CPC) oil pipeline, over 1.5 thousand km long, which connects oil fields in western Kazakhstan with a maritime terminal near Novorossiysk on the Black Sea. This route, in addition to transporting small volumes of Russian oil, carries more than one-third of Kazakhstan's oil exports, underscoring its importance for regional and wider energy stability (Caspian Pipeline Consortium, n.d.) (Caspian Pipeline Consortium, n.d.).

It has been established that the existing system of legal support for international security is not effectively integrated with ICCL norms. Analysis of cases such as the Nord Stream and Colonial Pipeline projects has revealed

significant gaps in the international legal mechanisms, which are not capable of ensuring comprehensive legal certainty under modern threats. The identified shortcomings stem from the absence of international legal norms that take into account the rapid pace of technological change and the evolving nature of international conflicts. The current FIDIC standard contracts do not provide adequate measures for addressing new types of threats, creating legal uncertainty for participants in infrastructure projects and increasing risks to international security.

Based on the analysis, one can conclude that there is a need to develop and implement new legal norms and mechanisms that consider current economic, political, and environmental realities. This implies integrating environmental requirements into legislation governing energy projects, and creating legal instruments to protect infrastructure from cyber threats and acts of sabotage. It is recommended to strengthen coordination between states and international organizations to form more resilient and flexible legal frameworks. In particular, updating FIDIC standard contracts to account for modern threats would ensure a higher level of legal certainty and risk allocation. The creation of specialized international agencies responsible for monitoring and protecting infrastructure projects also appears advisable for rapid response to emerging risks.

Deeper integration of international security norms with international construction contract law will create a transparent legal system of responsibility allocation among all participants in the construction and operation of large infrastructure projects. This, in turn, will contribute to resilience and predictability in international investment and construction, reinforcing global stability and energy security.

Note on the publication of the main research results

Academic specialty: 5.1.5. International legal studies.

Legal support for the system of comprehensive international security. Disarmament and international law. Systems of collective security.

The main research results have been published in the following peer-reviewed article: Белкин, Д. С. Правовое обеспечение системы всеобъемлющей международной безопасности и международное строительное контрактное право: вызовы и решения / Д. С. Белкин // Международный научный вестник. – 2024. – № 12. – С. 169-176. – EDN TIAOED. EDN: TIAOED

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